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PROFILE

Danube Enterprise Co., Ltd. is one of the leading DC-DC Converter manufacturers in Taiwan. It's been established in 1995 and possessed ISO-9001 in 2003. The core product is DC-DC Converter.

The strict procedures on our manufacturing lines make the products to satisfy all customers, we have about 1500 standard models, and always kept around 450 models on stock. Our company's research and develop professional department is serving the industry with high quality products and still invent new products and insist on producing more high-tech and excellent products.

Can't find exactly what you need from our models? We can custom modify our products electrically and / or physically to meet your specific needs. We are manufactured and tested to our exacting quality standards in our effective facilities, ensuring product quality, efficiency and reliability, including 100% temperature burn-in and test. Our efforts emphasize on the commitment to provide cutting-edge products that meet the needs of our customers, no matter now and in the future. Call up on our design engineers and sales professionals to assist you in improving your next design with an innovative solution from Danube Enterprise Co., Ltd. We cherish the everlasting partnership with our customers and owe a lot to our partners for all the support they've given us over the years. The following are our products.

DC-DC Converter

Power Range: 0.5W~100W

Isolation Output: 1500 Vdc Isolation to 6000 Vdc Isolation

DC-DC LED Driver

Constant Current LED Driver (300mA~1500mA)

Wide Input Range: 6-36Vdc, 9-36 Vdc, 9-56 Vdc

AC-DC Power Supply

Power Range: 3W~60W

Isolation Output: 3000 Vac Isolation to 4000 Vac Isolation

Danube

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DANUBE
DC-DC Converter

SERIES	OUTPUT POWER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	REGULATED	PACKAGE	PAGE
NEW AUS	0.1W	3.3,5	3.3,5	NO	DIL 6	1
NU-C1	1W	5,12,24	5,12,15	NO	SMD	2
NEW NUS/D-E1K	1W	3.3,5,12,24	3.3,5,12,15	NO	SMD	3
NU	1W-2W	3.3,5,12,24	3.3,5,9,12,15	NO	SMD	4
MU-FLK	1W	3.3,5,12,24	3.3,5,9,12,15	NO	SIP 4	5
MAU-FLK	1W	3.3,5,12,24	3.3,5,9,12,15, +/-5,+/-12,+/-15	NO	DIL 8	6
TU	1W	5,12,24	5,12,15, +/-5,+/-12,+/-15,+/-24	NO	DIL 14	7
PU-S	1W	5,12,24	5,9,12,15, +/-5,+/-12,+/-15	NO	SIP 7	8
PU	1W	3.3,5,9,12,24	3.3,5,9,12,15,24, +/-5,+/-9,+/-12,+/-15	NO	SIP 7	9-10
PR	1W	5,12,24,48	5,9,12,15,24	YES	SIP 7	11
NEW PR-N	1W	5,12,24	5,12,15	YES	SIP 7	12
SU	0.5W-2W	5,12,24,48	3.3,5,9,12,15,24	NO	DIL 16	13
SR	0.5W-1W	5,12,24,48	5,9,12,15	YES	DIL 16	14
PWS	1W	9-18,18-36,36-75	5,12,15	YES	SIP 6	15
NEW NUS/D –E2	2W	5,12,24	3.3,5,12,15	NO	SMD	16
MU-2W	2W	5,12,24	5,12,15	NO	SIP 4	17
MBU	2W	5,12,24	3.3,5,9,12,15	NO	SIP 4	18
PU-2W	2W	3.3,5,12,24	3.3,5,9,12,15, +/-5,+/-12,+/-15,+/-24	NO	SIP 7	19-20
PAW	2W	4.5-9,9-18,18-36,36-75, 9-36,18-75	5,12,15,24, +/-5,+/-12,+/-15	YES	SIP 8	21
CAR	2W	5,12,24,48	5,9,12,15, +/-5,+/-12,+/-15	YES	DIL 24	22
CBR	2W-3W	5,12,24,48	5,12,15,+/-12,+/-15	YES	DIL 24	23
PU-3	3W	5,12,24	5,9,12,15	NO	SIP 7	24
PBW	3W	4.5-9,9-18,18-36,36-75 9-36,18-75	3.3,5,9,12,15, +/-5,+/-12,+/-15	YES	SIP 8	25-26

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DANUBE
DC-DC Converter

SERIES	OUTPUT POWER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	REGULATED	PACKAGE	PAGE
BW	3W	9-18,18-36,36-75	5,12,15, +/-5,+/-12,+/-15	YES	DIL 16	27
CR	3W	5,12,24,48	5,9,12,15,24, +/-5,+/-12,+/-15	YES	DIL 24	28
CW	3W-6W	4.5-9,9-18,18-36, 36-72,9-36,18-72	3.3,5,9,12,15,24, +/-5,+/-9,+/-12,+/-15	YES	DIL 24 / SMD	29-32
CQW-6K	3W-5W	4.5-9,9-18,18-36,36-72	5,12,15, +/-5,+/-12,+/-15	YES	DIL 24	33
NEW PCWS/D	5W	4.5-9,9-18,18-36,36-75	3.3,5,12,15, +/-5,+/-12,+/-15	YES	SIP 8	34
LW	5W	9-18,18-36,36-72, 9-27,18-54,9-36,18-72	5,9,12,15, +/-5,+/-12,+/-15	YES	DIL 2" * 1"	35
NEW CMW	6W	9-36,18-75	5,12,15,	YES	DIL 24	36
NEW PDWS/D	9W	9-18,18-36,36-75	5,12,15, +/-5,+/-12,+/-15	YES	SIP 8	37
CW	10W-12W	9-18,18-36,36-75	2.5,3.3,5,12,15, +/-5,+/-12,+/-15	YES	DIL 24	38
FAW	10W	9-18,18-36,36-72,9-27, 18-54,9-36,18-72	3.3,5,9,12,15,24, +/-5,+/-9,+/-12,+/-15,+/-24	YES	DIL 2" * 1"	39-40
FAW-N	10W	9-18,18-36,36-75	5,12,15	YES	DIL 2" * 1"	41
DCW	15W	9-18,18-36,36-75	3.3,5,12,15	YES	DIL 1" * 1"	42
FCW	15W	9-18,18-36, 36-72,9-36,18-72	5,12,15,24, +/-5,+/-12,+/-15,+/-24	YES	DIL 2" * 1"	43
KW	15W	9-18,18-36,36-72 9-36,18-72	3.3,5,9,12,15,24,27, +/-5,+/-12,+/-15,+/-24	YES	DIL 2" * 2"	44
NEW CW	16W	9-18,18-36,36-75	5,12,15	YES	DIL 24	45
CW	20W	9-18,18-36,36-75	5,12,15	YES	DIL 24	46
FEW-A20	20W	9-18,18-36,36-75 9-36,18-75	3.3,5,12,15,+/-12,+/-15	YES	DIL 2" * 1"	47
FEW-B30	30W	9-18,18-36,36-75,	3.3,5,12,15	YES	DIL 2" * 1"	48
NEW DEWS/D	25W-30W	9-18,18-36,36-75,	5,12,15,+/-12,+/-15	YES	DIL 1" * 1"	49
KAW	30W	9-18,18-36,36-72, 9-36,18-72	3.3,5,9,12,15,24,30, +/-5,+/-12,+/-15,+/-24	YES	DIL 2" * 2"	50-51
KDW	30W-40W	9-18,18-36,36-72	12,15,24,+/-12,+/-15	YES	DIL 2" * 2"	52
KQW	40W	9-18,18-36,36-75, 9-36,18-75	3.3,5,9,12,15	YES	DIL 2" * 2"	53
FHW	50W	18-36,36-75	5,12,15	YES	DIL 2" * 1"	54

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DANUBE
DC-DC Converter

SERIES	OUTPUT POWER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	REGULATED	PACKAGE	PAGE
KHWS	40W-80W	9-18,18-36,36-75	3.3,5,12,15	YES	DIL 2" * 2"	55
KHWD	60W	18-36,36-75	+/-12,+/-15	YES	DIL 2" * 2"	56
KHW-100W	90W-100W	18-36,36-75	5,12,15	YES	DIL 2" * 2"	57
NSD05-S	5W	9.2-36,18-72	3.3,5,12,15	YES	Open Frame	58
NSD10	10W	9.8-36,22-72	3.3,5,9,12,15, +/-5,+/-12,+/-15	YES	Open Frame	59
NSD15	15W	9.4-36,18-72	3.3,5,12,15, +/-5,+/-12,+/-15	YES	Open Frame	60
D78Bxx-0.5	0.5A	6.5-32,11-32,15-32, 18-32,9-18	3.3,5,9,12,15	YES	SIP 3	61
D78Bxxx-1.0	1.0A	6.5-20,9-18	2.5,3.3,5	YES	SIP 3	62
OSNxxW	1.25A-4A	20-53,30-53	5,12,15,24	YES	SIP	63
OSN10W	10A	8.3-13.2	0.75 to 5.0	YES	SIP / SMD	64
OSN16W	16A	8.3-13.2	0.75 to 5.0	YES	SIP / SMD	65
SLE-24	0.3A-0.7A	9-36,9-32	2-32,2-28		PIN / WIRED / SMD	66
CLE-12	0.3A-0.6A	9-36,9-30,9-28	2-40,2-32,2-30		PIN / WIRED	67
CLE-24	1.0A-1.5A	6-36	2-30		PIN / WIRED / SMD	68
CLE-48	0.3A-1.0A	9-56	2-52		PIN / WIRED / SMD	69
NEW CALE-48	1.0A-1.5A	9-52	2-46		PIN / WIRED	70
GLOSSARY						89-90

Particular specifications may be available. Please contact factory.

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ORDERING CODE DETAILS:

CW	S	-	12	05	A	3	M
(1)	(2)		(3)	(4)	(5)	(6)	(7)

(1). Series

W: Wide Input Range **U**: Unregulated Output **R**: Regulated Output

(2). **S**: Single Output **D**: Dual Output **T**: Triple Output

(3). Input Voltage(V)

For Wide Input Range

2:1	3:1	4:1
5=4.5V-9V	**12**=9V-27V	**12**=9V-36V
12=9V-18V	**24**=18V-54V	**24**=18V-72V
24=18V-36V		
48=36V-72V		

(4). Output Voltage(V)

(5). Package

(6). Output Power(W)

(7). **M**: Metal Case **G**: Wide Input Range 3:1 **T**: Wide Input Range 4:1

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DANUBE
AC-DC Power Supply

SERIES	OUTPUT POWER	INPUT VOLTAGE(V)	OUTPUT VOLTAGE(V)	FREQUENCY RANGE	PACKAGE	PAGE
NEW IRM-01	1W	85-305VAC	3.3,5,9,12,15,24	47-63Hz	Module Type	71
NEW IRM-02	2W	85-305VAC	3.3,5,9,12,15,24	47-63Hz	Module Type	72
IRM-03	3W	85-305VAC	3.3,5,9,12,15,24	47-63Hz	Module Type	73
IRM-05	5W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	74
IRM-10	10W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	75
IRM-15	15W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	76
IRM-20	20W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	77
IRM-30	30W	85-264VAC	5,12,15,24,48	47-440Hz	Module Type	78
IRM-45	45W	85-264VAC	5,12,15,24,48	47-440Hz	Module Type	79
IRM-60	60W	85-264VAC	5,12,15,24,48	47-440Hz	Module Type	80
PM-05	5W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	81
PM-10	10W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	82
PM-15	15W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	83
PM-20	20W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Module Type	84
NFM-05	5W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Open Frame	85
NFM-10	10W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Open Frame	86
NFM-15	15W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Open Frame	87
NFM-20	20W	85-264VAC;120-370VDC	3.3,5,12,15,24	47-440Hz	Open Frame	88

Particular specifications may be available. Please contact factory.

AUS-0.1W SERIES *0.1W UNREGULATED*

DANUBE

FEATURES

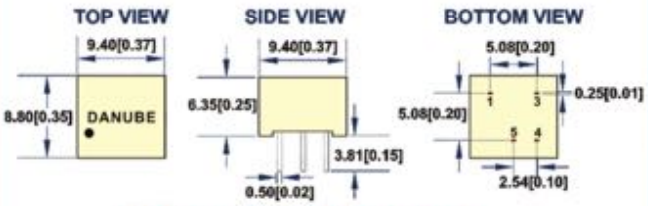
- DUAL IN LINE PACKAGE
- 100% BURN IN
- INTERNAL SMD TECHNOLOGY
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- MTBF > 1,00,000 HOURS
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	50% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.5% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-12% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>1,000,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic

0.1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
AUS-03.303.3-0.1W	3.3	3.3	30	50	1500
AUS-0503.3-0.1W	5	3.3	30	50	1500
AUS-0505-0.1W	5	5	20	50	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	3	4	5
SINGLE	-Vin	+Vin	+Vout	-Vout

NU-C1 SERIES *1W UNREGULATED*

DANUBE

FEATURES

- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- SMD TECHNOLOGY
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- MTBF > 880,000 HOURS
- 3 YEARS WARRANTY

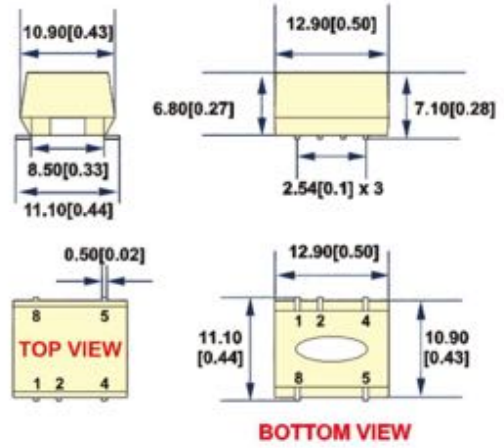
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-82%
Temperature Coefficient	+/-0.03% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	S-Suffix	-40 °C to +100°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>880,000 Hours
Short Circuit Protection	Momentary	Humidity	95% max.	Case Material	Non-Conductive Plastic
S-Suffix	Continuous	Cooling	Free-Air Convection		

1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
NUS-03.303.3C1	3.3	3.3	300	74	C
NUS-0503.3C1(S)	5	3.3	300	75	C
NUS-0505C1(S)	5	5	200	77	C
NUS-0512C1(S)	5	12	84	78	C
NUS-0515C1(S)	5	15	67	79	C
NUS-1203.3C1(S)	12	3.3	300	75	C
NUS-1205C1(S)	12	5	200	78	C
NUS-1212C1(S)	12	12	84	81	C
NUS-1215C1(S)	12	15	67	82	C
NUS-2405C1(S)	24	5	200	76	C
NUS-2412C1(S)	24	12	84	76	C
NUS-2415C1(S)	24	15	67	76	C

MECHANICAL DIMENSIONS

PACKAGE "C"



All dimensions are in mm[inches]

PIN	1	2	4	5	8
SINGLE	-Vin	+Vin	-Vout	+Vout	NC

NU-E1K SERIES *1W UNREGULATED*

DANUBE

FEATURES

- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- SMD TECHNOLOGY
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- MTBF > 888,000 HOURS
- 3 YEARS WARRANTY

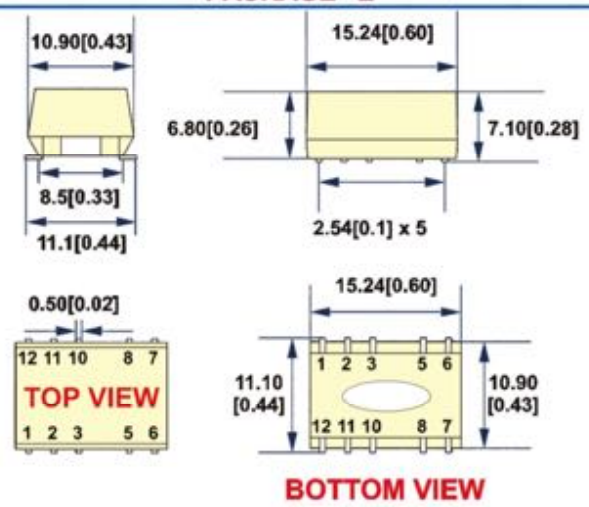
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	72%-82%
Temperature Coefficient	+/-0.03%/°C	Input Filter	Capacitor Type	Isolation Voltage	3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	S-Suffix	-40 °C to +100°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>880,000 Hours
Short Circuit Protection	Momentary	Humidity	95% max.	Case Material	Non-Conductive Plastic
S-Suffix	Continuous	Cooling	Free-Air Convection		

1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
NUS-03.303.3E1K(S)	3.3	3.3	300	73	E
NUS-0503.3E1K(S)	5	3.3	300	75	E
NUS-0505E1K(S)	5	5	200	77	E
NUS-0512E1K(S)	5	12	84	78	E
NUS-0515E1K(S)	5	15	67	79	E
NUD-0505E1K(S)	5	+/-5	+/-100	77	E
NUD-0512E1K(S)	5	+/-12	+/-42	78	E
NUD-0515E1K(S)	5	+/-15	+/-34	79	E
NUS-1205E1K(S)	12	5	200	80	E
NUS-1212E1K(S)	12	12	84	81	E
NUS-1215E1K(S)	12	15	67	82	E
NUD-1205E1K(S)	12	+/-5	+/-100	80	E
NUD-1212E1K(S)	12	+/-12	+/-42	81	E
NUD-1215E1K(S)	12	+/-15	+/-34	82	E
NUS-2405E1K(S)	24	5	200	76	E
NUS-2412E1K(S)	24	12	84	76	E
NUS-2415E1K(S)	24	15	67	76	E
NUD-2405E1K(S)	24	+/-5	+/-100	76	E
NUD-2412E1K(S)	24	+/-12	+/-42	76	E
NUD-2415E1K(S)	24	+/-15	+/-34	76	E

MECHANICAL DIMENSIONS

PACKAGE "E"



All dimensions are in mm[inches]

PIN	1	2	5	6	8
SINGLE	-Vin	+Vin	-Vout	NC	+Vout
DUAL	-Vin	+Vin	Com	-Vout	+Vout

NU SERIES *1W TO 2W UNREGULATED*

DANUBE

FEATURES

- LOW COST
- UP TO 1W~2W UN REGULATED OUTPUT POWER
- 100% BURN IN
- SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- 2 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-79%
Temperature Coefficient	+/-0.03% /°C	Input Filter	Capacitor Type	Isolation Voltage	1000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	Operating Temperature	-40°C to +71°C	Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>2,000,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic

1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
NUS-0505A	5	5	200	71	A
NUS-0509A	5	9	111	78	A
NUS-0512A	5	12	84	78	A
NUS-0515A	5	15	67	79	A
NUS-1205A	12	5	200	74	A
NUS-1209A	12	9	111	78	A
NUS-1212A	12	12	84	82	A
NUS-1215A	12	15	67	82	A
NUS-2405A	24	5	200	76	A

1.8W OUTPUT

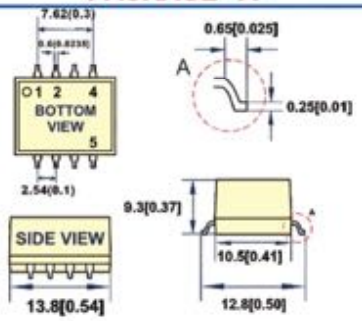
NUS-0505B	5	5	360	72	B
NUS-0509B	5	9	200	75	B
NUS-0512B	5	12	150	77	B
NUS-0515B	5	15	120	77	B
NUS-1205B	12	5	360	73	B
NUS-1209B	12	9	200	76	B
NUS-1212B	12	12	150	78	B
NUS-1215B	12	15	120	78	B

2W OUTPUT

NUS-0505B2	5	5	400	77	B
NUS-0509B2	5	9	222	79	B
NUS-0512B2	5	12	167	80	B
NUS-0515B2	5	15	133	82	B
NUS-1205B2	12	5	400	78	B
NUS-1209B2	12	9	222	78	B
NUS-1212B2	12	12	167	83	B
NUS-1215B2	12	15	133	85	B
NUS-2405B2	24	5	400	78	B
NUS-2409B2	24	9	222	78	B
NUS-2412B2	24	12	167	80	B
NUS-2415B2	24	15	133	80	B

MECHANICAL DIMENSIONS

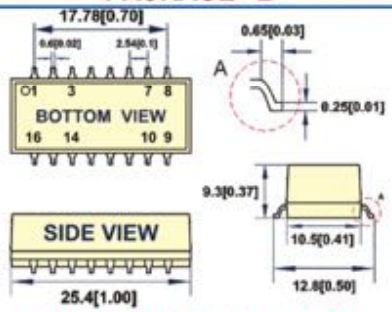
PACKAGE "A"



All dimensions are in mm[inches]

PIN	1	2	4	5
SINGLE	-Vin	+Vin	-Vout	+Vout

PACKAGE "B"



All dimensions are in mm[inches]

PIN	1	3	7	8
SINGLE	-Vin	+Vin	+Vout	-Vout

MU-FLK SERIES *1W UNREGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- LOW COST
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-82%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.			Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation (3.3V Vout)	+/-12% max.	Operating Temperature	-40°C to +85°C	Switching Frequency	100KHz max.
(other Vout)	+/-8% max.	Storage Temperature	-55°C to +125°C	MTBF	>2,000,000 Hours
Minimum Load	10% of Full Load	Cooling	Free-Air Convection	Case A Size	11.7mm*6.0mm*10.2mm
Short Circuit Protection	Momentary	Humidity	95% max.	Case B Size	11.7mm*7.5mm*10.1mm

1500VDC ISOLATION

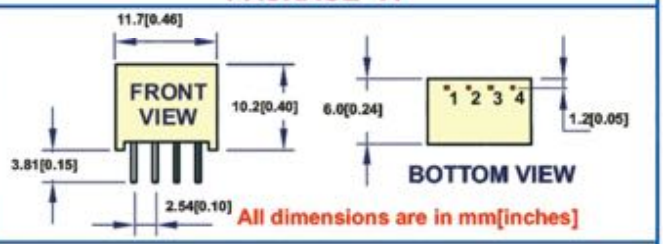
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
MUS-03.303.3(F)L	3.3	3.3	303	75	B
MUS-03.305(F)L	3.3	5	200	75	B
MUS-0505(F)L	5	5	200	77	A
MUS-0509(F)L	5	9	110	77	A
MUS-0512(F)L	5	12	84	78	A
MUS-0515(F)L	5	15	67	79	A
MUS-1203.3(F)L	12	3.3	300	74	A
MUS-1205(F)L	12	5	200	79	A
MUS-1209(F)L	12	9	110	78	A
MUS-1212(F)L	12	12	84	80	A
MUS-1215(F)L	12	15	67	80	A
MUS-2403.3(F)L	24	3.3	300	73	B
MUS-2405(F)L	24	5	200	78	B
MUS-2409(F)L	24	9	110	76	B
MUS-2412(F)L	24	12	84	77	B
MUS-2415(F)L	24	15	67	77	B

3000VDC ISOLATION

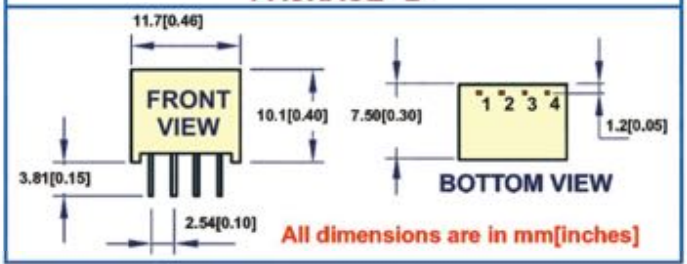
MUS-03.303.3(F)LK	3.3	3.3	303	75	B
MUS-03.305(F)LK	3.3	5	200	75	B
MUS-0505(F)LK	5	5	200	77	B
MUS-0509(F)LK	5	9	110	77	B
MUS-0512(F)LK	5	12	84	78	B
MUS-0515(F)LK	5	15	67	79	B
MUS-1203.3(F)LK	12	3.3	300	74	B
MUS-1205(F)LK	12	5	200	79	B
MUS-1209(F)LK	12	9	110	78	B
MUS-1212(F)LK	12	12	84	80	B
MUS-1215(F)LK	12	15	67	80	B
MUS-2403.3(F)LK	24	3.3	300	73	B
MUS-2405(F)LK	24	5	200	78	B
MUS-2409(F)LK	24	9	110	76	B
MUS-2412(F)LK	24	12	84	77	B
MUS-2415(F)LK	24	15	67	77	B

MECHANICAL DIMENSIONS

PACKAGE "A"



PACKAGE "B"



PIN	1	2	3	4
SINGLE	-Vin	+Vin	-Vout	+Vout

[1] *MU*-****F FOR FUSE*
MU-****L OPERATING TEMPERATURE FOR -40°C to +85°C*
MU-****K FOR 3000VDC ISOLATION VOLTAGE*

MAU-FLK SERIES *1W UNREGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 1W UNREGULATED OUTPUT POWER
- HIGH EFFICIENCY
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

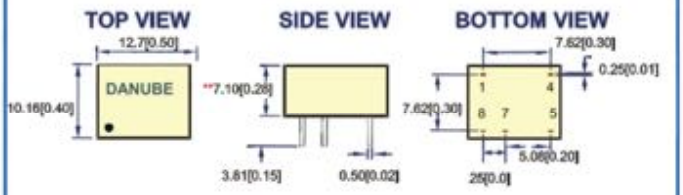
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-82%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation (3.3V Vout)	+/-12% max.	Operating Temperature	-40°C to +85°C	Switching Frequency	100KHz max.
(other Vout)	+/-8% max.	Storage Temperature	-55°C to +125°C	MTBF	>2,900,000 Hours
Minimum Load	10% of Full Load	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Protection	Momentary	Humidity	95% max.	Weight	1.7g typ.

1W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
MAUS-03.303.3(F)L(K)	3.3	3.3	303	75	1500(3000)
MAUS-03.305(F)L(K)	3.3	5	200	75	1500(3000)
MAUS-0505(F)L(K)	5	5	200	77	1500(3000)
MAUS-0509(F)L(K)	5	9	110	77	1500(3000)
MAUS-0512(F)L(K)	5	12	84	78	1500(3000)
MAUS-0515(F)L(K)	5	15	67	79	1500(3000)
MAUD-0505(F)L(K)	5	+/-5	+/-100	76	1500(3000)
MAUD-0512(F)L(K)	5	+/-12	+/-42	80	1500(3000)
MAUD-0515(F)L(K)	5	+/-15	+/-34	77	1500(3000)
MAUS-1205(F)L(K)	12	5	200	79	1500(3000)
MAUS-1209(F)L(K)	12	9	110	78	1500(3000)
MAUS-1212(F)L(K)	12	12	84	80	1500(3000)
MAUS-1215(F)L(K)	12	15	67	79	1500(3000)
MAUD-1205(F)L(K)	12	+/-5	+/-100	76	1500(3000)
MAUD-1212(F)L(K)	12	+/-12	+/-42	79	1500(3000)
MAUD-1215(F)L(K)	12	+/-15	+/-34	77	1500(3000)
MAUS-2405(F)L(K)	24	5	200	77	1500(3000)
MAUS-2409(F)L(K)	24	9	110	76	1500(3000)
MAUS-2412(F)L(K)	24	12	84	78	1500(3000)
MAUS-2415(F)L(K)	24	15	67	77	1500(3000)
MAUD-2405(F)L(K)	24	+/-5	+/-100	75	1500(3000)
MAUD-2412(F)L(K)	24	+/-12	+/-42	77	1500(3000)
MAUD-2415(F)L(K)	24	+/-15	+/-34	76	1500(3000)

[1] *MAU*-****F* — *FOR FUSE*
MAU-****L* — *OPERATING TEMPERATURE FOR -40°C to +85°C*
MAU-****K* — *FOR 3000VDC ISOLATION VOLTAGE*

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

Note: **7.62[0.30] for 24V input voltage

PIN	1	4	5	7	8
SINGLE	-Vin	+Vin	+Vout	-Vout	NP
DUAL	-Vin	+Vin	+Vout	Com.	-Vout

TU SERIES *1W UNREGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

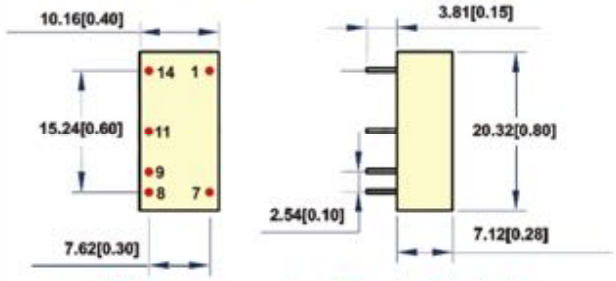
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-82%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>2,000,000 Hours
Short Circuit Protection	Momentary	Humidity	95% max.	Case Material	Non-Conductive Plastic

1500VDC ISOLATION

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
TUS-0505 (AorB)	5	5	200	73	A or B
TUS-0512 (AorB)	5	12	84	79	A or B
TUS-0515 (AorB)	5	15	67	79	A or B
TUD-0505A	5	+/-5	+/-100	73	A
TUD-0512A	5	+/-12	+/-42	79	A
TUD-0515A	5	+/-15	+/-34	79	A
TUD-0524A	5	+/-24	+/-21	78	A
TUS-1205 (AorB)	12	5	200	74	A or B
TUS-1212 (AorB)	12	12	84	82	A or B
TUS-1215 (AorB)	12	15	67	82	A or B
TUD-1205A	12	+/-5	+/-100	74	A
TUD-1212A	12	+/-12	+/-42	82	A
TUD-1215A	12	+/-15	+/-34	82	A
TUS-2405 (AorB)	24	5	200	73	A or B
TUS-2412 (AorB)	24	12	84	77	A or B
TUS-2415 (AorB)	24	15	67	80	A or B
TUD-2405A	24	+/-5	+/-100	73	A
TUD-2412A	24	+/-12	+/-42	77	A
TUD-2415A	24	+/-15	+/-34	77	A

MECHANICAL DIMENSIONS

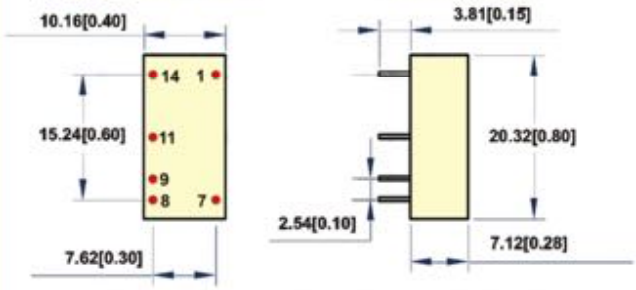
PACKAGE "A"



All dimensions are in millimeters[inches]

PIN	1	7	8	9	11	14
SINGLE	-Vin	NC	-Vout	+Vout	NC	+Vin
DUAL	-Vin	NC	Com.	+Vout	-Vout	+Vin

PACKAGE "B"



All dimensions are in millimeters[inches]

PIN	1	7	8	9	11	14
SINGLE	-Vin	NC	NP	+Vout	-Vout	+Vin

PU-S SERIES *1W UNREGULATED*

DANUBE

FEATURES

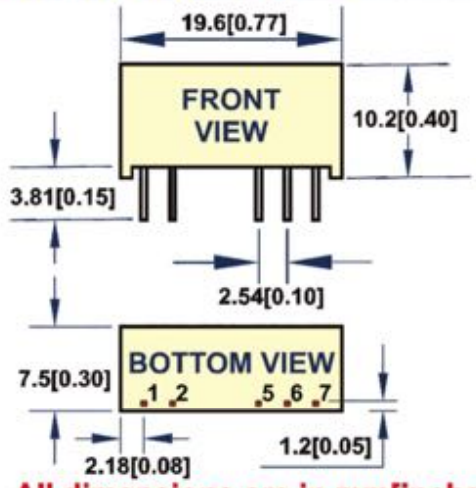
- CONTINUOUS SHORT CIRCUIT PROTECTION
- SINGLE IN LINE PACKAGE
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	74%-83%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	20pF max.
Load Regulation	+/-8% max.	Operating Temperature	-40°C to +85°C	Switching Frequency	100KHz max.
Minimum Load	20% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>2,000,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Humidity	95% max.	Case Size	19.6mm*7.5mm*10.2mm

1W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PUS-0505BS	5	5	200	78	3000
PUS-0509BS	5	9	111	79	3000
PUS-0512BS	5	12	84	79	3000
PUS-0515BS	5	15	67	80	3000
PUD-0505BS	5	+/-5	+/-100	78	3000
PUD-0512BS	5	+/-12	+/-42	79	3000
PUD-0515BS	5	+/-15	+/-34	80	3000
PUS-1205BS	12	5	200	77	3000
PUS-1209BS	12	9	111	79	3000
PUS-1212BS	12	12	84	80	3000
PUS-1215BS	12	15	67	81	3000
PUD-1205BS	12	+/-5	+/-100	78	3000
PUD-1212BS	12	+/-12	+/-42	80	3000
PUD-1215BS	12	+/-15	+/-34	81	3000
PUS-2405BS	24	5	200	77	3000
PUS-2409BS	24	9	111	78	3000
PUS-2412BS	24	12	84	79	3000
PUS-2415BS	24	15	67	80	3000
PUD-2405BS	24	+/-5	+/-100	78	3000
PUD-2412BS	24	+/-12	+/-42	79	3000
PUD-2415BS	24	+/-15	+/-34	80	3000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	5	6	7
SINGLE	+Vin	-Vin	-Vout	NP	+Vout
DUAL	+Vin	-Vin	-Vout	Com.	+Vout

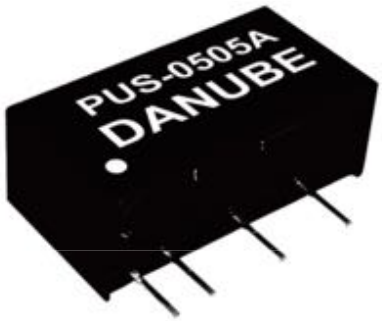
[1] *PU*-*****S* *FOR CONTINUOUS SHORT CIRCUIT PROTECTION*

PU SERIES *1W UNREGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- NO HEATSINK REQUIRED
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS		
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency		70%-83%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage		1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Separate	In to Out	1000 VDC min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**			Out to Out	500 VDC min.
Load Regulation (3.3V Vout)	+/-12% max.	Operating Temperature	-40°C to +71°C	Isolation Resistance		10^9 ohms min.
(other Vout)	+/-8% max.	Storage Temperature	-55°C to +125°C	Isolation Capacitance		80pF max.
Minimum Load	20% of Full Load	Cooling	Free-Air Convection	Switching Frequency		100KHz max.
Short Circuit Protection	Momentary	Humidity	95% max.	MTBF		>2,000,000 Hours

1500VDC ISOLATION

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
PUS-0503.3□	5	3.3	300	73	A or B
PUS-0505□(L)	5	5	200	71	A or B or E
PUS-0509□(L)	5	9	111	78	A or B or E
PUS-0512□(L)	5	12	84	77	A or B or E
PUS-0515□(L)	5	15	67	79	A or B or E
PUD-0505□(L)	5	+/-5	+/-100	72	A or B
PUD-0509□	5	+/-9	+/-56	77	A or B
PUD-0512□(L)	5	+/-12	+/-42	77	A or B
PUD-0515□(L)	5	+/-15	+/-34	77	A or B
PUS-0909□(L)	9	9	111	75	A or B
PUS-1203.3□	12	3.3	300	74	A or B
PUS-1205□(L)	12	5	200	74	A or B or E
PUS-1209□(L)	12	9	111	78	A or B or E
PUS-1212□(L)	12	12	84	82	A or B or E
PUS-1215□(L)	12	15	67	82	A or B or E
PUD-1205□(L)	12	+/-5	+/-100	74	A or B
PUD-1212□(L)	12	+/-12	+/-42	79	A or B
PUD-1215□(L)	12	+/-15	+/-34	83	A or B
PUS-2403.3C	24	3.3	300	73	C
PUS-2405C(L)	24	5	200	73	C
PUS-2409C(L)	24	9	111	75	C
PUS-2412C(L)	24	12	84	77	C
PUS-2415C(L)	24	15	67	77	C
PUS-2424C(L)	24	24	42	77	C
PUD-2405C(L)	24	+/-5	+/-100	73	C
PUD-2412C(L)	24	+/-12	+/-42	77	C
PUD-2415C(L)	24	+/-15	+/-34	77	C

DUAL SEPARATE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC) OUT1	OUTPUT VOLTAGE (VDC) OUT2	OUTPUT CURRENT (mA) OUT1	OUTPUT CURRENT (mA) OUT2	EFF. (%)	PACKAGE
PUD-050503.3	5	+5	+3.3	+100	+152	70	F
PUD-050505	5	+5	+5	+100	+100	78	F
PUD-050509	5	+5	+9	+100	+56	80	F
PUD-050512	5	+5	+12	+100	+42	80	F
PUD-050515	5	+5	+15	+100	+34	80	F
PUD-120505	12	+5	+5	+100	+100	70	F
PUD-120509	12	+5	+9	+100	+56	80	F
PUD-120512	12	+5	+12	+100	+42	82	F
PUD-120515	12	+5	+15	+100	+34	80	F

[1] *PU*-****□ □:PACKAGE CODE*
PU-*****L OPERATING TEMPERATURE FOR -40°C to +85°C*

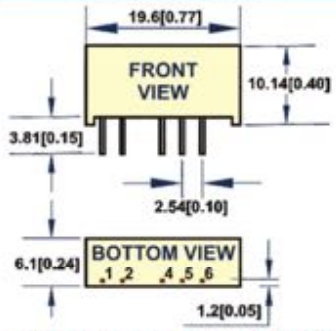
PUD-2403.303.3	24	+3.3	+3.3	+152	+152	70	F
PUD-240505	24	+5	+5	+100	+100	70	F
PUD-241212	24	+12	+12	+41	+41	80	F

3000VDC ISOLATION

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
PUS-03.305-3K	3.3	5	200	80	D
PUS-0503.3-3K	5	3.3	300	73	B
PUS-0505(L)-3K	5	5	200	71	B
PUS-0509(L)-3K	5	9	111	78	B
PUS-0512(L)-3K	5	12	84	77	B
PUS-0515(L)-3K	5	15	67	79	B
PUD-0505(L)-3K	5	+/-5	+/-100	73	B
PUD-0512(L)-3K	5	+/-12	+/-42	77	B
PUD-0515(L)-3K	5	+/-15	+/-34	79	B
PUS-1203.3-3K	12	3.3	300	74	B
PUS-1205(L)-3K	12	5	200	74	B
PUS-1209(L)-3K	12	9	111	78	B
PUS-1212(L)-3K	12	12	84	82	B
PUS-1215(L)-3K	12	15	67	81	B
PUD-1205(L)-3K	12	+/-5	+/-100	74	B
PUD-1212(L)-3K	12	+/-12	+/-42	83	B
PUD-1215(L)-3K	12	+/-15	+/-34	83	B
PUS-2403.3-3K	24	3.3	300	73	D
PUS-2405(L)-3K	24	5	200	73	D
PUS-2409(L)-3K	24	9	111	75	D
PUS-2412(L)-3K	24	12	84	77	D
PUS-2415(L)-3K	24	15	67	77	D
PUD-2405(L)-3K	24	+/-5	+/-100	73	D
PUD-2412(L)-3K	24	+/-12	+/-42	77	D
PUD-2415(L)-3K	24	+/-15	+/-34	77	D

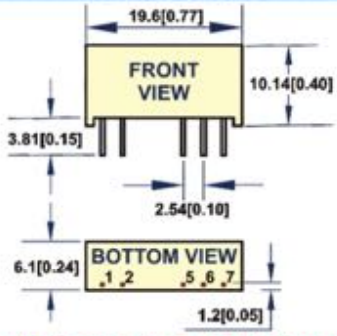
MECHANICAL DIMENSIONS

PACKAGE "A"



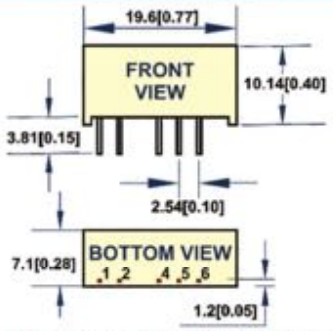
All dimensions are in mm[inches]

PACKAGE "B"



All dimensions are in mm[inches]

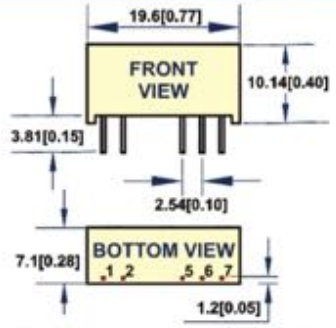
PACKAGE "C"



All dimensions are in mm[inches]

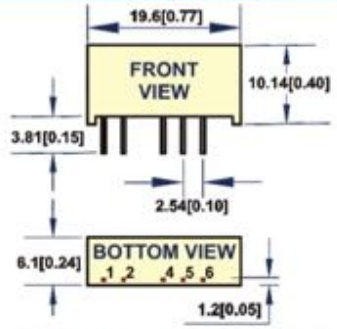
PIN	1	2	4	5	6	1	2	5	6	7	1	2	4	5	6
SINGLE	+Vin	-Vin	-Vout	NP	+Vout	+Vin	-Vin	-Vout	NP	+Vout	+Vin	-Vin	-Vout	NP	+Vout
DUAL	+Vin	-Vin	-Vout	Com.	+Vout	+Vin	-Vin	-Vout	Com.	+Vout	+Vin	-Vin	-Vout	Com.	+Vout

PACKAGE "D"



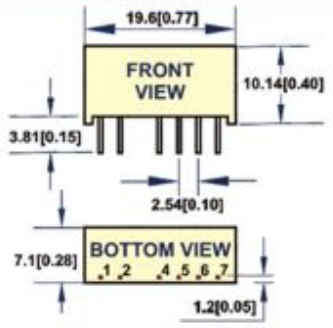
All dimensions are in mm[inches]

PACKAGE "E"



All dimensions are in mm[inches]

PACKAGE "F"



All dimensions are in mm[inches]

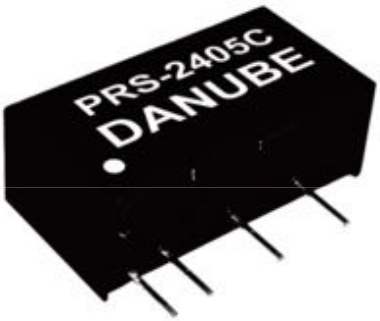
PIN	1	2	5	6	7	1	2	4	5	6	1	2	4	5	6	7
SINGLE	+Vin	-Vin	-Vout	NP	+Vout	+Vin	-Vin	NP	-Vout	+Vout						
DUAL	+Vin	-Vin	-Vout	Com.	+Vout						+Vin	-Vin	+5V/Vout 1	-5V/Vout 1	+ Vout 2	- Vout 2

PR SERIES *1W REGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W REGULATED OUTPUT POWER
- 100% BURN IN
- NO EXTERNAL COMPONENTS REQUIRED
- 1500VDC ISOLATION
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

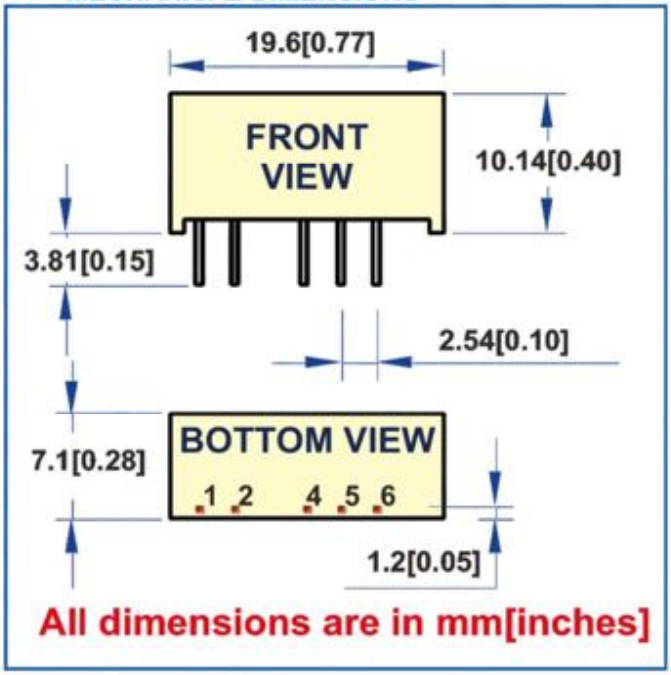


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+/-10% max.	Efficiency	50% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>1,800,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Transient Response	100uS max.	Humidity	95% max.	Weight	2.3g typ.

- **1500VDC ISOLATION**

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	OUTPUT POWER (Watt)
PRS-0505C	4.5-5.5	5	200	60	1
PRS-0509C	4.5-5.5	9	100	57	0.9
PRS-0512C	4.5-5.5	12	84	60	1
PRS-0515C	4.5-5.5	15	67	60	1
PRS-1205C	10.8-13.2	5	200	66	1
PRS-1209C	10.8-13.2	9	100	59	0.9
PRS-1212C	10.8-13.2	12	84	60	1
PRS-1215C	10.8-13.2	15	67	62	1
PRS-2405C	21.6-26.4	5	200	62	1
PRS-2409C	21.6-26.4	9	100	58	0.9
PRS-2412C	21.6-26.4	12	84	60	1
PRS-2415C	21.6-26.4	15	67	60	1
PRS-2424C	21.6-26.4	24	42	61	1
PRS-4805C	43.2-52.8	5	200	62	1
PRS-4809C	43.2-52.8	9	100	56	0.9
PRS-4812C	43.2-52.8	12	84	58	1
PRS-4815C	43.2-52.8	15	67	58	1

- **MECHANICAL DIMENSIONS**



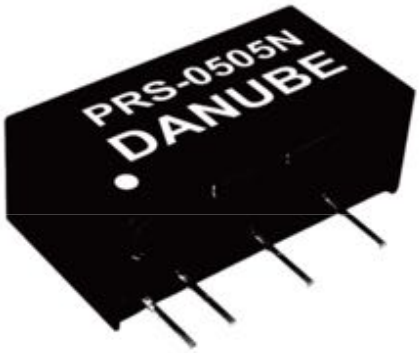
PIN	1	2	4	5	6
SINGLE	+Vin	-Vin	-Vout	NP	+Vout

PR-N SERIES *1W REGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W REGULATED OUTPUT POWER
- 100% BURN IN
- NO EXTERNAL COMPONENTS REQUIRED
- 1500VDC ISOLATION
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

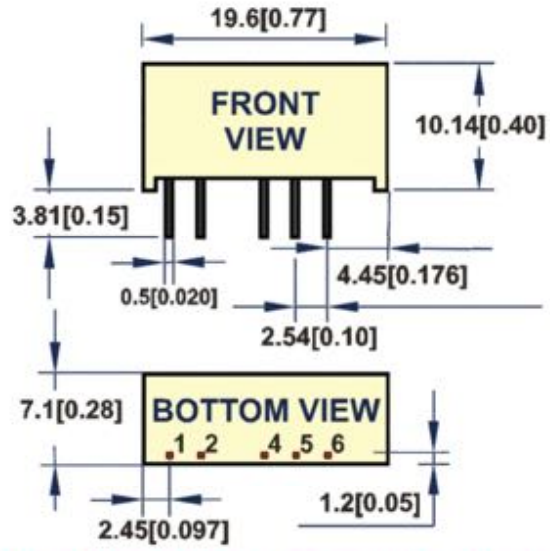


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+10%/-5% max.	Efficiency	60% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>1,800,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Transient Response	100uS max.	Humidity	95% max.	Weight	2.3g typ.

1500VDC ISOLATION

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF. (%)	OUTPUT POWER (Watt)
		VOLTAGE (VDC)	CURRENT (mA)		
PRS-0505N	4.75-5.5	5	200	66	1
PRS-0512N	4.75-5.5	12	84	63	1
PRS-0515N	4.75-5.5	15	67	64	1
PRS-1205N	11.4-13.2	5	200	70	1
PRS-1212N	11.4-13.2	12	84	66	1
PRS-1215N	11.4-13.2	15	67	67	1
PRS-2405N	22.8-26.4	5	200	66	1
PRS-2412N	22.8-26.4	12	84	63	1
PRS-2415N	22.8-26.4	15	67	63	1

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

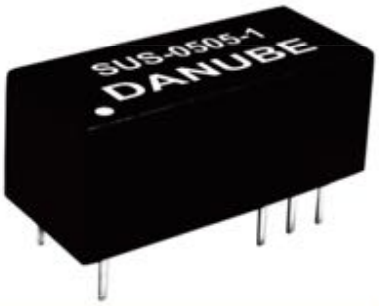
PIN	1	2	4	5	6
SINGLE	+Vin	-Vin	-Vout	NP	+Vout

SU SERIES *0.5W TO 2W UNREGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- 100% BURN IN
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	70%-83%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>2,000,000 Hours
Short Circuit Protection	Momentary	Humidity	95% max.	Case Material	Non-Conductive Plastic

0.5W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
SUS-0505-1	5	5	100	74	1500
SUS-0509-1	5	9	56	73	1500
SUS-0512-1	5	12	42	72	1500
SUS-0515-1	5	15	34	71	1500
SUS-1205-1	12	5	100	76	1500
SUS-1209-1	12	9	56	74	1500
SUS-1212-1	12	12	42	72	1500
SUS-1215-1	12	15	34	72	1500
SUS-2405-1	24	5	100	72	1500
SUS-2409-1	24	9	56	74	1500
SUS-2412-1	24	12	42	74	1500
SUS-2415-1	24	15	34	72	1500
SUS-4805-1	48	5	100	74	1500
SUS-4809-1	48	9	56	74	1500
SUS-4812-1	48	12	42	74	1500
SUS-4815-1	48	15	34	74	1500

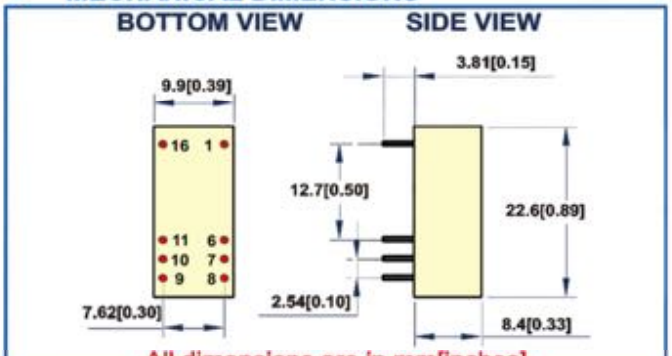
1W OUTPUT

SUS-0505-2	5	5	200	72	1500
SUS-0509-2	5	9	111	75	1500
SUS-0512-2	5	12	84	77	1500
SUS-0515-2	5	15	67	78	1500
SUS-0524-2	5	24	42	78	1500
SUS-1205-2	12	5	200	72	1500
SUS-1209-2	12	9	111	78	1500
SUS-1212-2	12	12	84	79	1500
SUS-1215-2	12	15	67	81	1500
SUS-1224-2	12	24	42	81	1500
SUS-2405-2	24	5	200	72	1500
SUS-2409-2	24	9	111	77	1500
SUS-2412-2	24	12	84	77	1500
SUS-2415-2	24	15	67	77	1500
SUS-2424-2	24	24	42	79	1500
SUS-4803.3-2	48	3.3	300	74	1500
SUS-4805-2	48	5	200	74	1500
SUS-4809-2	48	9	111	74	1500
SUS-4812-2	48	12	84	72	1500
SUS-4815-2	48	15	67	75	1500

2W OUTPUT

SUS-0505-3	5	5	400	80	1500
SUS-0509-3	5	9	222	79	1500
SUS-0512-3	5	12	167	80	1500
SUS-0515-3	5	15	133	82	1500
SUS-1205-3	12	5	400	78	1500
SUS-1209-3	12	9	222	78	1500
SUS-1212-3	12	12	167	83	1500
SUS-1215-3	12	15	133	85	1500
SUS-2405-3	24	5	400	78	1500
SUS-2409-3	24	9	222	78	1500
SUS-2412-3	24	12	167	81	1500
SUS-2415-3	24	15	133	83	1500
SUS-4805-3	48	5	400	74	1500
SUS-4809-3	48	9	222	77	1500
SUS-4812-3	48	12	167	81	1500
SUS-4815-3	48	15	133	81	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

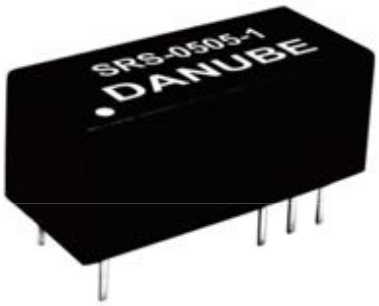
PIN	1 & 16	6 & 11	7 & 10	8 & 9
SINGLE	+Vin	-Vout	+Vout	-Vin

SR SERIES *0.5W TO 1W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 1W REGULATED OUTPUT POWER
- 100% BURN IN
- LOW COST
- NO HEATSINK REQUIRED
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+/-10% max.	Efficiency	50% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>2,000,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic

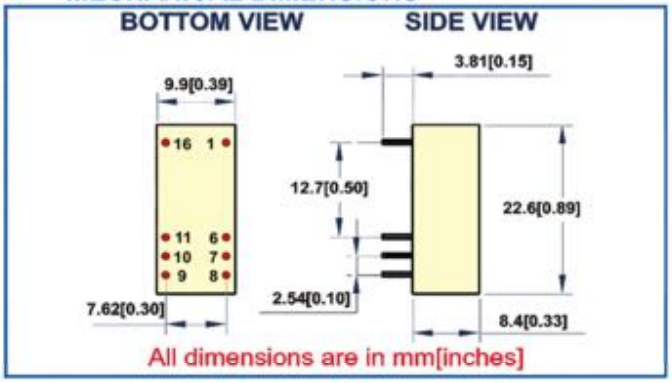
0.5W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
SRS-0505-1	4.5-5.5	5	100	60	1500
SRS-0509-1	4.5-5.5	9	56	55	1500
SRS-0512-1	4.5-5.5	12	42	58	1500
SRS-0515-1	4.5-5.5	15	34	58	1500
SRS-1205-1	10.8-13.2	5	100	61	1500
SRS-1209-1	10.8-13.2	9	56	55	1500
SRS-1212-1	10.8-13.2	12	42	60	1500
SRS-1215-1	10.8-13.2	15	34	58	1500
SRS-2405-1	21.6-26.4	5	100	61	1500
SRS-2409-1	21.6-26.4	9	56	55	1500
SRS-2412-1	21.6-26.4	12	42	58	1500
SRS-2415-1	21.6-26.4	15	34	58	1500
SRS-4805-1	43.2-52.8	5	100	58	1500
SRS-4809-1	43.2-52.8	9	56	55	1500
SRS-4812-1	43.2-52.8	12	42	55	1500
SRS-4815-1	43.2-52.8	15	34	55	1500

1W OUTPUT

SRS-0505-2	4.5-5.5	5	200	61	1500
SRS-0509-2	4.5-5.5	9	100	59	1500
SRS-0512-2	4.5-5.5	12	84	58	1500
SRS-0515-2	4.5-5.5	15	67	58	1500
SRS-1205-2	10.8-13.2	5	200	62	1500
SRS-1209-2	10.8-13.2	9	100	61	1500
SRS-1212-2	10.8-13.2	12	84	60	1500
SRS-1215-2	10.8-13.2	15	67	60	1500
SRS-2405-2	21.6-26.4	5	200	63	1500
SRS-2409-2	21.6-26.4	9	100	61	1500
SRS-2412-2	21.6-26.4	12	84	60	1500
SRS-2415-2	21.6-26.4	15	67	60	1500
SRS-4805-2	43.2-52.8	5	200	61	1500
SRS-4809-2	43.2-52.8	9	100	58	1500
SRS-4812-2	43.2-52.8	12	84	60	1500
SRS-4815-2	43.2-52.8	15	67	60	1500

MECHANICAL DIMENSIONS



PIN	1 & 16	6 & 11	7 & 10	8 &9
SINGLE	+Vin	-Vout	+Vout	-Vin

PWS SERIES *1W WIDE INPUT RANGE*

DANUBE

FEATURES

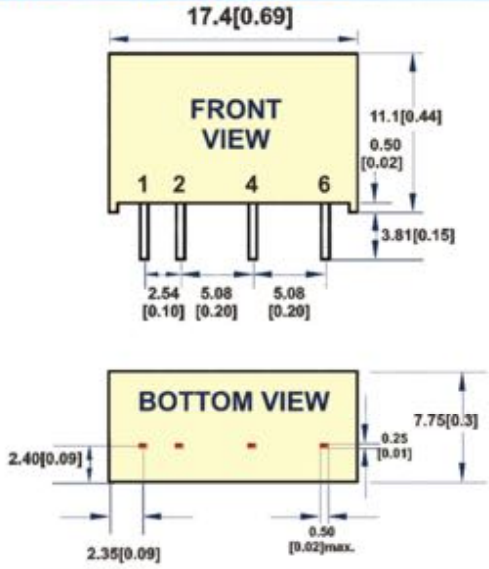
- SINGLE IN LINE PACKAGE
- WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY& INPUT UVLO
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	75% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Storage Temperature	-55°C to +105°C	Switching Frequency	100KHz min.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>500,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Over Load Protection	150% typ.	Potting Material	Epoxy(UL94V-0)

2:1 1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PWS-1203.3	9-18	3.3	300	75	1500
PWS-1205	9-18	5	200	77	1500
PWS-1212	9-18	12	83	78	1500
PWS-1215	9-18	15	67	79	1500
PWS-2403.3	18-36	3.3	300	75	1500
PWS-2405	18-36	5	200	77	1500
PWS-2412	18-36	12	83	78	1500
PWS-2415	18-36	15	67	79	1500
PWS-4803.3	36-75	3.3	300	75	1500
PWS-4805	36-75	5	200	77	1500
PWS-4812	36-75	12	83	78	1500
PWS-4815	36-75	15	67	79	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	4	5	6
SINGLE	-Vin	+Vin	+Vout	NP	-Vout

NU-E2K SERIES *2W UNREGULATED*

DANUBE

FEATURES

- UP TO 2W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- SMD TECHNOLOGY
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- MTBF > 888,000 HOURS
- 3 YEARS WARRANTY

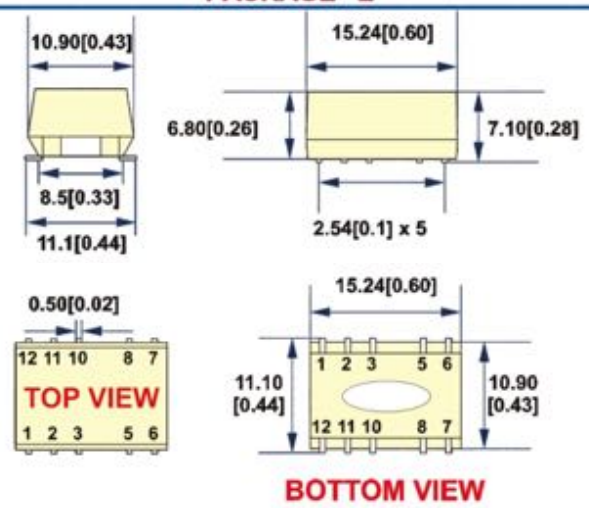
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	72%-83%
Temperature Coefficient	+/-0.03%/°C	Input Filter	Capacitor Type	Isolation Voltage	3000 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>880,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
S-Suffix	Continuous				

2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
NUS-0505E2K(S)	5	5	400	78	E
NUS-0512E2K(S)	5	12	167	80	E
NUS-0515E2K(S)	5	15	133	81	E
NUD-0505E2K(S)	5	+/-5	+/-200	78	E
NUD-0512E2K(S)	5	+/-12	+/-84	80	E
NUD-0515E2K(S)	5	+/-15	+/-67	81	E
NUS-1205E2K(S)	12	5	400	80	E
NUS-1212E2K(S)	12	12	167	81	E
NUS-1215E2K(S)	12	15	133	83	E
NUD-1205E2K(S)	12	+/-5	+/-200	80	E
NUD-1212E2K(S)	12	+/-12	+/-84	81	E
NUD-1215E2K(S)	12	+/-15	+/-67	83	E
NUS-2405E2K(S)	24	5	400	78	E
NUS-2412E2K(S)	24	12	167	79	E
NUS-2415E2K(S)	24	15	133	80	E
NUD-2405E2K(S)	24	+/-5	+/-200	78	E
NUD-2412E2K(S)	24	+/-12	+/-84	79	E
NUD-2415E2K(S)	24	+/-15	+/-67	80	E

MECHANICAL DIMENSIONS

PACKAGE "E"



All dimensions are in mm[inches]

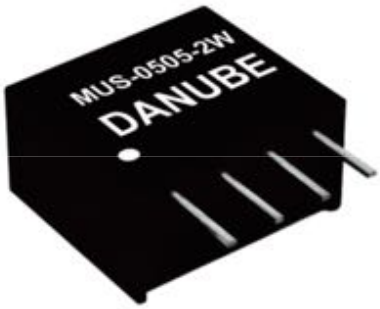
PIN	1	2	5	6	8
SINGLE	-Vin	+Vin	-Vout	NC	+Vout
DUAL	-Vin	+Vin	Com	-Vout	+Vout

MU-2W SERIES *2W UNREGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 2W UNREGULATED OUTPUT POWER
- LOW COST
- 100% BURN IN
- HIGH EFFICIENCY
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

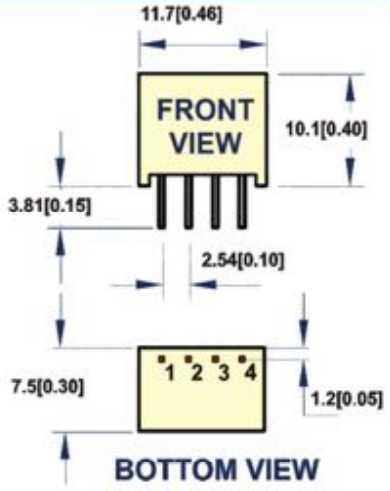


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	77%-85%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Operating Temperature	-40°C to +71°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>1,100,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
		Humidity	95% max.	Case Size	11.7mm*7.5mm*10.1mm

2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
MUS-0505-2W	5	5	400	77	1500
MUS-0512-2W	5	12	167	80	1500
MUS-0515-2W	5	15	133	82	1500
MUS-1205-2W	12	5	400	78	1500
MUS-1212-2W	12	12	167	81	1500
MUS-1215-2W	12	15	133	82	1500
MUS-2405-2W	24	5	400	78	1500
MUS-2412-2W	24	12	167	81	1500
MUS-2415-2W	24	15	133	82	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3	4
SINGLE	-Vin	+Vin	-Vout	+Vout

MBU SERIES *2W UNREGULATED*

DANUBE

FEATURES

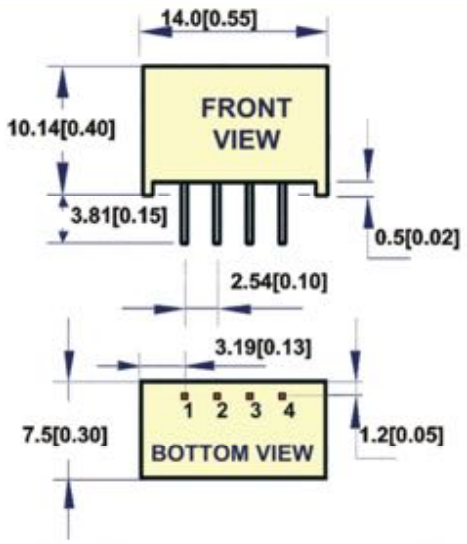
- SINGLE IN LINE PACKAGE
- UP TO 2W UNREGULATED OUTPUT POWER
- LOW COST
- 100% BURN IN
- HIGH EFFICIENCY
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	72%-85%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	100KHz max.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>1,700,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
		Humidity	95% max.	Case Size	14.0mm*7.5mm*10.14mm

2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
MBUS-0505-2W	5	5	400	77	1500
MBUS-0509-2W	5	9	222	79	1500
MBUS-0512-2W	5	12	167	80	1500
MBUS-0515-2W	5	15	133	82	1500
MBUS-1203.3-2W	12	3.3	400	72	1500
MBUS-1205-2W	12	5	400	78	1500
MBUS-1209-2W	12	9	222	78	1500
MBUS-1212-2W	12	12	167	81	1500
MBUS-1215-2W	12	15	133	85	1500
MBUS-2405-2W	24	5	400	78	1500
MBUS-2409-2W	24	9	222	78	1500
MBUS-2412-2W	24	12	167	81	1500
MBUS-2415-2W	24	15	133	77	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3	4
SINGLE	-Vin	+Vin	-Vout	+Vout

PU-2W SERIES *2W UNREGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- 2W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- LOW COST
- UL 94V-0 PACKAGE MATERIAL
- NO HEATSINK REQUIRED
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.05% /°C
Ripple & Noise(20MHz BW)	100mVp-p max.
Separate	150mVp-p max.
Line Regulation	+/-1.2% max.
Load Regulation (3.3V Vout)	+/-12% max.
(other Vout)	+/-8% max.
Minimum Load	
Single/Dual	10% of Full Load
Separate	20% of Full Load
Short Circuit Protection	Momentary

INPUT SPECIFICATIONS	
Input Voltage Range	+/-10% max.
Input Filter	Capacitor Type
Protection	Fuse Recommended

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	
Single/Dual	-40°C to +71°C
Separate	-40°C to +85°C
Storage Temperature	-55°C to +125°C
Cooling	Free-Air Convection
Humidity	95% max.

GENERAL SPECIFICATIONS		
Efficiency		70%-85%
Isolation Voltage		
Single/Dual		1500-3000 VDC min.
Separate	In to Out	1500 VDC min.
	Out to Out	500 VDC min.
Isolation Resistance		10^9 ohms min.
Isolation Capacitance		80pF max.
Switching Frequency		100KHz max.
MTBF		>1,800,000 Hours
Case Size		19.6mm*7.1mm*10.2mm
Weight		2.3g typ.

- **1500VDC ISOLATION**

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	PACKAGE
PUS-03.305(L)-2W	3.3	5	400	78	C
PUS-03.324(L)-2W	3.3	24	84	78	C
PUS-0503.3(L)-2W	5	3.3	500	73	C
PUS-0505(L)-2W	5	5	400	77	C
PUS-0509(L)-2W	5	9	222	79	C
PUS-0512(L)-2W	5	12	167	80	C
PUS-0515(L)-2W	5	15	133	82	C
PUD-03.315(L)-2W	3.3	+/-15	+/-67	82	C
PUD-0505(L)-2W	5	+/-5	+/-200	82	C
PUD-0512(L)-2W	5	+/-12	+/-84	80	C
PUD-0515(L)-2W	5	+/-15	+/-67	82	C
PUD-0524(L)-2W	5	+/-24	+/-42	79	C
PUS-1203.3(L)-2W	12	3.3	500	74	C
PUS-1205(L)-2W	12	5	400	78	C
PUS-1209(L)-2W	12	9	222	78	C
PUS-1212(L)-2W	12	12	167	83	C
PUS-1215(L)-2W	12	15	133	85	C
PUD-1205(L)-2W	12	+/-5	+/-200	78	C
PUD-1212(L)-2W	12	+/-12	+/-84	83	C
PUD-1215(L)-2W	12	+/-15	+/-67	85	C
PUS-2403.3(L)-2W	24	3.3	500	74	C
PUS-2405(L)-2W	24	5	400	78	C
PUS-2409(L)-2W	24	9	222	78	C
PUS-2412(L)-2W	24	12	167	80	C
PUS-2415(L)-2W	24	15	133	83	C
PUD-2405(L)-2W	24	+/-5	+/-200	78	C
PUD-2412-(L)2W	24	+/-12	+/-84	81	C
PUD-2415(L)-2W	24	+/-15	+/-67	81	C

[1] *PU*-****L-2W* *OPERATING TEMPERATURE FOR* -40°C to +85°C

3000VDC ISOLATION

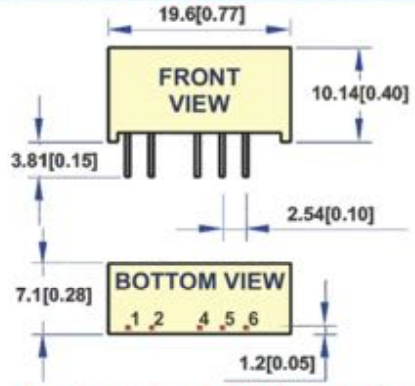
PUS-0503.3D-2W	5	3.3	500	73	D
PUS-0505D(L)-2W	5	5	400	77	D
PUS-0509D-2W	5	9	222	78	D
PUS-0512D(L)-2W	5	12	167	80	D
PUS-0515D(L)-2W	5	15	133	81	D
PUD-0505D(L)-2W	5	+/-5	+/-200	77	D
PUD-0509D-2W	5	+/-9	+/-111	78	D
PUD-0512D(L)-2W	5	+/-12	+/-84	80	D
PUD-0515D(L)-2W	5	+/-15	+/-67	82	D
PUS-1203.3D-2W	12	3.3	500	74	D
PUS-1205D(L)-2W	12	5	400	79	D
PUS-1209D-2W	12	9	222	79	D
PUS-1212D(L)-2W	12	12	167	81	D
PUS-1215D(L)-2W	12	15	133	83	D
PUD-1205D(L)-2W	12	+/-5	+/-200	78	D
PUD-1212D(L)-2W	12	+/-12	+/-84	82	D
PUD-1215D(L)-2W	12	+/-15	+/-67	83	D
PUS-2403.3D-2W	24	3.3	500	74	D
PUS-2405D(L)-2W	24	5	400	77	D
PUS-2409D-2W	24	9	222	77	D
PUS-2412D(L)-2W	24	12	167	80	D
PUS-2415D(L)-2W	24	15	133	82	D
PUD-2405D(L)-2W	24	+/-5	+/-200	78	D
PUD-2412D(L)-2W	24	+/-12	+/-84	81	D
PUD-2415D(L)-2W	24	+/-15	+/-67	81	D

DUAL SEPARATE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)		OUTPUT CURRENT (mA)		EFF. (%)	PACKAGE
		OUT1	OUT2	OUT1	OUT2		
PUD-050505-2W	5	+5	+5	+200	+200	77	F
PUD-050509-2W	5	+5	+9	+200	+111	80	F
PUD-050512-2W	5	+5	+12	+200	+83	80	F
PUD-050515-2W	5	+5	+15	+200	+66	80	F
PUD-051212-2W	5	+12	+12	+83	+83	80	F
PUD-051515-2W	5	+15	+15	+66	+66	80	F
PUD-120505-2W	12	+5	+5	+200	+200	77	F
PUD-120509-2W	12	+5	+9	+200	+111	80	F
PUD-120512-2W	12	+5	+12	+200	+83	80	F
PUD-120515-2W	12	+5	+15	+200	+66	80	F
PUD-121212-2W	12	+12	+12	+83	+83	81	F
PUD-121515-2W	12	+15	+15	+66	+66	81	F
PUD-240505-2W	24	+5	+5	+200	+200	80	F
PUD-241212-2W	24	+12	+12	+83	+83	80	F
PUD-241515-2W	24	+15	+15	+66	+66	80	F

MECHANICAL DIMENSIONS

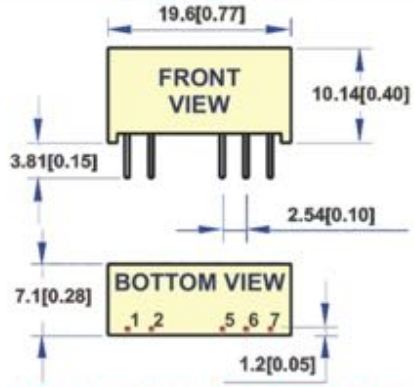
PACKAGE "C"



All dimensions are in mm[inches]

PIN	1	2	4	5	6
SINGLE	+Vin	-Vin	-Vout	NP	+Vout
DUAL	+Vin	-Vin	-Vout	Com.	+Vout

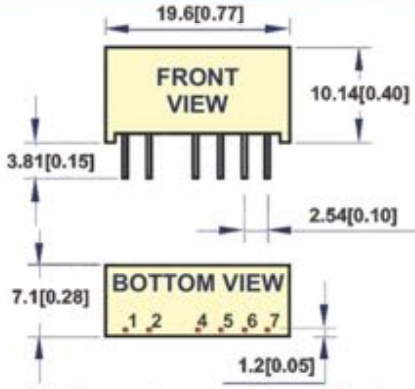
PACKAGE "D"



All dimensions are in mm[inches]

PIN	1	2	5	6	7
SINGLE	+Vin	-Vin	-Vout	NP	+Vout
DUAL	+Vin	-Vin	-Vout	Com.	-Vout

PACKAGE "F"



All dimensions are in mm[inches]

PIN	1	2	4	5	6	7
DUAL	+Vin	-Vin	+5V/Vou1	-5V/Vout1	+Vout2	-Vout2

PAW SERIES *2W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 2W REGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 or 4:1 Input Range	Efficiency	70% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Storage Temperature	-55°C to +105°C	Switching Frequency	100KHz min.
Minimum Load	20% of Full Load	Humidity	95% max.	MTBF	>400,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Over Load Protection	150% typ.	Potting Material	Epoxy(UL94V-0)

2:1 2W OUTPUT

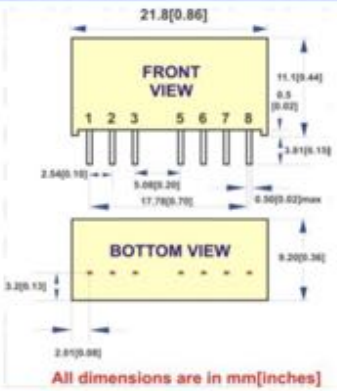
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PAWS-0505(-3K)	4.5-9	5	400	72	1500(3000)
PAWS-0512(-3K)	4.5-9	12	150	75	1500(3000)
PAWS-0515(-3K)	4.5-9	15	120	79	1500(3000)
PAWS-1205(-3K)	9-18	5	400	76	1500(3000)
PAWS-1212(-3K)	9-18	12	168	80	1500(3000)
PAWS-1215(-3K)	9-18	15	133	80	1500(3000)
PAWS-1224(-3K)	9-18	24	83	78	1500(3000)
PAWD-1205	9-18	+/-5	+/-200	74	1500
PAWD-1212	9-18	+/-12	+/-83	74	1500
PAWD-1215	9-18	+/-15	+/-67	74	1500
PAWS-2405(-3K)	18-36	5	400	76	1500(3000)
PAWS-2412(-3K)	18-36	12	168	80	1500(3000)
PAWS-2415(-3K)	18-36	15	133	79	1500(3000)
PAWS-2424(-3K)	18-36	24	83	78	1500(3000)
PAWD-2405	18-36	+/-5	+/-200	74	1500
PAWD-2412	18-36	+/-12	+/-83	74	1500
PAWD-2415	18-36	+/-15	+/-67	74	1500
PAWS-4805(-3K)	36-75	5	400	78	1500(3000)
PAWS-4812(-3K)	36-75	12	168	82	1500(3000)
PAWS-4815(-3K)	36-75	15	133	82	1500(3000)
PAWS-4824(-3K)	36-75	24	83	77	1500(3000)
PAWD-4805	36-75	+/-5	+/-200	74	1500
PAWD-4812	36-75	+/-12	+/-83	77	1500
PAWD-4815	36-75	+/-15	+/-67	77	1500

[1] *PAW*-****-3K* *FOR 3000VDC ISOLATION VOLTAGE*

4:1 2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PAWS-1203.3T(-3K)	9-36	3.3	500	70	1500(3000)
PAWS-1205T(-3K)	9-36	5	400	74	1500(3000)
PAWS-1212T(-3K)	9-36	12	165	78	1500(3000)
PAWS-1215T(-3K)	9-36	15	133	78	1500(3000)
PAWS-1224T(-3K)	9-36	24	83	78	1500(3000)
PAWD-1215T	9-36	+/-15	+/-67	76	1500
PAWS-2403.3T(-3K)	18-75	3.3	500	70	1500(3000)
PAWS-2405T(-3K)	18-75	5	400	74	1500(3000)
PAWS-2412T(-3K)	18-75	12	165	78	1500(3000)
PAWS-2415T(-3K)	18-75	15	133	78	1500(3000)
PAWS-2424T(-3K)	18-75	24	83	78	1500(3000)

MECHANICAL DIMENSIONS



PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote	NC	+Vout	-Vout	NC
DUAL	-Vin	+Vin	ON/OFF	NC	+Vout	Com.	-Vout

CAR SERIES *2W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- 100% BURN IN
- NO EXTERNAL COMPONENTS REQUIRED
- CUSTOM SOLUTIONS AVAILABLE
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY

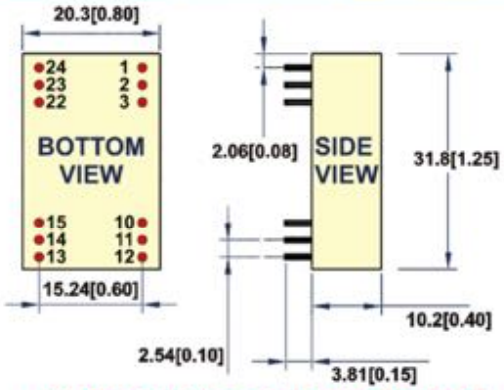
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+/-10% max.	Efficiency	52% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>850,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Transient Response	200uS max.	Humidity	95% max.		or Five-Sided Shield Case

2W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CARS-0505(M)	4.5-5.5	5	400	55	1500
CARS-0509(M)	4.5-5.5	9	222	63	1500
CARS-0512(M)	4.5-5.5	12	167	65	1500
CARS-0515(M)	4.5-5.5	15	133	64	1500
CARD-0505(M)	4.5-5.5	+/-5	+/-200	57	1500
CARD-0512(M)	4.5-5.5	+/-12	+/-84	59	1500
CARD-0515(M)	4.5-5.5	+/-15	+/-67	62	1500
CARS-1205(M)	10.8-13.2	5	400	61	1500
CARS-1209(M)	10.8-13.2	9	222	63	1500
CARS-1212(M)	10.8-13.2	12	167	66	1500
CARS-1215(M)	10.8-13.2	15	133	65	1500
CARD-1205(M)	10.8-13.2	+/-5	+/-200	61	1500
CARD-1212(M)	10.8-13.2	+/-12	+/-84	62	1500
CARD-1215(M)	10.8-13.2	+/-15	+/-67	65	1500
CARS-2405(M)	21.6-26.4	5	400	61	1500
CARS-2409(M)	21.6-26.4	9	222	66	1500
CARS-2412(M)	21.6-26.4	12	167	69	1500
CARS-2415(M)	21.6-26.4	15	133	63	1500
CARD-2405(M)	21.6-26.4	+/-5	+/-200	63	1500
CARD-2412(M)	21.6-26.4	+/-12	+/-84	65	1500
CARD-2415(M)	21.6-26.4	+/-15	+/-67	63	1500
CARS-2805(M)	25.2-30.8	5	400	63	1500
CARS-4805(M)	43.2-52.8	5	400	63	1500
CARS-4809(M)	43.2-52.8	9	222	66	1500
CARS-4812(M)	43.2-52.8	12	167	69	1500
CARS-4815(M)	43.2-52.8	15	133	69	1500
CARD-4805(M)	43.2-52.8	+/-5	+/-200	63	1500
CARD-4812(M)	43.2-52.8	+/-12	+/-84	69	1500
CARD-4815(M)	43.2-52.8	+/-15	+/-67	63	1500

[1]*CAR*-**** ---------- Non-Conductive Plastic*
CAR-****M ------- Five-Sided Shield Case*

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13
SINGLE	+Vin	NC	NC	-Vout	+Vout	-Vin
DUAL	+Vin	-Vout	Com.	Com.	+Vout	-Vin

CBR SERIES *2W TO 3W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- 2W TO 3W REGULATED OUTPUT POWER
- NO EXTERNAL COMPONENTS REQUIRED
- 100% BURN IN
- LOW NOISE
- UL 94V-0 PACKAGE MATERIAL
- 3000VDC ISOLATION
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

REACH COMPLIANT

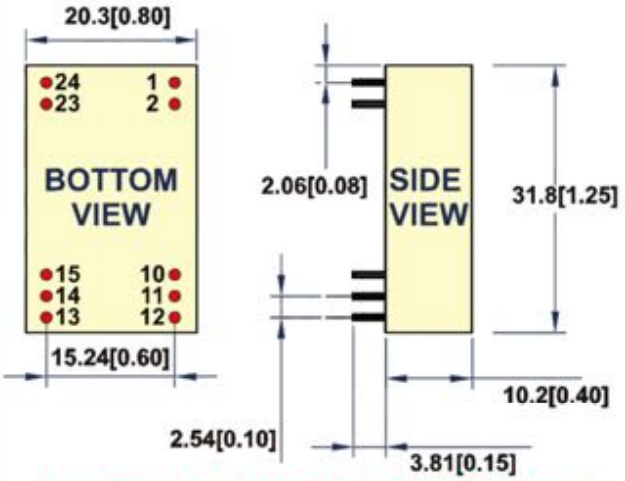
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+/-10% max.	Efficiency	61% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>850,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Humidity	95% max.	Weight	12.0g-14.4g

2W-3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CBRS-0505-3K	4.5-5.5	5	400	62	3000
CBRS-0512-3K	4.5-5.5	12	165	63	3000
CBRS-0515-3K	4.5-5.5	15	133	63	3000
CBRD-0512-3K	4.5-5.5	+/-12	+/-83	63	3000
CBRD-0515-3K	4.5-5.5	+/-15	+/-66	61	3000
CBRS-1205-3K	10.8-13.2	5	400	63	3000
CBRS-1212-3K	10.8-13.2	12	165	65	3000
CBRS-1215-3K	10.8-13.2	15	200	66	3000
CBRD-1212-3K	10.8-13.2	+/-12	+/-83	65	3000
CBRD-1215-3K	10.8-13.2	+/-15	+/-100	66	3000
CBRS-2405-3K	21.6-26.4	5	400	63	3000
CBRS-2412-3K	21.6-26.4	12	165	65	3000
CBRS-2415-3K	21.6-26.4	15	200	65	3000
CBRD-2412-3K	21.6-26.4	+/-12	+/-83	65	3000
CBRD-2415-3K	21.6-26.4	+/-15	+/-100	65	3000
CBRS-4805-3K	43.2-52.8	5	400	63	3000
CBRS-4812-3K	43.2-52.8	12	165	64	3000
CBRS-4815-3K	43.2-52.8	15	200	64	3000
CBRD-4812-3K	43.2-52.8	+/-12	+/-83	64	3000
CBRD-4815-3K	43.2-52.8	+/-15	+/-100	64	3000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1 & 2	10 & 11	12	13	14	15	23 & 24
SINGLE	+Vin	NP	-Vout	+Vout	NP	NP	-Vin
DUAL	+Vin	Com.	NP	-Vout	NP	+Vout	-Vin

PU-3 SERIES *3W UNREGULATED*

DANUBE

FEATURES

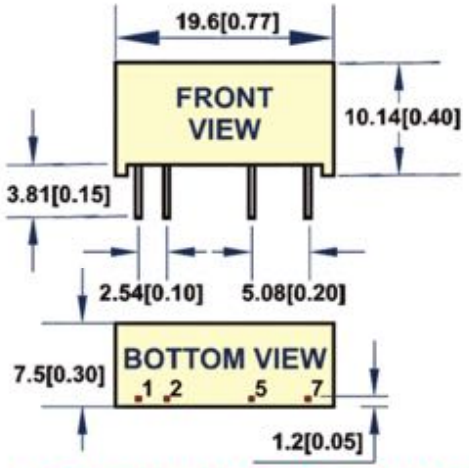
- SINGLE IN LINE PACKAGE
- 100% BURN IN
- HIGH EFFICIENCY
- LOW COST
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	+/-10% max.	Efficiency	80%-88%
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1.2% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-8% max.	Operating Temperature (5V)	-40°C to +80°C	Switching Frequency	60KHz typ.
Minimum Load	10% of Full Load	Operating Temperature	-40°C to +85°C	MTBF	>1,800,000 Hours
Short Circuit Protection	Momentary	Storage Temperature	-55°C to +125°C	Case Material	Non-Conductive Plastic
Humidity	95% max.	Cooling	Free-Air Convection	Case Size	19.6mm*7.5mm*10.2mm

3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION
PUS-0505B3	5	5	600	82	3000
PUS-0509B3	5	9	333	85	3000
PUS-0512B3	5	12	250	85	3000
PUS-0515B3	5	15	200	86	3000
PUS-1205B3	12	5	600	83	3000
PUS-1209B3	12	9	333	85	3000
PUS-1212B3	12	12	250	86	3000
PUS-1215B3	12	15	200	86	3000
PUS-2405B3	24	5	600	83	3000
PUS-2409B3	24	9	333	85	3000
PUS-2412B3	24	12	250	86	3000
PUS-2415B3	24	15	200	88	3000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

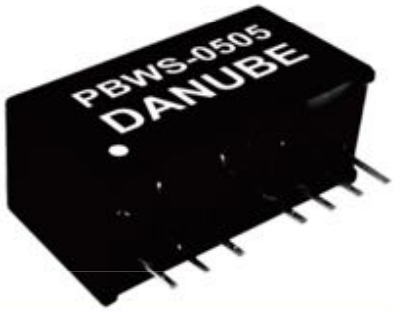
PIN	1	2	5	7
SINGLE	+Vin	-Vin	-Vout	+Vout

PBW SERIES *3W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 3W REGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 or 4:1 Input Range	Efficiency	72% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		2:1 Input Range	1500 or 3000 VDC min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +71°C	4:1 Input Range	1500 VDC min.
Load Regulation	+/-1% max.	Case Temperature	+95°C max.	Isolation Resistance	10^9 ohms min.
Minimum Load	20% of Full Load	Storage Temperature	-55°C to +105°C	Isolation Capacitance	80pF max.
Short Circuit Protection	Continuous	Humidity	95% max.	Switching Frequency	100KHz min.
Short Circuit Restart	Automatic	Cooling	Free-Air Convection	MTBF	>400,000 Hours
Over Load Protection	150% typ.	Case Material	Non-Conductive Plastic	Potting Material	Epoxy(UL94V-0)

2:1 3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
PBWS-0503.3	4.5-9	3.3	700	72	H
PBWS-0505	4.5-9	5	600	75	H
PBWS-0509	4.5-9	9	333	77	H
PBWS-0512	4.5-9	12	250	77	H
PBWS-0515	4.5-9	15	200	77	H
PBWD-0505	4.5-9	+/-5	+/-300	76	H
PBWD-0512	4.5-9	+/-12	+/-125	77	H
PBWD-0515	4.5-9	+/-15	+/-100	75	H
PBWS-1203.3	9-18	3.3	700	73	H
PBWS-1205	9-18	5	600	74	H
PBWS-1209	9-18	9	333	78	H
PBWS-1212	9-18	12	250	78	H
PBWS-1215	9-18	15	200	81	H
PBWD-1205	9-18	+/-5	+/-300	77	H
PBWD-1212	9-18	+/-12	+/-125	78	H
PBWD-1215	9-18	+/-15	+/-100	78	H
PBWS-2403.3	18-36	3.3	700	75	H
PBWS-2405	18-36	5	600	77	H
PBWS-2409	18-36	9	333	82	H
PBWS-2412	18-36	12	250	79	H
PBWS-2415	18-36	15	200	81	H
PBWD-2405	18-36	+/-5	+/-300	77	H
PBWD-2412	18-36	+/-12	+/-125	79	H
PBWD-2415	18-36	+/-15	+/-100	79	H
PBWS-4803.3	36-75	3.3	700	73	H
PBWS-4805	36-75	5	600	77	H
PBWS-4809	36-75	9	333	78	H
PBWS-4812	36-75	12	250	79	H
PBWS-4815	36-75	15	200	82	H
PBWS-4824	36-75	24	125	79	H
PBWD-4805	36-75	+/-5	+/-300	77	H
PBWD-4812	36-75	+/-12	+/-125	79	H
PBWD-4815	36-75	+/-15	+/-100	79	H

4:1 3W OUTPUT

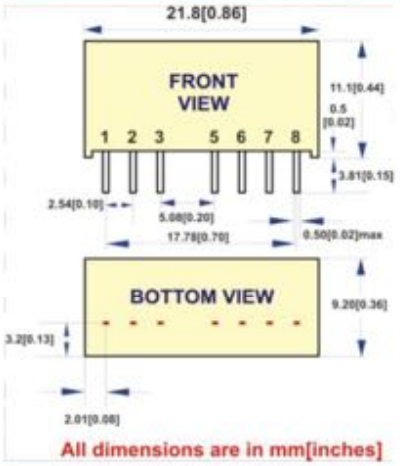
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
PBWS-1205T	9-36	5	600	80	K
PBWS-1209T	9-36	9	333	80	K
PBWS-1212T	9-36	12	250	82	K
PBWS-1215T	9-36	15	200	82	K
PBWS-2405T	18-75	5	600	80	K
PBWS-2409T	18-75	9	333	80	K
PBWS-2412T	18-75	12	250	82	K
PBWS-2415T	18-75	15	200	82	K

2:1 3W OUTPUT ISOLATION 3000VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
PBWS-0503.3-3K	4.5-9	3.3	700	72	H
PBWS-0505-3K	4.5-9	5	600	75	H
PBWS-0509-3K	4.5-9	9	333	77	H
PBWS-0512-3K	4.5-9	12	250	77	H
PBWS-0515-3K	4.5-9	15	200	77	H
PBWS-1203.3-3K	9-18	3.3	700	73	H
PBWS-1205-3K	9-18	5	600	74	H
PBWS-1209-3K	9-18	9	333	78	H
PBWS-1212-3K	9-18	12	250	78	H
PBWS-1215-3K	9-18	15	200	81	H
PBWS-2403.3-3K	18-36	3.3	700	75	H
PBWS-2405-3K	18-36	5	600	77	H
PBWS-2409-3K	18-36	9	333	82	H
PBWS-2412-3K	18-36	12	250	79	H
PBWS-2415-3K	18-36	15	200	81	H
PBWS-4803.3-3K	36-75	3.3	700	73	H
PBWS-4805-3K	36-75	5	600	77	H
PBWS-4809-3K	36-75	9	333	78	H
PBWS-4812-3K	36-75	12	250	79	H
PBWS-4815-3K	36-75	15	200	82	H
PBWS-4824-3K	36-75	24	125	79	H

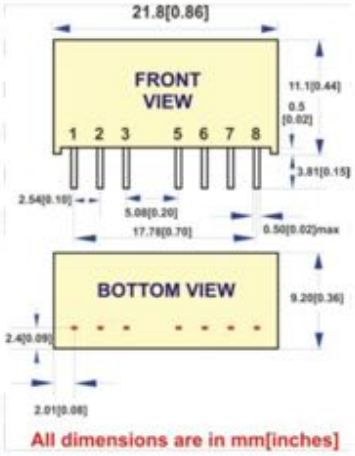
MECHANICAL DIMENSIONS

PACKAGE "H"



PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote	NC	+Vout	-Vout	NC
DUAL	-Vin	+Vin	ON/OFF	NC	+Vout	Com.	-Vout

PACKAGE "K"



PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote ON/OFF	NC	+Vout	-Vout	NC

BW SERIES *3W WIDE INPUT RANGE*

DANUBE

FEATURES

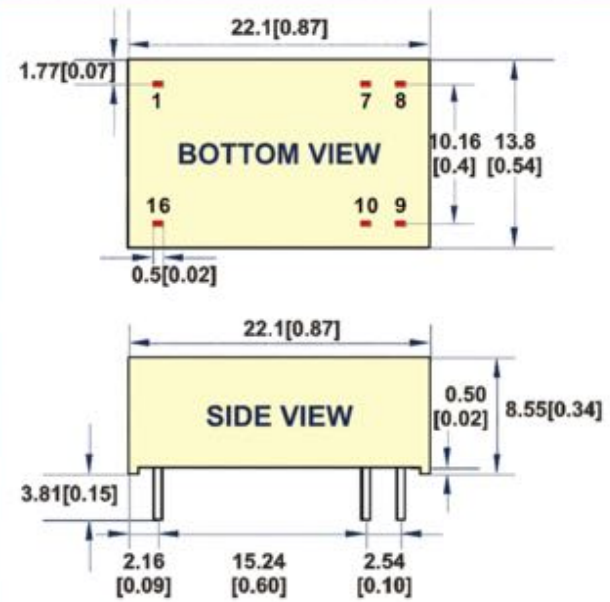
- DUAL IN LINE PACKAGE
- HIGH EFFICIENCY & INPUT UVLO
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL FILTERING
- NO EXTERNAL COMPONENTS REQUIRED
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	79% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +71°C	Switching Frequency	100KHz min.
Minimum Load	20% of Full Load	Storage Temperature	-55°C to +105°C	MTBF	>300,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max.	Case Material	Non-Conductive Plastic

3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
BWS-1205A3	9-18	5	600	79	1500
BWS-1212A3	9-18	12	250	80	1500
BWS-1215A3	9-18	15	200	81	1500
BWD-1205A3	9-18	+/-5	+-300	79	1500
BWD-1212A3	9-18	+/-12	+-125	80	1500
BWD-1215A3	9-18	+/-15	+-100	80	1500
BWS-2405A3	18-36	5	600	81	1500
BWS-2412A3	18-36	12	250	81	1500
BWS-2415A3	18-36	15	200	82	1500
BWD-2405A3	18-36	+/-5	+/-300	79	1500
BWD-2412A3	18-36	+/-12	+/-125	80	1500
BWD-2415A3	18-36	+/-15	+/-100	80	1500
BWS-4805A3	36-75	5	600	81	1500
BWS-4812A3	36-75	12	250	81	1500
BWS-4815A3	36-75	15	200	82	1500
BWD-4805A3	36-75	+/-5	+/-300	79	1500
BWD-4812A3	36-75	+/-12	+/-125	80	1500
BWD-4815A3	36-75	+/-15	+/-100	80	1500

MECHANICAL DIMENSIONS



All dimensions are in mm [inches]

PIN	1	7	8	9	10	16
SINGLE	-Vin	NC	NC	+Vout	-Vout	+Vin
DUAL	-Vin	NC	Com.	+Vout	-Vout	+Vin

CR SERIES *3W REGULATED*

DANUBE

FEATURES

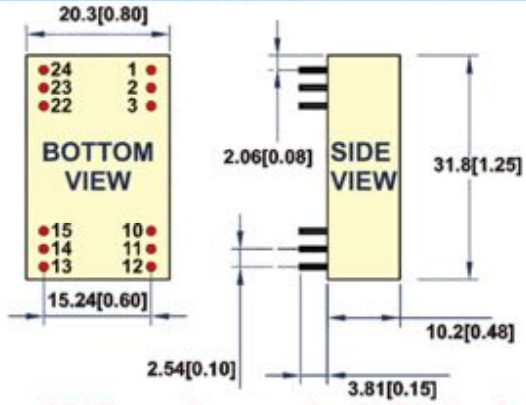
- DUAL IN LINE PACKAGE
- NO EXTERNAL COMPONENTS REQUIRED
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-3% max.	Input Voltage Range	+/-10% max.	Efficiency	50% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	50KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>850,000 Hours
Short Circuit Protection	Current Limit	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Humidity	95% max.		or Five Sided Shield Case

3W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CRS-0505(M)	4.5-5.5	5	600	63	1500
CRS-0509(M)	4.5-5.5	9	330	63	1500
CRS-0512(M)	4.5-5.5	12	250	64	1500
CRS-0515(M)	4.5-5.5	15	200	65	1500
CRS-0524(M)	4.5-5.5	24	125	66	1500
CRD-0505(M)	4.5-5.5	+/-5	+/-300	54	1500
CRD-0512(M)	4.5-5.5	+/-12	+/-125	62	1500
CRD-0515(M)	4.5-5.5	+/-15	+/-100	63	1500
CRS-1205(M)	10.8-13.2	5	600	61	1500
CRS-1209(M)	10.8-13.2	9	330	63	1500
CRS-1212(M)	10.8-13.2	12	250	65	1500
CRS-1215(M)	10.8-13.2	15	200	67	1500
CRS-1224(M)	10.8-13.2	24	125	68	1500
CRD-1205(M)	10.8-13.2	+/-5	+/-300	57	1500
CRD-1212(M)	10.8-13.2	+/-12	+/-125	63	1500
CRD-1215(M)	10.8-13.2	+/-15	+/-100	65	1500
CRS-2405(M)	21.6-26.4	5	600	63	1500
CRS-2409(M)	21.6-26.4	9	330	66	1500
CRS-2412(M)	21.6-26.4	12	250	67	1500
CRS-2415(M)	21.6-26.4	15	200	65	1500
CRS-2424(M)	21.6-26.4	24	125	68	1500
CRD-2405(M)	21.6-26.4	+/-5	+/-300	60	1500
CRD-2412(M)	21.6-26.4	+/-12	+/-125	64	1500
CRD-2415(M)	21.6-26.4	+/-15	+/-100	65	1500
CRS-4805(M)	43.2-52.8	5	600	63	1500
CRS-4809(M)	43.2-52.8	9	330	65	1500
CRS-4812(M)	43.2-52.8	12	250	66	1500
CRS-4815(M)	43.2-52.8	15	200	67	1500
CRS-4824(M)	43.2-52.8	24	125	67	1500
CRD-4805(M)	43.2-52.8	+/-5	+/-300	63	1500
CRD-4812(M)	43.2-52.8	+/-12	+/-125	65	1500
CRD-4815(M)	43.2-52.8	+/-15	+/-100	65	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13
SINGLE	+Vin	NC	NC	-Vout	+Vout	-Vin
DUAL	+Vin	-Vout	Com.	Com.	+Vout	-Vin

[1]*CR*-**** ---------- Non-Conductive Plastic*
CR-****M ------- Five-Sided Shield Case*

CW SERIES *3W-6W WIDE INPUT RANGE*

DANUBE

FEATURES

- 3W TO 6W DIL & SMD PACKAGE
- WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS

Voltage Set-point Accuracy		
Single/Dual		+/-2% max.
Separate/Triple	Out1	+/-2% max.
	Out2/Out3	+/-5% max.
Temperature Coefficient		+/-0.05% /°C
Ripple & Noise(20MHz BW)		100mVp-p max.
Line Regulation		
Single/Dual		+/-1% max.
Separate/Triple	Out1	+/-1% max.
	Out2/Out3	+/-3% max.
Load Regulation		
Single/Dual		+/-1% max.
Separate/Triple	Out1	+/-1% max.
	Out2/Out3	+/-5% max.

INPUT SPECIFICATIONS

Input Voltage Range	2:1 or 4:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to +71°C
Storage Temperature	-55°C to +125°C
Cooling	Free-Air Convection
Humidity	95% max.
Over Load Protection	110~180%
Minimum Load	20% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Transient Response	200uS max.
MTBF	>900,000 Hours

GENERAL SPECIFICATIONS

Efficiency	70% min.
Isolation Voltage	
Single/Dual/Triple	1500-3000 VDC min.
Dual Separate In to Out	1500 VDC min.
Out to Out	500 VDC min.
Isolation Resistance	10^9 ohms min.
Isolation Capacitance	40pF max.
Switching Frequency	50KHz min.
Case Material	Five-Side Shielded Case
Radiated Emissions	EN55032 Class B
Case Size(DIL)	31.8mm*20.3mm*12.2mm
Case Size(SMD)	31.8mm*20.3mm*11.4mm
	(designed to meet CE & FCC)
Weight	17.5g typ.

2:1 3W OUTPUT ISOLATION 1500VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
CWS-0503.3(ABC)3M	4.5-9	3.3	755	73	A / B / C
CWS-0505(ABCD)3M	4.5-9	5	500	73	A / B / C / D
CWS-0512(ABCD)3M	4.5-9	12	250	76	A / B / C / D
CWS-0515(ABCD)3M	4.5-9	15	200	76	A / B / C / D
CWD-0505A3M	4.5-9	+/-5	+/-300	70	A
CWD-0512(ABC)3M	4.5-9	+/-12	+/-125	74	A / B / C
CWD-0515(ABC)3M	4.5-9	+/-15	+/-100	75	A / B / C
CWS-1203.3(ABCD)3M	9-18	3.3	700	72	A / B / C / D
CWS-1205(ABCD)3M	9-18	5	600	74	A / B / C / D
CWS-1209(ABCD)3M	9-18	9	330	79	A / B / C / D
CWS-1212(ABCD)3M	9-18	12	250	80	A / B / C / D
CWS-1215(ABCD)3M	9-18	15	200	80	A / B / C / D
CWS-1224(ABCD)3M	9-18	24	125	80	A / B / C / D
CWD-1205(ABC)3M	9-18	+/-5	+/-300	74	A / B / C
CWD-1212(ABC)3M	9-18	+/-12	+/-125	79	A / B / C
CWD-1215(ABC)3M	9-18	+/-15	+/-100	79	A / B / C
CWS-2403.3(ABCD)3M	18-36	3.3	910	76	A / B / C / D
CWS-2405(ABCD)3M	18-36	5	600	75	A / B / C / D
CWS-2409(ABCD)3M	18-36	9	330	79	A / B / C / D
CWS-2412(ABCD)3M	18-36	12	250	80	A / B / C / D
CWS-2415(ABCD)3M	18-36	15	200	80	A / B / C / D
CWS-2424(ABCD)3M	18-36	24	125	80	A / B / C / D
CWD-2405(ABC)3M	18-36	+/-5	+/-300	75	A / B / C
CWD-2412(ABC)3M	18-36	+/-12	+/-125	80	A / B / C
CWD-2415(ABC)3M	18-36	+/-15	+/-100	80	A / B / C
CWS-4803.3(ABCD)3M	36-72	3.3	700	72	A / B / C / D
CWS-4805(ABCD)3M	36-72	5	600	76	A / B / C / D
CWS-4809(ABCD)3M	36-72	9	330	79	A / B / C / D
CWS-4812(ABCD)3M	36-72	12	250	80	A / B / C / D
CWS-4815(ABCD)3M	36-72	15	200	82	A / B / C / D
CWS-4824(ABCD)3M	36-72	24	125	82	A / B / C / D
CWD-4805(ABC)3M	36-72	+/-5	+/-300	76	A / B / C
CWD-4812(ABC)3M	36-72	+/-12	+/-125	78	A / B / C
CWD-4815(ABC)3M	36-72	+/-15	+/-100	79	A / B / C

2:1 3W OUTPUT ISOLATION 2000VDC

CWS-0505P3(M)	4.5-9	5	500	73	P
CWS-0512P3(M)	4.5-9	12	250	73	P
CWS-0515P3(M)	4.5-9	15	200	76	P
CWS-1203.3P3(M)	9-18	3.3	910	70	P
CWS-1205P3(M)	9-18	5	600	74	P
CWS-1209P3(M)	9-18	9	330	79	P
CWS-1212P3(M)	9-18	12	250	80	P
CWS-1215P3(M)	9-18	15	200	80	P

CWS-2403.3P3(M)	18-36	3.3	910	76	P
CWS-2405P3(M)	18-36	5	600	75	P
CWS-2409P3(M)	18-36	9	330	79	P
CWS-2412P3(M)	18-36	12	250	80	P
CWS-2415P3(M)	18-36	15	200	80	P
CWS-4803.3P3(M)	36-72	3.3	910	72	P
CWS-4805P3(M)	36-72	5	600	76	P
CWS-4809P3(M)	36-72	9	330	79	P
CWS-4812P3(M)	36-72	12	250	82	P
CWS-4815P3(M)	36-72	15	200	82	P

● 4:1 3W OUTPUT ISOLATION 1500VDC

CWS-1203.3(ABC)3TM	9-36	3.3	700	74	A or B or C
CWS-1205(ABC)3TM	9-36	5	600	74	A or B or C
CWS-1212(ABC)3TM	9-36	12	250	78	A or B or C
CWS-1215(ABC)3TM	9-36	15	200	78	A or B or C
CWS-1224(ABC)3TM	9-36	24	125	78	A or B or C
CWD-1205(ABC)3TM	9-36	+/-5	+/-300	75	A or B or C
CWD-1212(ABC)3TM	9-36	+/-12	+/-125	78	A or B or C
CWD-1215(ABC)3TM	9-36	+/-15	+/-100	78	A or B or C
CWS-2403.3(ABC)3TM	18-72	3.3	700	71	A or B or C
CWS-2405(ABC)3TM	18-72	5	600	74	A or B or C
CWS-2412(ABC)3TM	18-72	12	250	78	A or B or C
CWS-2415(ABC)3TM	18-72	15	200	80	A or B or C
CWS-2424(ABC)3TM	18-72	24	125	78	A or B or C
CWD-2405(ABC)3TM	18-72	+/-5	+/-300	74	A or B or C
CWD-2409(ABC)3TM	18-72	+/-9	+/-167	79	A or B or C
CWD-2412(ABC)3TM	18-72	+/-12	+/-125	78	A or B or C
CWD-2415(ABC)3TM	18-72	+/-15	+/-100	78	A or B or C

● 2:1 4W-6W OUTPUT ISOLATION 1500VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
CWS-0505(AB)5M	4.5-9	5	800	74	A or B
CWS-0512(AB)5M	4.5-9	12	333	75	A or B
CWS-0515(AB)5M	4.5-9	15	267	75	A or B
CWD-0505(AB)5M	4.5-9	+/-5	+/-400	71	A or B
CWD-0512(AB)5M	4.5-9	+/-12	+/-167	75	A or B
CWD-0515(AB)5M	4.5-9	+/-15	+/-133	75	A or B
CWS-1203.3(AB)5M	9-18	3.3	1200	75	A or B
CWS-1205(AB)5M	9-18	5	1000	75	A or B
CWS-1209(AB)5M	9-18	9	556	80	A or B
CWS-1212(AB)5M	9-18	12	470	80	A or B
CWS-1215(AB)5M	9-18	15	400	81	A or B
CWS-1224(AB)5M	9-18	24	208	80	A or B
CWD-1205(AB)5M	9-18	+/-5	+/-500	75	A or B
CWD-1209(AB)5M	9-18	+/-9	+/-280	80	A or B
CWD-1212(AB)5M	9-18	+/-12	+/-230	79	A or B
CWD-1215(AB)5M	9-18	+/-15	+/-190	81	A or B
CWS-2403.3(AB)5M	18-36	3.3	1200	76	A or B
CWS-2405(AB)5M	18-36	5	1000	77	A or B
CWS-2409(AB)5M	18-36	9	556	81	A or B
CWS-2412(AB)5M	18-36	12	470	80	A or B
CWS-2415(AB)5M	18-36	15	400	83	A or B
CWS-2424(AB)5M	18-36	24	208	80	A or B
CWD-2405(AB)5M	18-36	+/-5	+/-500	77	A or B
CWD-2412(AB)5M	18-36	+/-12	+/-230	82	A or B
CWD-2415(AB)5M	18-36	+/-15	+/-190	83	A or B
CWS-4803.3(AB)5M	36-72	3.3	1200	76	A or B
CWS-4805(AB)5M	36-72	5	1000	77	A or B
CWS-4809(AB)5M	36-72	9	556	80	A or B
CWS-4812(AB)5M	36-72	12	470	81	A or B
CWS-4815(AB)5M	36-72	15	400	81	A or B
CWS-4824(AB)5M	36-72	24	208	80	A or B
CWD-4805(AB)5M	36-72	+/-5	+/-500	77	A or B
CWD-4812(AB)5M	36-72	+/-12	+/-230	80	A or B
CWD-4815(AB)5M	36-72	+/-15	+/-190	81	A or B

● 4:1 4W-5W OUTPUT ISOLATION 1500VDC

CWS-1203.3A5TM	9-36	3.3	1200	70	A
CWS-1205A5TM	9-36	5	1000	76	A
CWS-1209A5TM	9-36	9	556	77	A
CWS-1212A5TM	9-36	12	417	77	A
CWS-1215A5TM	9-36	15	333	78	A
CWD-1205A5TM	9-36	+/-5	+/-500	74	A
CWD-1212A5TM	9-36	+/-12	+/-208	78	A
CWD-1215A5TM	9-36	+/-15	+/-167	78	A
CWS-2403.3A5TM	18-72	3.3	1200	72	A
CWS-2405A5TM	18-72	5	1000	77	A
CWS-2409A5TM	18-72	9	556	79	A
CWS-2412A5TM	18-72	12	417	79	A
CWS-2415A5TM	18-72	15	333	80	A
CWD-2405A5TM	18-72	+/-5	+/-500	74	A
CWD-2412A5TM	18-72	+/-12	+/-208	77	A
CWD-2415A5TM	18-72	+/-15	+/-167	80	A

● 2:1 or 4:1 3-5W DUAL SEPARATE OUTPUT

CWD-120505E3TM	9-36	V1:5V V2:5V	V1:300 V2:300	72	E
CWD-120505E5TM	9-36	V1:5V V2:5V	V1:450 V2:450	72	E
CWD-121515E3M	9-18	V1:15V V2:15V	V1:100 V2:100	72	E
CWD-121515E5TM	9-36	V1:15V V2:15V	V1:150 V2:150	74	E
CWD-122424E5TM	9-36	V1:24V V2:24V	V1:95 V2:95	74	E
CWD-241212E5M	18-36	V1:12V V2:12V	V1:188 V2:188	78	E
CWD-241515E3M	18-36	V1:15V V2:15V	V1:100 V2:100	74	E
CWD-240505E3TM	18-72	V1:5V V2:5V	V1:300 V2:300	74	E
CWD-481212E3M	36-72	V1:12V V2:12V	V1:125 V2:125	75	E

● 2:1 or 4:1 3W DUAL SEPARATE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
CWD-121515F3M	9-18	V1:15V V2:15V	V1:100 V2:100	79	F
CWD-120505F3TM	9-36	V1:5V V2:5V	V1:300 V2:300	74	F
CWD-121212F3TM	9-36	V1:12V V2:12V	V1:125 V2:125	76	F
CWD-121515F3TM	9-36	V1:15V V2:15V	V1:100 V2:100	78	F
CWD-122424F3TM	9-36	V1:24V V2:24V	V1:63 V2:63	79	F
CWD-240505F3TM	18-72	V1:5V V2:5V	V1:300 V2:300	74	F
CWD-241212F3TM	18-72	V1:12V V2:12V	V1:125 V2:125	80	F
CWD-241515F3TM	18-72	V1:15V V2:15V	V1:100 V2:100	80	F
CWD-242424F3TM	18-72	V1:24V V2:24V	V1:63 V2:63	82	F

2:1 4W TRIPLE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC) 1	2	3	CURRENT (mA) 1	2	3	EFF. (%)	PACKAGE
CWT-0505-12	4.5-9	+5	+12	-12	300	100	100	74	T
CWT-0505-15	4.5-9	+5	+15	-15	300	80	80	70	T
CWT-1205-12	9-18	+5	+12	-12	300	100	100	80	T
CWT-1205-15	9-18	+5	+15	-15	300	80	80	78	T
CWT-2405-12	18-36	+5	+12	-12	300	100	100	81	T
CWT-2405-15	18-36	+5	+15	-15	300	80	80	74	T
CWT-4805-12	36-72	+5	+12	-12	300	100	100	73	T
CWT-4805-15	36-72	+5	+15	-15	300	80	80	74	T

2:1 3W OUTPUT ISOLATION 3000VDC

CWS-0505A3M-3K	4.5-9	5	500	73	A
CWS-0512A3M-3K	4.5-9	12	250	76	A
CWS-0515A3M-3K	4.5-9	15	200	76	A
CWS-1203.3A3M-3K	9-18	3.3	700	72	A
CWS-1205A3M-3K	9-18	5	600	74	A
CWS-1209A3M-3K	9-18	9	330	79	A
CWS-1212A3M-3K	9-18	12	250	80	A
CWS-1215A3M-3K	9-18	15	200	80	A
CWD-1205A3M-3K	9-18	+/-5	+/-300	74	A
CWD-1212A3M-3K	9-18	+/-12	+/-125	79	A
CWD-1215A3M-3K	9-18	+/-15	+/-100	79	A
CWS-2403.3A3M-3K	18-36	3.3	910	77	A
CWS-2405A3M-3K	18-36	5	600	75	A
CWS-2412A3M-3K	18-36	12	250	80	A
CWS-2415A3M-3K	18-36	15	200	80	A
CWS-2424A3M-3K	18-36	24	125	81	A
CWD-2405A3M-3K	18-36	+/-5	+/-300	75	A
CWD-2412A3M-3K	18-36	+/-12	+/-125	80	A
CWD-2415A3M-3K	18-36	+/-15	+/-100	80	A
CWS-4805A3M-3K	36-72	5	600	76	A
CWS-4812A3M-3K	36-72	12	250	80	A
CWS-4815A3M-3K	36-72	15	200	82	A
CWD-4805A3M-3K	36-72	+/-5	+/300	76	A
CWD-4812A3M-3K	36-72	+/-12	+/-125	78	A
CWD-4815A3M-3K	36-72	+/15	+/-100	79	A

4:1 3W OUTPUT ISOLATION 3000VDC

CWS-1205A3TM-3K	9-36	5	600	74	A
CWS-1212A3TM-3K	9-36	12	250	78	A
CWS-1215A3TM-3K	9-36	15	200	78	A
CWD-1205A3TM-3K	9-36	+/-5	+/-300	75	A
CWD-1212A3TM-3K	9-36	+/-12	+/-125	78	A
CWD-1215A3TM-3K	9-36	+/-15	+/-100	78	A
CWS-2405A3TM-3K	18-72	5	600	74	A
CWS-2412A3TM-3K	18-72	12	250	80	A
CWS-2415A3TM-3K	18-72	15	200	80	A
CWD-2405A3TM-3K	18-72	+/-5	+/-300	74	A
CWD-2412A3TM-3K	18-72	+/-12	+/-125	78	A
CWD-2415A3TM-3K	18-72	+/-15	+/-100	78	A

2:1 4W-6W OUTPUT ISOLATION 3000VDC

CWS-0505A5M-3K	4.5-9	5	800	74	A
CWS-1205A5M-3K	9-18	5	1000	75	A
CWS-1212A5M-3K	9-18	12	470	80	A
CWS-1215A5M-3K	9-18	15	400	81	A
CWD-1205A5M-3K	9-18	+/-5	+/-500	75	A
CWD-1212A5M-3K	9-18	+/-12	+/-230	79	A
CWD-1215A5M-3K	9-18	+/-15	+/-190	81	A
CWS-2405A5M-3K	18-36	5	1000	77	A
CWS-2412A5M-3K	18-36	12	470	82	A
CWS-2415A5M-3K	18-36	15	400	83	A
CWD-2405A5M-3K	18-36	+/-5	+/-500	77	A
CWD-2412A5M-3K	18-36	+/-12	+/-230	82	A
CWD-2415A5M-3K	18-36	+/-15	+/-190	83	A
CWS-4805A5M-3K	36-72	5	1000	77	A
CWS-4812A5M-3K	36-72	12	470	80	A
CWS-4815A5M-3K	36-72	15	400	85	A
CWD-4805A5M-3K	36-72	+/-5	+/-500	77	A
CWD-4812A5M-3K	36-72	+/-12	+/-230	83	A
CWD-4815A5M-3K	36-72	+/-15	+/-190	81	A

4:1 5W OUTPUT ISOLATION 3000VDC

CWS-1205A5TM-3K	9-36	5	1000	76	A
CWS-1212A5TM-3K	9-36	12	417	77	A
CWS-1215A5TM-3K	9-36	15	333	78	A
CWD-1205A5TM-3K	9-36	+/-5	+/-500	74	A
CWD-1212A5TM-3K	9-36	+/-12	+/-208	78	A
CWD-1215A5TM-3K	9-36	+/-15	+/-167	78	A
CWS-2405A5TM-3K	18-72	5	1000	77	A
CWS-2412A5TM-3K	18-72	12	417	79	A
CWS-2415A5TM-3K	18-72	15	333	80	A
CWD-2405A5TM-3K	18-72	+/-5	+/-500	74	A
CWD-2412A5TM-3K	18-72	+/-12	+/-208	77	A
CWD-2415A5TM-3K	18-72	+/-15	+/-167	80	A

2:1 3W OUTPUT SMD PACKAGE

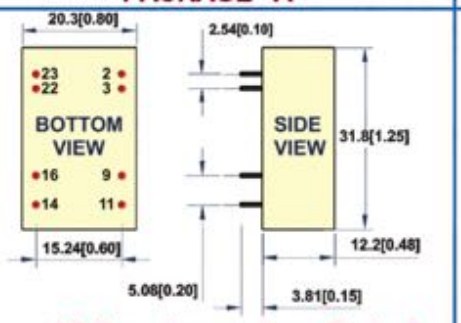
CWS-1205(ABC)3MS	9-18	5	600	80	A or B or C
CWS-1212(ABC)3MS	9-18	12	250	83	A or B or C
CWS-1215(ABC)3MS	9-18	15	200	84	A or B or C
CWD-1205(ABC)3MS	9-18	+/-5	+/-300	80	A or B or C
CWD-1212(ABC)3MS	9-18	+/-12	+/-125	83	A or B or C
CWD-1215(ABC)3MS	9-18	+/-15	+/-100	84	A or B or C
CWS-2405(ABC)3MS	18-36	5	600	81	A or B or C
CWS-2412(ABC)3MS	18-36	12	250	84	A or B or C
CWS-2415(ABC)3MS	18-36	15	200	85	A or B or C
CWD-2405(ABC)3MS	18-36	+/-5	+/-300	81	A or B or C
CWD-2412(ABC)3MS	18-36	+/-12	+/-125	84	A or B or C
CWD-2415(ABC)3MS	18-36	+/-15	+/-100	84	A or B or C
CWS-4805(ABC)3MS	36-72	5	600	83	A or B or C
CWS-4812(ABC)3MS	36-72	12	250	85	A or B or C
CWS-4815(ABC)3MS	36-72	15	200	85	A or B or C
CWD-4805(ABC)3MS	36-72	+/-5	+/-300	83	A or B or C
CWD-4812(ABC)3MS	36-72	+/-12	+/-125	85	A or B or C
CWD-4815(ABC)3MS	36-72	+/-15	+/-100	85	A or B or C

2:1 5W OUTPUT SMD PACKAGE

CWS-1205(ABC)5MS	9-18	5	1000	80	A or B or C
CWS-1212(ABC)5MS	9-18	12	470	82	A or B or C
CWS-1215(ABC)5MS	9-18	15	400	84	A or B or C
CWD-1205(ABC)5MS	9-18	+/-5	+/-500	80	A or B or C
CWD-1212(ABC)5MS	9-18	+/-12	+/-230	83	A or B or C
CWD-1215(ABC)5MS	9-18	+/-15	+/-190	82	A or B or C
CWS-2405(ABC)5MS	18-36	5	1000	81	A or B or C
CWS-2412(ABC)5MS	18-36	12	470	83	A or B or C
CWS-2415(ABC)5MS	18-36	15	400	85	A or B or C
CWD-2405(ABC)5MS	18-36	+/-5	+/-500	81	A or B or C
CWD-2412(ABC)5MS	18-36	+/-12	+/-230	84	A or B or C
CWD-2415(ABC)5MS	18-36	+/-15	+/-190	84	A or B or C
CWS-4805(ABC)5MS	36-72	5	1000	82	A or B or C
CWS-4812(ABC)5MS	36-72	12	470	85	A or B or C
CWS-4815(ABC)5MS	36-72	15	400	85	A or B or C
CWD-4805(ABC)5MS	36-72	+/-5	+/-500	82	A or B or C
CWD-4812(ABC)5MS	36-72	+/-12	+/-230	85	A or B or C
CWD-4815(ABC)5MS	36-72	+/-15	+/-190	85	A or B or C

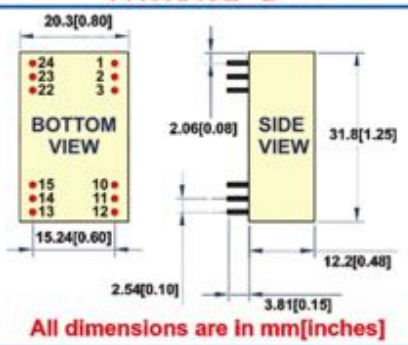
MECHANICAL DIMENSIONS

PACKAGE "A"



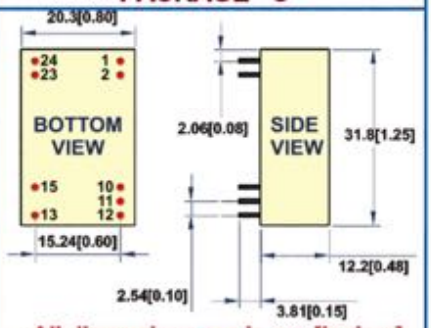
All dimensions are in mm[inches]

PACKAGE "B"



All dimensions are in mm[inches]

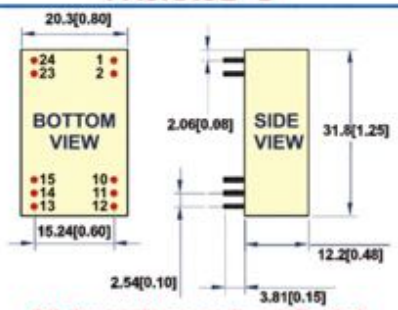
PACKAGE "C"



All dimensions are in mm[inches]

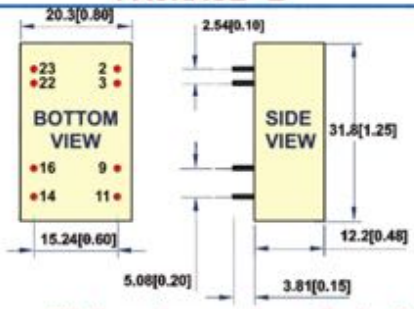
PIN	2 & 3	9	11	14	16	22 & 23	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13	1 & 2	10 & 11	12	13	15	23 & 24
SINGLE	-Vin	NC	NC	+Vout	-Vout	+Vin	+Vin	NP	NP	-Vout	+Vout	-Vin	+Vin	NC	-Vout	+Vout	NC	-Vin
DUAL	-Vin	Com.	-Vout	+Vout	Com.	+Vin	+Vin	-Vout	Com.	Com.	+Vout	-Vin	+Vin	Com.	NC	-Vout	+Vout	-Vin

PACKAGE "D"



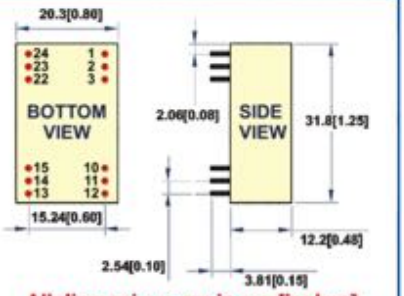
All dimensions are in mm[inchs]

PACKAGE "E"



All dimensions are in mm[inches]

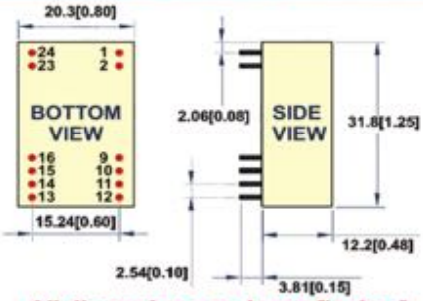
PACKAGE "F"



All dimensions are in mm[inches]

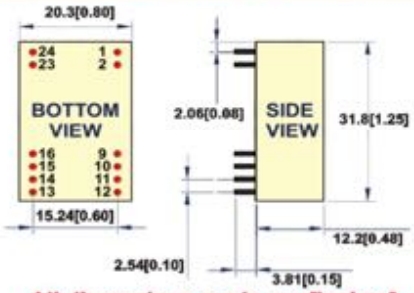
PIN	1 & 24	2 & 23	10 & 15	11 & 14	12 & 13	PIN	2 & 3	9	11	14	16	22 & 23	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13
SINGLE	+Vin	-Vin	-Vout	NC	+Vout	DUAL	- Vin	-Vout2	+Vout2	+Vout1	-Vout1	+Vin	+Vin	-Vout2	+Vout2	-Vout1	+Vout1	-Vin

PACKAGE "P"



All dimensions are in mm[inches]

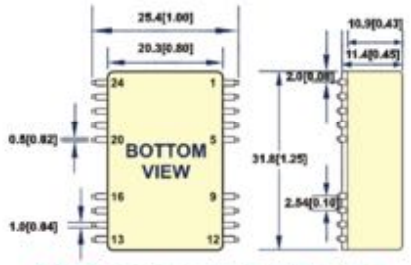
PACKAGE "T"



All dimensions are in mm[inches]

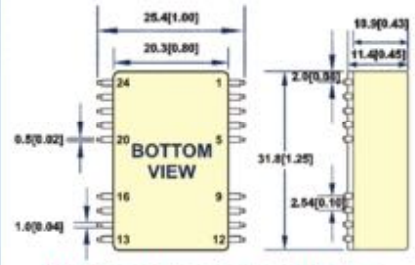
PIN	1 & 2	23 & 24	9 & 10	11 & 12	13 & 14	15 & 16	PIN	1 & 2	23 & 24	9 & 16	10 & 15	11 & 14	12 & 13
SINGLE	+Vin	-Vin	-Vout	+Vout	NC	NC	TRIPLE	-Vin	+Vin	-Vout3	Com.	+Vout1	+Vout2

SMD PACKAGE "A"



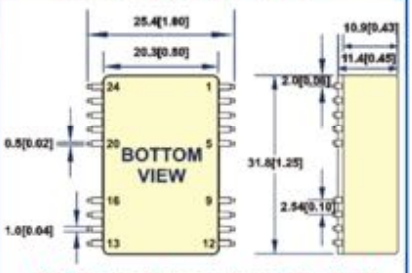
All dimensions are in mm[inches]

SMD PACKAGE "B"



All dimensions are in mm[inches]

SMD PACKAGE "C"



All dimensions are in mm[inches]

PIN	1	2 & 3	9	11	14	16	22 & 23	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13	1 & 2	10 & 11	12	13	15	23 & 24
SINGLE	Remote	-Vin	NC	NC	+Vout	-Vout	+Vin	+Vin	NC	NC	-Vout	+Vout	-Vin	+Vin	NC	-Vout	+Vout	NC	-Vin
DUAL	ON/OFF	-Vin	Com.	-Vout	+Vout	Com.	+Vin	+Vin	-Vout	Com.	Com.	+Vout	-Vin	+Vin	Com.	NC	-Vout	+Vout	-Vin

CQW-6K SERIES *3W-5W WIDE INPUT RANGE*

DANUBE

FEATURES

- HIGH EFFICIENCY
- 100% BURN IN
- 6000VDC ISOLATION
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	70% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	6000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +85°C	Isolation Capacitance	40pF max.
Load Regulation	+/-0.5% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	50KHz min.
Minimum Load	20% of Full Load	Short Circuit Protection	Continuous	MTBF	>900,000 Hours

2:1 3W OUTPUT ISOLATION 6000VDC

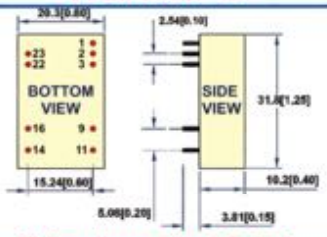
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
CQWS-0505(AC)3-6K	4.5-9	5	500	75	A or C
CQWS-0512(AC)3-6K	4.5-9	12	250	76	A or C
CQWS-0515(AC)3-6K	4.5-9	15	200	76	A or C
CQWD-0505(AC)3-6K	4.5-9	+/-5	+/-300	70	A or C
CQWD-0512(AC)3-6K	4.5-9	+/-12	+/-125	74	A or C
CQWD-0515(AC)3-6K	4.5-9	+/-15	+/-100	75	A or C
CQWS-1205(AC)3-6K	9-18	5	600	78	A or C
CQWS-1212(AC)3-6K	9-18	12	250	80	A or C
CQWS-1215(AC)3-6K	9-18	15	200	80	A or C
CQWD-1205(AC)3-6K	9-18	+/-5	+/-300	74	A or C
CQWD-1212(AC)3-6K	9-18	+/-12	+/-125	79	A or C
CQWD-1215(AC)3-6K	9-18	+/-15	+/-100	79	A or C
CQWS-2405(AC)3-6K	18-36	5	600	78	A or C
CQWS-2412(AC)3-6K	18-36	12	250	80	A or C
CQWS-2415(AC)3-6K	18-36	15	200	80	A or C
CQWD-2405(AC)3-6K	18-36	+/-5	+/-300	75	A or C
CQWD-2412(AC)3-6K	18-36	+/-12	+/-125	80	A or C
CQWD-2415(AC)3-6K	18-36	+/-15	+/-100	80	A or C
CQWS-4805(AC)3-6K	36-72	5	600	76	A or C
CQWS-4812(AC)3-6K	36-72	12	250	78	A or C
CQWS-4815(AC)3-6K	36-72	15	200	82	A or C
CQWD-4805(AC)3-6K	36-72	+/-5	+/-300	76	A or C
CQWD-4812(AC)3-6K	36-72	+/-12	+/-125	78	A or C
CQWD-4815(AC)3-6K	36-72	+/-15	+/-100	79	A or C

2:1 4W-6W OUTPUT ISOLATION 6000VDC

CQWS-0505(AC)5-6K	4.5-9	5	800	74	A or C
CQWS-0512(AC)5-6K	4.5-9	12	333	75	A or C
CQWS-0515(AC)5-6K	4.5-9	15	267	75	A or C
CQWD-0505(AC)5-6K	4.5-9	+/-5	+/-400	71	A or C
CQWD-0512(AC)5-6K	4.5-9	+/-12	+/-167	75	A or C
CQWD-0515(AC)5-6K	4.5-9	+/-15	+/-133	75	A or C
CQWS-1205(AC)5-6K	9-18	5	1000	79	A or C
CQWS-1212(AC)5-6K	9-18	12	470	80	A or C
CQWS-1215(AC)5-6K	9-18	15	400	81	A or C
CQWD-1205(AC)5-6K	9-18	+/-5	+/-500	75	A or C
CQWD-1212(AC)5-6K	9-18	+/-12	+/-208	79	A or C
CQWD-1215(AC)5-6K	9-18	+/-15	+/-167	81	A or C
CQWS-2405(AC)5-6K	18-36	5	1000	77	A or C
CQWS-2412(AC)5-6K	18-36	12	470	80	A or C
CQWS-2415(AC)5-6K	18-36	15	400	83	A or C
CQWD-2405(AC)5-6K	18-36	+/-5	+/-500	77	A or C
CQWD-2412(AC)5-6K	18-36	+/-12	+/-208	82	A or C
CQWD-2415(AC)5-6K	18-36	+/-15	+/-167	83	A or C
CQWS-4805(AC)5-6K	36-72	5	1000	79	A or C
CQWS-4812(AC)5-6K	36-72	12	470	80	A or C
CQWS-4815(AC)5-6K	36-72	15	400	81	A or C
CQWD-4805(AC)5-6K	36-72	+/-5	+/-500	77	A or C
CQWD-4812(AC)5-6K	36-72	+/-12	+/-208	80	A or C
CQWD-4815(AC)5-6K	36-72	+/-15	+/-167	81	A or C

MECHANICAL DIMENSIONS

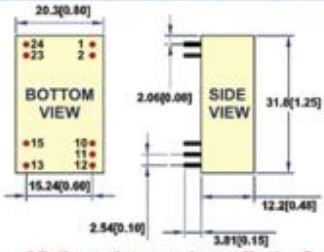
PACKAGE "A"



All dimensions are in mm[inches]

PIN	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote	-Vin	NC	NC	+Vout	-Vout	+Vin
DUAL	ON/OFF	-Vin	Com.	-Vout	+Vout	Com.	+Vin

PACKAGE "C"



All dimensions are in mm[inches]

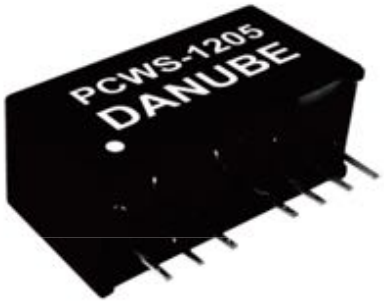
PIN	1 & 2	10 & 11	12	13	15	23 &24
SINGLE	+Vin	NC	-Vout	+Vout	NC	-Vin
DUAL	+Vin	Com.	NC	-Vout	+Vout	-Vin

PCW SERIES *5W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 5W REGULATED OUTPUT POWER
- INTERNAL FILTERING
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

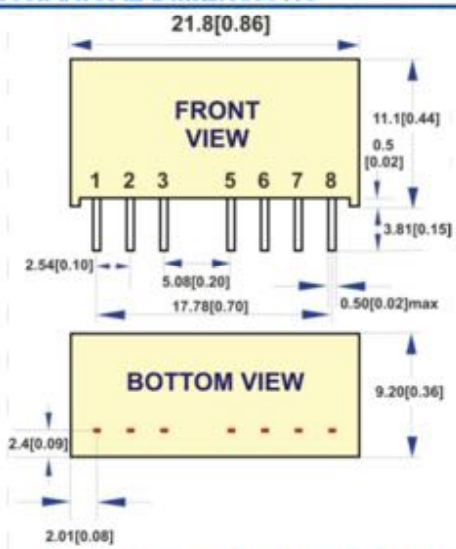


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	79% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +60°C	Isolation Capacitance	80pF max.
Load Regulation	+/-1% max.	Storage Temperature	-55°C to +105°C	Switching Frequency	100KHz min.
Minimum Load	20% of Full Load	Humidity	95% max.	MTBF	>400,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Over Load Protection	150% typ.	Potting Material	Epoxy(UL94V-0)

2:1 5W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PCWS-0505	4.5-9	5	800	80	1500
PCWS-1203.3	9-18	3.3	1200	80	1500
PCWS-1205	9-18	5	1000	81	1500
PCWS-1212	9-18	12	417	85	1500
PCWS-1215	9-18	15	333	84	1500
PCWD-1205	9-18	+/-5	+/-500	79	1500
PCWD-1212	9-18	+/-12	+/-208	81	1500
PCWD-1215	9-18	+/-15	+/-167	82	1500
PCWS-2403.3	18-36	3.3	1200	81	1500
PCWS-2405	18-36	5	1000	83	1500
PCWS-2412	18-36	12	417	85	1500
PCWS-2415	18-36	15	333	85	1500
PCWD-2405	18-36	+/-5	+/-500	79	1500
PCWD-2412	18-36	+/-12	+/-208	81	1500
PCWD-2415	18-36	+/-15	+/-167	82	1500
PCWS-4803.3	36-75	3.3	1200	81	1500
PCWS-4805	36-75	5	1000	81	1500
PCWS-4812	36-75	12	417	85	1500
PCWS-4815	36-75	15	333	85	1500
PCWD-4805	36-75	+/-5	+/-500	79	1500
PCWD-4812	36-75	+/-12	+/-208	81	1500
PCWD-4815	36-75	+/-15	+/-167	82	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote	NC	+Vout	-Vout	NC
DUAL	-Vin	+Vin	ON/OFF	NC	+Vout	Com.	-Vout

LW SERIES *5W WIDE INPUT RANGE*

DANUBE

FEATURES

- 5W DIL PACKAGE
- REGULATED OUTPUT
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1-4:1 Input Range	Efficiency	70% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	120pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	100KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>670,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	200uS max.	Humidity	95% max.	Weight	31.2g typ.

2:1 5W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	ISOLATION (VDC)
LWS-1205H(-3K)	9-18	5	1000	75	1500(3000)
LWS-1209H(-3K)	9-18	9	556	80	1500(3000)
LWS-1212H(-3K)	9-18	12	417	80	1500(3000)
LWS-1215H(-3K)	9-18	15	333	81	1500(3000)
LWD-1205H(-3K)	9-18	+/-5	+/-500	75	1500(3000)
LWD-1212H(-3K)	9-18	+/-12	+/-208	77	1500(3000)
LWD-1215H(-3K)	9-18	+/-15	+/-167	76	1500(3000)
LWS-2405H(-3K)	18-36	5	1000	77	1500(3000)
LWS-2409H(-3K)	18-36	9	556	80	1500(3000)
LWS-2412H(-3K)	18-36	12	417	82	1500(3000)
LWS-2415H(-3K)	18-36	15	333	81	1500(3000)
LWD-2405H(-3K)	18-36	+/-5	+/-500	77	1500(3000)
LWD-2412H(-3K)	18-36	+/-12	+/-208	80	1500(3000)
LWD-2415H(-3K)	18-36	+/-15	+/-167	80	1500(3000)
LWS-4805H(-3K)	36-72	5	1000	77	1500(3000)
LWS-4809H(-3K)	36-72	9	556	80	1500(3000)
LWS-4812H(-3K)	36-72	12	417	81	1500(3000)
LWS-4815H(-3K)	36-72	15	333	81	1500(3000)
LWD-4805H(-3K)	36-72	+/-5	+/-500	77	1500(3000)
LWD-4812H(-3K)	36-72	+/-12	+/-208	80	1500(3000)
LWD-4815H(-3K)	36-72	+/-15	+/-167	80	1500(3000)

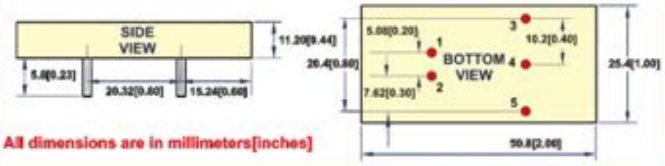
3:1 5W OUTPUT

LWS-1205HG	9-27	5	1000	78	1500
LWS-1209HG	9-27	9	556	76	1500
LWS-1212HG	9-27	12	417	79	1500
LWS-1215HG	9-27	15	333	80	1500
LWD-1205HG	9-27	+/-5	+/-500	77	1500
LWD-1212HG	9-27	+/-12	+/-208	77	1500
LWD-1215HG	9-27	+/-15	+/-167	80	1500
LWS-2405HG	18-54	5	1000	75	1500
LWS-2409HG	18-54	9	556	78	1500
LWS-2412HG	18-54	12	417	80	1500
LWS-2415HG	18-54	15	333	81	1500
LWD-2412HG	18-54	+/-12	+/-208	81	1500
LWD-2415HG	18-54	+/-15	+/-167	81	1500

4:1 5W OUTPUT

LWS-1205HT(-3K)	9-36	5	1000	78	1500(3000)
LWS-1209HT-(3K)	9-36	9	556	76	1500(3000)
LWS-1212HT-(3K)	9-36	12	417	77	1500(3000)
LWS-1215HT(-3K)	9-36	15	333	77	1500(3000)
LWD-1205HT(-3K)	9-36	+/-5	+/-500	77	1500(3000)
LWD-1212HT(-3K)	9-36	+/-12	+/-208	77	1500(3000)
LWD-1215HT(-3K)	9-36	+/-15	+/-167	77	1500(3000)
LWS-2405HT(-3K)	18-72	5	1000	75	1500(3000)
LWS-2409HT(-3K)	18-72	9	556	78	1500(3000)
LWS-2412HT(-3K)	18-72	12	417	80	1500(3000)
LWS-2415HT(-3K)	18-72	15	333	81	1500(3000)
LWD-2412HT(-3K)	18-72	+/-12	+/-208	81	1500(3000)
LWD-2415HT(-3K)	18-72	+/-15	+/-167	81	1500(3000)

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NP	-Vout
DUAL	+Vin	-Vin	+Vout	Com.	-Vout

[1] *LW*-****-3K* *FOR 3000VDC ISOLATION VOLTAGE*

CMW SERIES *6W WIDE INPUT RANGE*

DANUBE

FEATURES

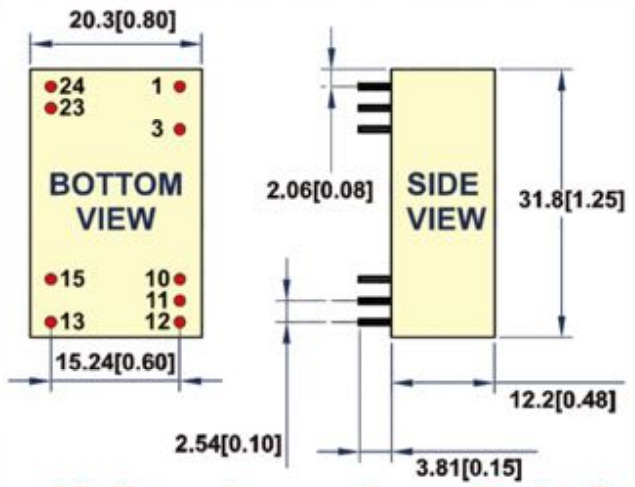
- 6W DIL PACKAGE
- 9-36V,18-75V WIDE INPUT RANGE
- CERTIFICATION ACCORDING TO EN 60601-1 3rd EDITION FOR 2 X MOPP
- I/O ISOLATION 5000VAC RATED FOR 250VAC WORKING VOLTAGE
- LOW LEAKAGE CURRENT
- UL 94V-0 PACKAGE MATERIAL
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	4:1 Input Range	Efficiency	80% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	5000VAC typ.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.			Isolation Capacitance	20pF typ.
Load Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Switching Frequency	400KHz typ.
Minimum Load	20% of Full Load	Operating Temperature	-40°C to +71°C	Reinforced Insulation	
Short Circuit Protection	Continuous	Case Temperature	+105°C max.	Creepage Distances	8mm min.
Short Circuit Restart	Automatic	Storage Temperature	-55°C to +100°C	Air Clearances	8mm min.
Over Load Protection	120% typ.	Humidity	95% max.	Case Material	Non-Conductive Plastic
Transient Response	500uS max.	Cooling	Free-Air Convection	Weight	17g typ.

2:1 6W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
CMWS-1205C6T	9-36	5	1200	80
CMWS-1212C6T	9-36	12	500	82
CMWS-1215C6T	9-36	15	400	83
CMWS-2405C6T	18-75	5	1200	80
CMWS-2412C6T	18-75	12	500	82
CMWS-2415C6T	18-75	15	400	83

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

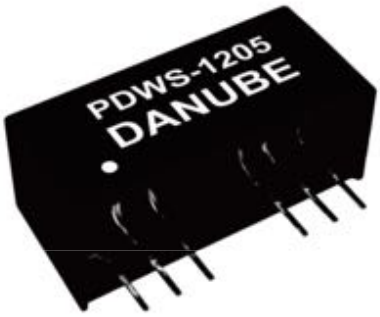
PIN	1	3	10 & 11	12	13	15	23 & 24
SINGLE	+Vin	Remote ON/OFF	NP	-Vout	+Vout	NP	-Vin

PDW SERIES *9W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 9W REGULATED OUTPUT POWER
- INTERNAL FILTERING
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

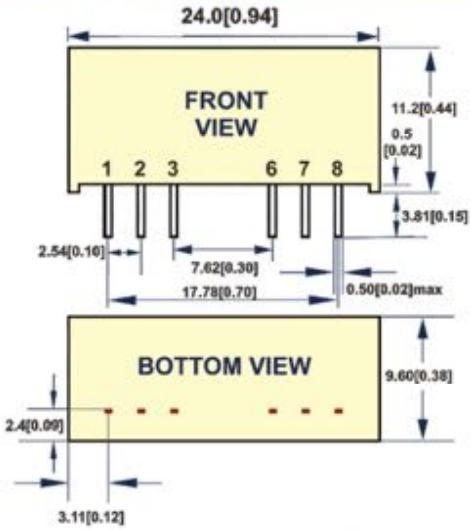


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	85% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +55°C	Isolation Capacitance	80pF max.
Load Regulation	+/-0.5% max.	Storage Temperature	-55°C to +125°C	Switching Frequency	400KHz typ.
Minimum Load	10% of Full Load	Humidity	95% max.	MTBF	>260,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Over Load Protection	150% typ.	Potting Material	Epoxy(UL94V-0)

2:1 5W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
PDWS-1205	9-18	5	1600	85	1500
PDWS-1212	9-18	12	750	88	1500
PDWS-1215	9-18	15	600	88	1500
PDWD-1205	9-18	+/-5	+/-800	85	1500
PDWD-1212	9-18	+/-12	+/-375	87	1500
PDWD-1215	9-18	+/-15	+/-300	87	1500
PDWS-2405	18-36	5	1600	85	1500
PDWS-2412	18-36	12	750	88	1500
PDWS-2415	18-36	15	600	89	1500
PDWD-2405	18-36	+/-5	+/-800	85	1500
PDWD-2412	18-36	+/-12	+/-375	87	1500
PDWD-2415	18-36	+/-15	+/-300	87	1500
PDWS-4805	36-75	5	1600	85	1500
PDWS-4812	36-75	12	750	88	1500
PDWS-4815	36-75	15	600	88	1500
PDWD-4805	36-75	+/-5	+/-800	85	1500
PDWD-4812	36-75	+/-12	+/-375	87	1500
PDWD-4815	36-75	+/-15	+/-300	87	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

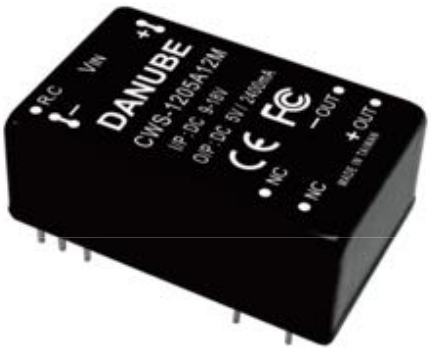
PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote ON/OFF	NC	+Vout	-Vout	NC
DUAL	-Vin	+Vin		NC	+Vout	Com.	-Vout

CW SERIES *10~12W WIDE INPUT RANGE*

DANUBE

FEATURES

- 10W~12W DIL PACKAGE
- 9-18V,18-36V,36-75V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY

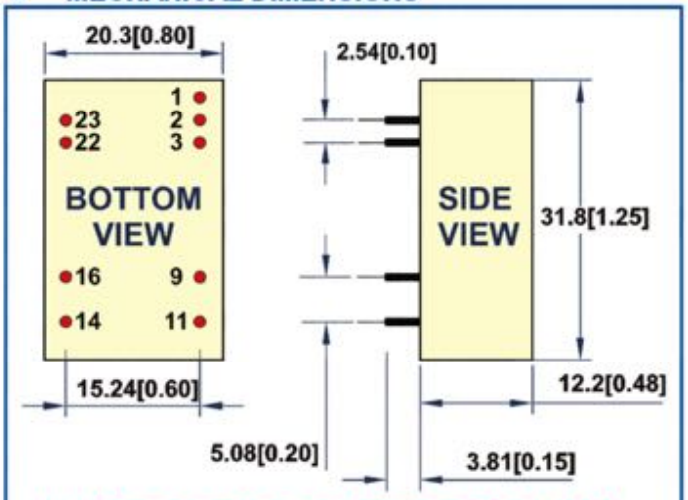


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	78% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +85°C (With derating)	Switching Frequency	400KHz typ.
Minimum Load	20% of Full Load			MTBF	>600,000 Hours
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +105°C	Case Material	Five-Side Shielded Case
Humidity	95% max.	Cooling	Free-Air Convection	Weight	18.5g typ.

2:1 10W-12W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CWS-1202.5A10M	9-18	2.5	3000	78	1500
CWS-1203.3A10M	9-18	3.3	3000	80	1500
CWS-1205A12M	9-18	5	2400	84	1500
CWS-1212A12M	9-18	12	1000	83	1500
CWS-1215A12M	9-18	15	800	84	1500
CWD-1205A12M	9-18	+/-5	+/-1200	81	1500
CWD-1212A12M	9-18	+/-12	+/-500	84	1500
CWD-1215A12M	9-18	+/-15	+/-400	85	1500
CWS-2402.5A10M	18-36	2.5	3000	78	1500
CWS-2403.3A10M	18-36	3.3	3000	80	1500
CWS-2405A12M	18-36	5	2400	85	1500
CWS-2412A12M	18-36	12	1000	83	1500
CWS-2415A12M	18-36	15	800	83	1500
CWD-2405A12M	18-36	+/-5	+/-1200	81	1500
CWD-2412A12M	18-36	+/-12	+/-500	84	1500
CWD-2415A12M	18-36	+/-15	+/-400	85	1500
CWS-4802.5A12M	36-75	2.5	3000	78	1500
CWS-4803.3A10M	36-75	3.3	3000	82	1500
CWS-4805A12M	36-75	5	2400	84	1500
CWS-4812A12M	36-75	12	1000	82	1500
CWS-4815A12M	36-75	15	800	83	1500
CWD-4805A12M	36-75	+/-5	+/-1200	81	1500
CWD-4812A12M	36-75	+/-12	+/-500	84	1500
CWD-4815A12M	36-75	+/-15	+/-400	84	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote	-Vin	NC	NC	+Vout	-Vout	+Vin
DUAL	ON/OFF	-Vin	Com.	-Vout	+Vout	Com.	+Vin

FAW SERIES *10W WIDE INPUT RANGE*

DANUBE

FEATURES

- 10W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- REGULATED OUTPUT
- 100% BURN IN
- SHORT CIRCUIT PROTECTION
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1-4:1 Input Range	Efficiency	70% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	500pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	200KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>342,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	200uS max.	Humidity	95% max.	Weight	31.2g typ.

- **2:1 7W-10W OUTPUT**

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FAWS-1203.3(A)(-3K)	9-18	3.3	2400	74	1500 or 3000
FAWS-1205(A)(-3K)	9-18	5	2000	78	1500 or 3000
FAWS-1209(A)(-3K)	9-18	9	1111	80	1500 or 3000
FAWS-1212(A)(-3K)	9-18	12	830	80	1500or 3000
FAWS-1215(A)(-3K)	9-18	15	670	81	1500 or 3000
FAWS-1224(A)(-3K)	9-18	24	416	82	1500 or 3000
FAWD-1205(A)(-3K)	9-18	+/-5	+/-1000	78	1500 or 3000
FAWD-1209(A)(-3K)	9-18	+/-9	+/-556	80	1500 or 3000
FAWD-1212(A)(-3K)	9-18	+/-12	+/-416	81	1500 or 3000
FAWD-1215(A)(-3K)	9-18	+/-15	+/-333	82	1500 or 3000
FAWD-1224(A)(-3K)	9-18	+/-24	+/-208	79	1500 or 3000
FAWS-2403.3(A)(-3K)	18-36	3.3	2400	76	1500 or 3000
FAWS-2405(A)(-3K)	18-36	5	2000	79	1500 or 3000
FAWS-2409(A)(-3K)	18-36	9	1111	80	1500 or 3000
FAWS-2412(A)(-3K)	18-36	12	830	82	1500 or 3000
FAWS-2415(A)(-3K)	18-36	15	670	83	1500 or 3000
FAWS-2424(A)(-3K)	18-36	24	416	81	1500 or 3000
FAWS-2442(A)(-3K)	18-36	42	238	79	1500 or 3000
FAWD-2405(A)(-3K)	18-36	+/-5	+/-1000	79	1500 or 3000
FAWD-2409(A)(-3K)	18-36	+/-9	+/-556	80	1500 or 3000
FAWD-2412(A)(-3K)	18-36	+/-12	+/-416	82	1500 or 3000
FAWD-2415(A)(-3K)	18-36	+/-15	+/-333	82	1500 or 3000
FAWD-2424(A)(-3K)	18-36	+/-24	+/-208	80	1500 or 3000
FAWS-4803.3(A)(-3K)	36-72	3.3	2400	76	1500 or 3000
FAWS-4805(A)(-3K)	36-72	5	2000	79	1500 or 3000
FAWS-4809(A)(-3K)	36-72	9	1111	80	1500 or 3000
FAWS-4812(A)(-3K)	36-72	12	830	82	1500 or 3000
FAWS-4815(A)(-3K)	36-72	15	670	82	1500 or 3000
FAWS-4824(A)(-3K)	36-72	24	416	82	1500 or 3000
FAWD-4805(A)(-3K)	36-72	+/-5	+/-1000	79	1500 or 3000
FAWD-4809(A)(-3K)	36-72	+/-9	+/-556	80	1500 or 3000
FAWD-4812(A)(-3K)	36-72	+/-12	+/-416	82	1500 or 3000
FAWD-4815(A)(-3K)	36-72	+/-15	+/-333	81	1500 or 3000
FAWD-4824(A)(-3K)	36-72	+/-24	+/-208	82	1500 or 3000

[1]FAW-****A PACKAGE "A" FOR REMOTE CONTROL*
FAW-****-3K FOR 3000VDC ISOLATION VOLTAGE*

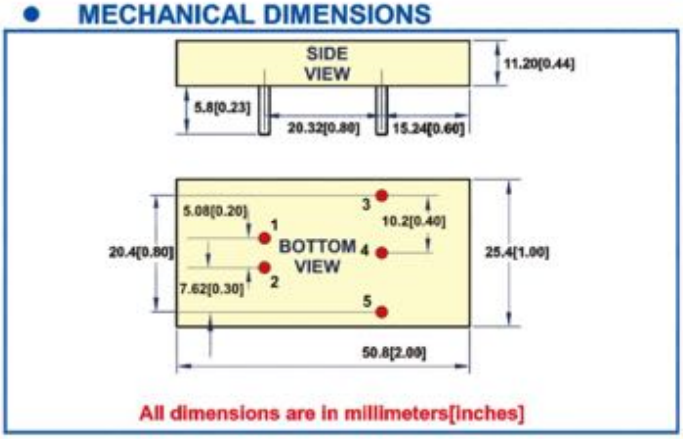
3:1 8W-10W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FAWS-1203.3G(A)(-3K)	9-27	3.3	2400	76	1500 or 3000
FAWS-1205G(A)(-3K)	9-27	5	2000	77	1500 or 3000
FAWS-1209G(A)(-3K)	9-27	9	1111	78	1500 or 3000
FAWS-1212G(A)(-3K)	9-27	12	830	79	1500 or 3000
FAWS-1215G(A)(-3K)	9-27	15	670	80	1500 or 3000
FAWS-1224G(A)(-3K)	9-27	24	417	79	1500 or 3000
FAWD-1205G(A)(-3K)	9-27	+/-5	+/-1000	77	1500 or 3000
FAWD-1209G(A)(-3K)	9-27	+/-9	+/-556	78	1500 or 3000
FAWD-1212G(A)(-3K)	9-27	+/-12	+/-416	80	1500 or 3000
FAWD-1215G(A)(-3K)	9-27	+/-15	+/-333	81	1500 or 3000
FAWS-2403.3G(A)(-3K)	18-54	3.3	2400	76	1500 or 3000
FAWS-2405G(A)(-3K)	18-54	5	2000	79	1500 or 3000
FAWS-2409G(A)(-3K)	18-54	9	1111	81	1500 or 3000
FAWS-2412G(A)(-3K)	18-54	12	830	80	1500 or 3000
FAWS-2415G(A)(-3K)	18-54	15	670	81	1500 or 3000
FAWS-2424G(A)(-3K)	18-54	24	416	81	1500 or 3000
FAWD-2405G(A)(-3K)	18-54	+/-5	+/-1000	79	1500 or 3000
FAWD-2409G(A)(-3K)	18-54	+/-9	+/-556	79	1500 or 3000
FAWD-2412G(A)(-3K)	18-54	+/-12	+/-416	80	1500 or 3000
FAWD-2415G(A)(-3K)	18-54	+/-15	+/-333	81	1500 or 3000

4:1 8W-10W OUTPUT

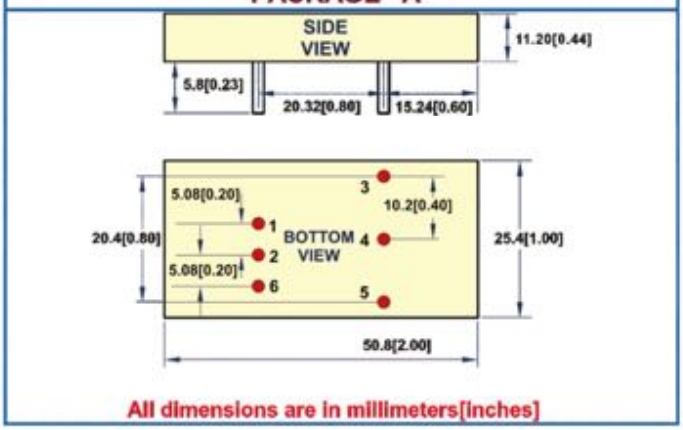
FAWS-1203.3T(A)(-3K)	9-36	3.3	2400	76	1500 or 3000
FAWS-1205T(A)(-3K)	9-36	5	2000	77	1500 or 3000
FAWS-1209T(A)(-3K)	9-36	9	1111	78	1500 or 3000
FAWS-1212T(A)(-3K)	9-36	12	830	79	1500 or 3000
FAWS-1215T(A)(-3K)	9-36	15	670	80	1500 or 3000
FAWS-1224T(A)(-3K)	9-36	24	417	79	1500 or 3000
FAWD-1205T(A)(-3K)	9-36	+/-5	+/-1000	77	1500 or 3000
FAWD-1209T(A)(-3K)	9-36	+/-9	+/-556	78	1500 or 3000
FAWD-1212T(A)(-3K)	9-36	+/-12	+/-416	80	1500 or 3000
FAWD-1215T(A)(-3K)	9-36	+/-15	+/-333	81	1500 or 3000
FAWS-2403.3T(A)(-3K)	18-72	3.3	2400	76	1500 or 3000
FAWS-2405T(A)(-3K)	18-72	5	2000	79	1500 or 3000
FAWS-2409T(A)(-3K)	18-72	9	1111	81	1500 or 3000
FAWS-2412T(A)(-3K)	18-72	12	830	80	1500 or 3000
FAWS-2415T(A)(-3K)	18-72	15	670	81	1500 or 3000
FAWS-2424T(A)(-3K)	18-72	24	417	81	1500 or 3000
FAWD-2405T(A)(-3K)	18-72	+/-5	+/-1000	79	1500 or 3000
FAWD-2409T(A)(-3K)	18-72	+/-9	+/-556	79	1500 or 3000
FAWD-2412T(A)(-3K)	18-72	+/-12	+/-416	80	1500 or 3000
FAWD-2415T(A)(-3K)	18-72	+/-15	+/-333	81	1500 or 3000

MECHANICAL DIMENSIONS



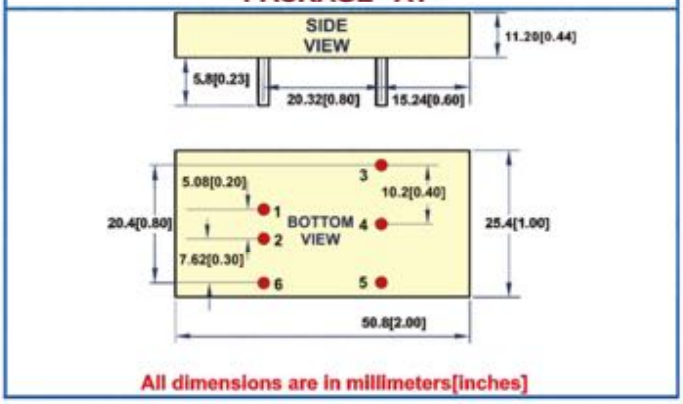
PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NP	-Vout
DUAL	+Vin	-Vin	+Vout	Com.	-Vout

PACKAGE "A"



PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	NP	-Vout	Remote ON/OFF
DUAL	+Vin	-Vin	+Vout	Com.	-Vout	

PACKAGE "A1"



PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	NP	-Vout	Remote ON/OFF
DUAL	+Vin	-Vin	+Vout	Com.	-Vout	

FAW-N SERIES *10W WIDE INPUT RANGE*

DANUBE

FEATURES

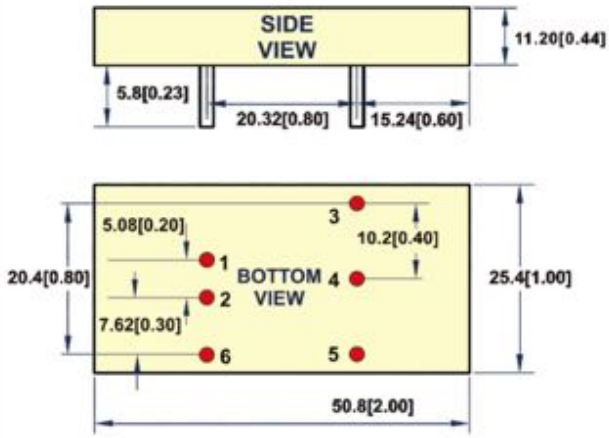
- 10W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- 9-18V,18-36V,36-75V WIDE INPUT RANGE
- REGULATED OUTPUT
- SHORT CIRCUIT PROTECTION
- RoHS COMPLIANT
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	82% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +80°C	Switching Frequency	300KHz typ.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>220,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	500uS max.	Humidity	95% max.	Weight	31.2g typ.

2:1 10W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
FAWS-1205-N	9-18	5	2000	82	1500
FAWS-1212-N	9-18	12	833	83	1500
FAWS-1215-N	9-18	15	667	83	1500
FAWS-2405-N	18-36	5	2000	83	1500
FAWS-2412-N	18-36	12	833	83	1500
FAWS-2415-N	18-36	15	667	84	1500
FAWS-4805-N	36-75	5	2000	82	1500
FAWS-4812-N	36-75	12	833	82	1500
FAWS-4815-N	36-75	15	667	83	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	NP	-Vout	NP

DCW SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

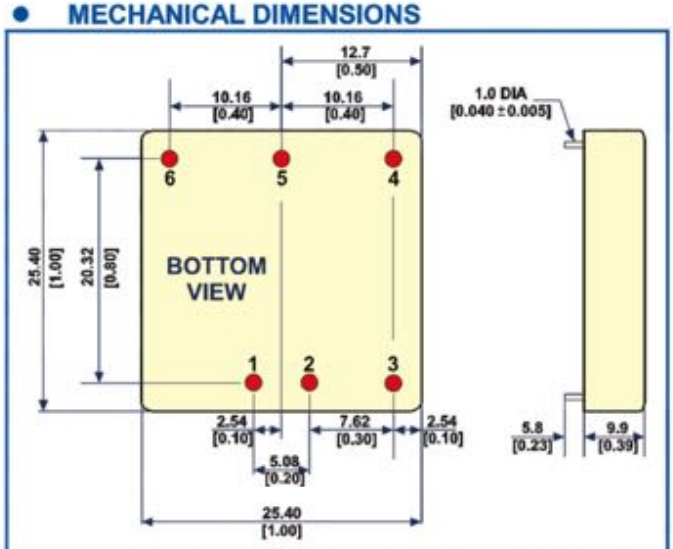
- 15W OUTPUT POWER
- ULTRA COMPACT SIZE:1.0"x1.0"x0.4"
- 9V-18V,18V-36V,36V-75V WIDE INPUT RANGE
- INDUSTRY STANDARD PACKAGE
- HIGH EFFICIENCY
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	86% typ.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC max.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +100°C (with derating)	Switching Frequency	400KHz typ.
Minimum Load	10% of Full Load			MTBF	>400,000 Hours
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +100°C	Case Material	Six-Side Shielded Case
Over Load Protection	150% typ.	Cooling	Free-Air Convection	Case Size	25.4mm*25.4mm*9.9mm
Transient Response	500uS max.	Humidity	95% max.	Weight	15g typ.

2:1 15W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
DCWS-1203.3	9-18	3.3	4000	82	1500
DCWS-1205	9-18	5	3000	86	1500
DCWS-1212	9-18	12	1250	87	1500
DCWS-1215	9-18	15	1000	88	1500
DCWS-2403.3	18-36	3.3	4000	82	1500
DCWS-2405	18-36	5	3000	87	1500
DCWS-2412	18-36	12	1250	87	1500
DCWS-2415	18-36	15	1000	88	1500
DCWS-4803.3	36-75	3.3	4000	82	1500
DCWS-4805	36-75	5	3000	86	1500
DCWS-4812	36-75	12	1250	86	1500
DCWS-4815	36-75	15	1000	87	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	Remote ON/OFF	-Vout	Trim	+Vout

FCW SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

- REGULATED OUTPUT
- 100% BURN IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 or 4:1 Input Range	Efficiency	76% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	550pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	150KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max.	Case Material	Six-Sided Shielded Case

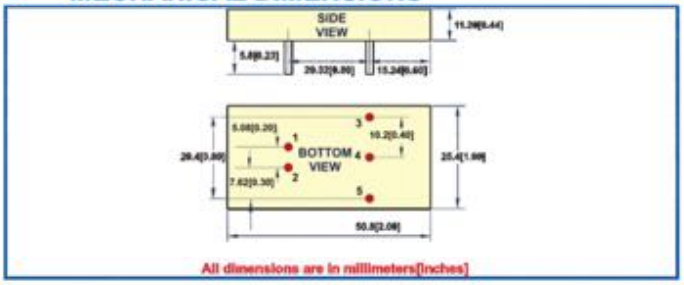
2:1 10W-15W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FCWS-1205(A)(-3K)	9-18	5	3000	79	1500 or 3000
FCWS-1212(A)(-3K)	9-18	12	1250	82	1500 or 3000
FCWS-1215(A)(-3K)	9-18	15	1000	82	1500 or 3000
FCWS-1224(A)(-3K)	9-18	24	625	80	1500 or 3000
FCWD-1205(A)(-3K)	9-18	+/-5	+/-1500	80	1500 or 3000
FCWD-1212(A)(-3K)	9-18	+/-12	+/-625	80	1500 or 3000
FCWD-1215(A)(-3K)	9-18	+/-15	+/-500	82	1500 or 3000
FCWD-1224(A)(-3K)	9-18	+/-24	+/-313	80	1500 or 3000
FCWS-2405(A)(-3K)	18-36	5	3000	79	1500 or 3000
FCWS-2412(A)(-3K)	18-36	12	1250	82	1500 or 3000
FCWS-2415(A)(-3K)	18-36	15	1000	82	1500 or 3000
FCWD-2405(A)(-3K)	18-36	+/-5	+/-1500	80	1500 or 3000
FCWD-2412(A)(-3K)	18-36	+/-12	+/-625	82	1500 or 3000
FCWD-2415(A)(-3K)	18-36	+/-15	+/-500	82	1500 or 3000
FCWS-4805(A)(-3K)	36-72	5	3000	80	1500 or 3000
FCWS-4812(A)(-3K)	36-72	12	1250	82	1500 or 3000
FCWS-4815(A)(-3K)	36-72	15	1000	82	1500 or 3000
FCWS-4824(A)(-3K)	36-72	24	625	82	1500 or 3000
FCWD-4805(A)(-3K)	36-72	+/-5	+/-1500	82	1500 or 3000
FCWD-4812(A)(-3K)	36-72	+/-12	+/-625	82	1500 or 3000
FCWD-4815(A)(-3K)	36-72	+/-15	+/-500	82	1500 or 3000

4:1 10W-15W OUTPUT

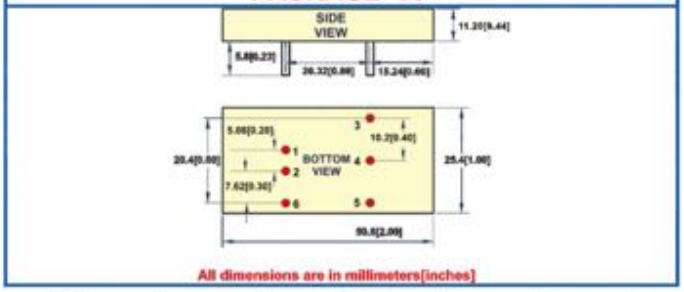
FCWS-1205T(A)	9-36	5	3000	79	1500
FCWS-1212T(A)	9-36	12	1250	82	1500
FCWS-1215T(A)	9-36	15	1000	82	1500
FCWD-1205T(A)	9-36	+/-5	+/-1500	80	1500
FCWD-1212T(A)	9-36	+/-12	+/-625	82	1500
FCWD-1215T(A)	9-36	+/-15	+/-500	82	1500
FCWS-2405T(A)	18-72	5	3000	79	1500
FCWS-2412T(A)	18-72	12	1250	82	1500
FCWS-2415T(A)	18-72	15	1000	82	1500
FCWD-2405T(A)	18-72	+/-5	+/-1500	80	1500
FCWD-2412T(A)	18-72	+/-12	+/-625	82	1500
FCWD-2415T(A)	18-72	+/-15	+/-500	82	1500

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NP	-Vout
DUAL	+Vin	-Vin	+Vout	Com.	-Vout

PACKAGE "A"



PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	NP	-Vout	Remote
DUAL	+Vin	-Vin	+Vout	Com.	-Vout	ON/OFF

[1]*FCW*-****A* — *PACKAGE "A" FOR REMOTE CONTROL*

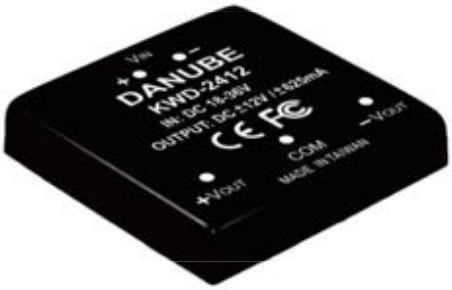
FCW-****-3K* — *FOR 3000VDC ISOLATION VOLTAGE*

KW SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

- REGULATED OUTPUT
- 100% BURN IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1-4:1 Input Range	Efficiency	73% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500-3000 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	550pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-25°C to +71°C	Switching Frequency	150KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>320,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max.	Case Material	Six-Side Shielded Case

2:1 12W-15W OUTPUT

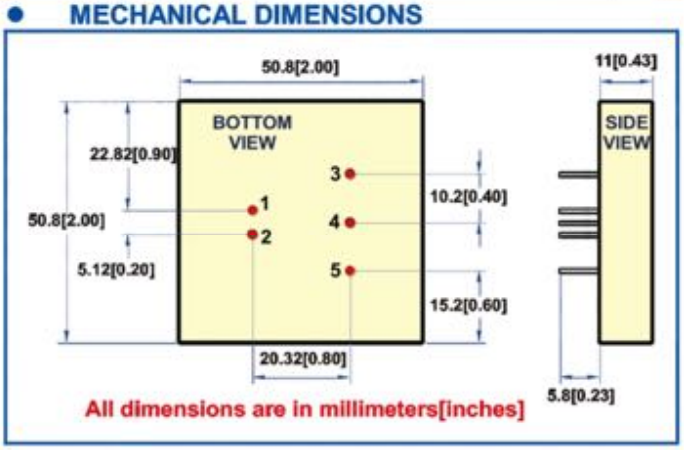
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KWS-1203.3(-3K)	9-18	3.3	3600	75	1500(3000)
KWS-1205(-3K)	9-18	5	3000	77	1500(3000)
KWS-1209(-3K)	9-18	9	1670	79	1500(3000)
KWS-1212(-3K)	9-18	12	1250	80	1500(3000)
KWS-1215(-3K)	9-18	15	1000	81	1500(3000)
KWS-1224(-3K)	9-18	24	625	81	1500(3000)
KWD-1205(-3K)	9-18	+/-5	+/-1500	77	1500(3000)
KWD-1212(-3K)	9-18	+/-12	+/-625	80	1500(3000)
KWD-1215(-3K)	9-18	+/-15	+/-500	82	1500(3000)
KWD-1224(-3K)	9-18	+/-24	+/-313	83	1500(3000)
KWS-2403.3(-3K)	18-36	3.3	3600	77	1500(3000)
KWS-2405(-3K)	18-36	5	3000	80	1500(3000)
KWS-2409(-3K)	18-36	9	1670	81	1500(3000)
KWS-2412(-3K)	18-36	12	1250	82	1500(3000)
KWS-2415(-3K)	18-36	15	1000	82	1500(3000)
KWS-2424(-3K)	18-36	24	625	80	1500(3000)
KWS-2427(-3K)	18-36	27	556	83	1500(3000)
KWD-2405(-3K)	18-36	+/-5	+/-1500	83	1500(3000)
KWD-2412(-3K)	18-36	+/-12	+/-625	82	1500(3000)
KWD-2415(-3K)	18-36	+/-15	+/-500	83	1500(3000)
KWD-2424(-3K)	18-36	+/-24	+/-313	80	1500(3000)
KWS-4803.3(-3K)	36-72	3.3	3600	77	1500(3000)
KWS-4805(-3K)	36-72	5	3000	79	1500(3000)
KWS-4812(-3K)	36-72	12	1250	82	1500(3000)
KWS-4815(-3K)	36-72	15	1000	82	1500(3000)
KWS-4824(-3K)	36-72	24	625	83	1500(3000)
KWD-4805(-3K)	36-72	+/-5	+/-1500	83	1500(3000)
KWD-4812(-3K)	36-72	+/-12	+/-625	82	1500(3000)
KWD-4815(-3K)	36-72	+/-15	+/-500	82	1500(3000)
KWD-4824(-3K)	36-72	+/-24	+/-313	83	1500(3000)

[1]*KW*-****-3K* *FOR 3000VDC ISOLATION VOLTAGE*

4:1 15W OUTPUT

KWS-1205T(-3K)	9-36	5	3000	76	1500(3000)
KWS-1209T(-3K)	9-36	9	1670	78	1500(3000)
KWS-1212T(-3K)	9-36	12	1250	80	1500(3000)
KWS-1215T(-3K)	9-36	15	1000	80	1500(3000)
KWS-1224T(-3K)	9-36	24	625	80	1500(3000)
KWD-1205T(-3K)	9-36	+/-5	+/-1500	77	1500(3000)
KWD-1212T(-3K)	9-36	+/-12	+/-625	80	1500(3000)
KWD-1215T(-3K)	9-36	+/-15	+/-500	80	1500(3000)
KWS-2405T(-3K)	18-72	5	3000	79	1500(3000)
KWS-2409T(-3K)	18-72	9	1670	80	1500(3000)
KWS-2412T(-3K)	18-72	12	1250	81	1500(3000)
KWS-2415T(-3K)	18-72	15	1000	82	1500(3000)
KWS-2424T(-3K)	18-72	24	625	80	1500(3000)
KWD-2405T(-3K)	18-72	+/-5	+/-1500	79	1500(3000)
KWD-2412T(-3K)	18-72	+/-12	+/-625	81	1500(3000)
KWD-2415T(-3K)	18-72	+/-15	+/-500	82	1500(3000)

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NP	-Vout
DUAL	+Vin	-Vin	+Vout	Com.	-Vout

CW-A16M SERIES *16W WIDE INPUT RANGE*

DANUBE

FEATURES

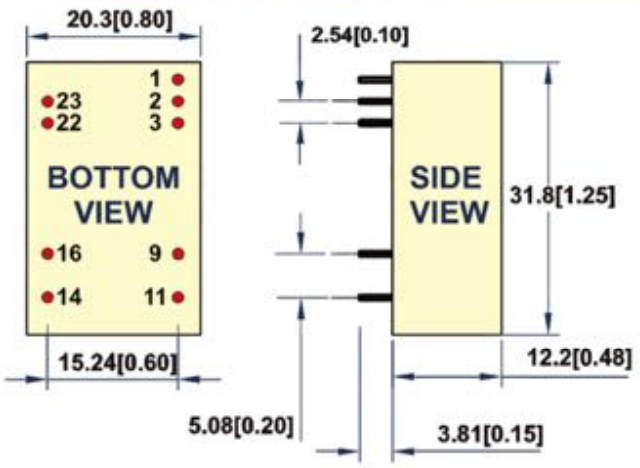
- 16W DIL PACKAGE
- 9-18V,18-36V,36-75V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	86% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +60°C	Switching Frequency	400KHz typ.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>180,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Five-Side Shielded Case
Transient Response	500uS max.	Humidity	95% max.	Weight	18.5g typ.

2:1 16W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CWS-1205A16M	9-18	5	3200	87	1500
CWS-1212A16M	9-18	12	1333	86	1500
CWS-1215A16M	9-18	15	1066	87	1500
CWS-2405A16M	18-36	5	3200	88	1500
CWS-2412A16M	18-36	12	1333	87	1500
CWS-2415A16M	18-36	15	1066	88	1500
CWS-4805A16M	36-75	5	3200	87	1500
CWS-4812A16M	36-75	12	1333	87	1500
CWS-4815A16M	36-75	15	1066	88	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

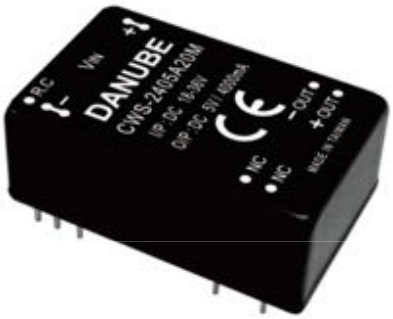
PIN	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote ON/OFF	-Vin	NC	NC	+Vout	-Vout	+Vin

CW-A20 SERIES *20W WIDE INPUT RANGE*

DANUBE

FEATURES

- 20W DIL PACKAGE
- 9-18V,18-36V,36-75V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY

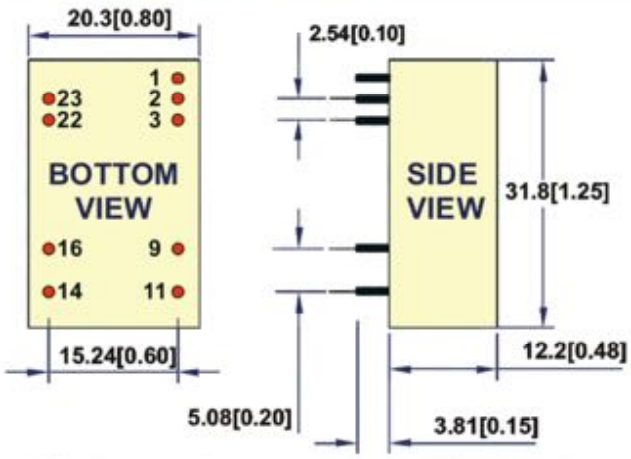


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	85% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	1200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +100°C (With derating)	Switching Frequency	400KHz typ.
Minimum Load	20% of Full Load			MTBF	>224,000 Hours
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +125°C	Case Material	Five-Side Shielded Case
Humidity	95% max.	Cooling	Free-Air Convection	Weight	18.5g typ.

2:1 20W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
CWS-1205A20M	9-18	5	4000	86	1500
CWS-1212A20M	9-18	12	1666	86	1500
CWS-1215A20M	9-18	15	1333	87	1500
CWS-2405A20M	18-36	5	4000	86	1500
CWS-2412A20M	18-36	12	1666	87	1500
CWS-2415A20M	18-36	15	1333	87	1500
CWS-4805A20M	36-75	5	4000	86	1500
CWS-4812A20M	36-75	12	1666	87	1500
CWS-4815A20M	36-75	15	1333	87	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote ON/OFF	-Vin	NC	NC	+Vout	-Vout	+Vin

FEW-A20 SERIES *20W WIDE INPUT RANGE*

DANUBE

FEATURES

- 20W DIL PACKAGE
- REGULATED OUTPUT
- INPUT UVLO & OVLO
- HIGH EFFICIENCY
- 100% BURN IN
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 or 4:1 Input Range	Efficiency	88% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.3% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	3000pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +75°C	Switching Frequency	300KHz typ.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>300,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max.	Case Material	Six-Side Shielded Case
Transient Response	500uS max.	Cooling	Free-Air Convection	Case Size	50.8mm*25.4mm*11.2mm

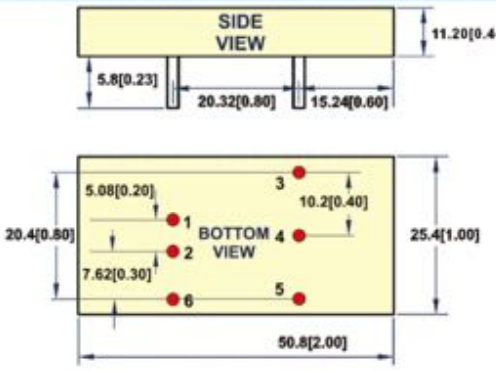
2:1 20W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FEWS-1203.3A20	9-18	3.3	5000	85	1500
FEWS-1205A20	9-18	5	4000	88	1500
FEWS-1212A20	9-18	12	1666	88	1500
FEWS-1215A20	9-18	15	1333	89	1500
FEWD-1212A20	9-18	+/-12	+/-833	88	1500
FEWD-1215A20	9-18	+/-15	+/-667	89	1500
FEWS-2403.3A20	18-36	3.3	5000	85	1500
FEWS-2405A20	18-36	5	4000	88	1500
FEWS-2412A20	18-36	12	1666	89	1500
FEWS-2415A20	18-36	15	1333	90	1500
FEWD-2412A20	18-36	+/-12	+/-833	89	1500
FEWD-2415A20	18-36	+/-15	+/-667	89	1500
FEWS-4803.3A20	36-75	3.3	5000	85	1500
FEWS-4805A20	36-75	5	4000	88	1500
FEWS-4812A20	36-75	12	1666	88	1500
FEWS-4815A20	36-75	15	1333	89	1500
FEWD-4812A20	36-75	+/-12	+/-833	88	1500
FEWD-4815A20	36-75	+/-15	+/-667	88	1500

4:1 20W OUTPUT

FEWS-1203.3A20T	9-36	3.3	5000	85	1500
FEWS-1205A20T	9-36	5	4000	87	1500
FEWS-1212A20T	9-36	12	1666	87	1500
FEWS-1215A20T	9-36	15	1333	87	1500
FEWS-2403.3A20T	18-75	3.3	5000	85	1500
FEWS-2405A20T	18-75	5	4000	87	1500
FEWS-2412A20T	18-75	12	1666	87	1500
FEWS-2415A20T	18-75	15	1333	87	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	Trim	-Vout	Remote ON/OFF
DUAL	+Vin	-Vin	+Vout	Com.	-Vout	

FEW-B30 SERIES *30W WIDE INPUT RANGE*

DANUBE

FEATURES

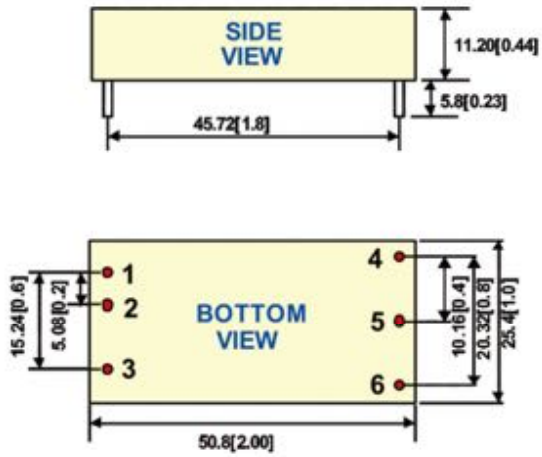
- 30W DIL PACKAGE
- REGULATED OUTPUT
- INPUT UVLO & OVLO
- HIGH EFFICIENCY
- 100% BURN IN
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	88% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.3% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	3000pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +55°C	Switching Frequency	300KHz typ.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>300,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max.	Case Material	Six-Side Shielded Case
Transient Response	500uS max.	Cooling	Free-Air Convection	Case Size	50.8mm*25.4mm*11.2mm

2:1 30W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FEWS-1203.3B30	9-18	3.3	7000	85	1500
FEWS-1205B30	9-18	5	6000	88	1500
FEWS-1212B30	9-18	12	2500	89.5	1500
FEWS-1215B30	9-18	15	2000	89.5	1500
FEWS-2403.3B30	18-36	3.3	7000	86	1500
FEWS-2405B30	18-36	5	6000	88.5	1500
FEWS-2412B30	18-36	12	2500	89	1500
FEWS-2415B30	18-36	15	2000	90	1500
FEWS-4803.3B30	36-75	3.3	7000	85	1500
FEWS-4805B30	36-75	5	6000	88	1500
FEWS-4812B30	36-75	12	2500	89	1500
FEWS-4815B30	36-75	15	2000	90	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters [inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	Remote ON/OFF	+Vout	-Vout	Trim

DEW SERIES *25W-30W WIDE INPUT RANGE*

DANUBE

FEATURES

- 25W-30W OUTPUT POWER
- ULTRA COMPACT SIZE:1.0"x1.0"x0.52"
- 9V-18V,18V-36V,36V-75V WIDE INPUT RANGE
- INDUSTRY STANDARD PACKAGE
- HIGH EFFICIENCY
- 100% BURN IN
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

REACH COMPLIANT

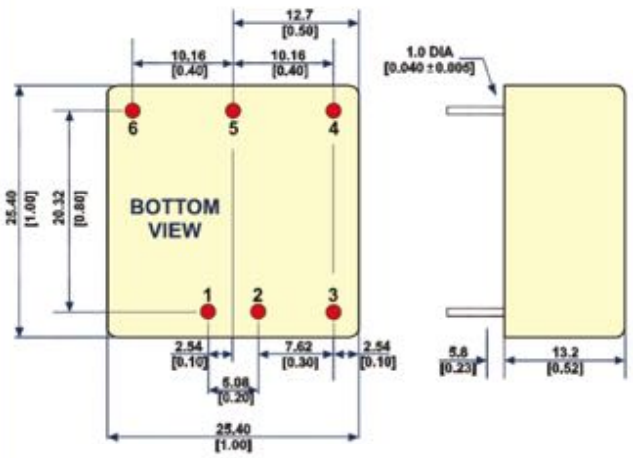
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	85% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +100°C (with derating)	Switching Frequency	400KHz typ.
Minimum Load	10% of Full Load			MTBF	>300,000 Hours
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +125°C	Case Material	Six-Side Shielded Case
Over Load Protection	150% typ.	Cooling	Free-Air Convection	Case Size	25.4mm*25.4mm*13.2mm
Transient Response	500uS max.	Humidity	95% max.	Weight	20g typ.

2:1 25W-30W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
DEWS-1205	9-18	5	5000	86	1500
DEWS-1212	9-18	12	2084	86	1500
DEWS-1215	9-18	15	1667	87	1500
DEWD-1212	9-18	+/-12	+/-1042	85	1500
DEWD-1215	9-18	+/-15	+/-834	86	1500
DEWS-2405	18-36	5	5000	87	1500
DEWS-2412	18-36	12	2500	88	1500
DEWS-2415	18-36	15	2000	88	1500
DEWD-2412	18-36	+/-12	+/-1250	88	1500
DEWD-2415	18-36	+/-15	+/-1000	88	1500
DEWS-4805	36-75	5	5000	87	1500
DEWS-4812	36-75	12	2500	88	1500
DEWS-4815	36-75	15	2000	88	1500
DEWD-4812	36-75	+/-12	+/-1250	88	1500
DEWD-4815	36-75	+/-15	+/-1000	88	1500

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	Remote ON/OFF	-Vout	Trim	+Vout
DUAL	+Vin	-Vin		-Vout	Common	+Vout

KAW SERIES *30W WIDE INPUT RANGE*

DANUBE

FEATURES

- 30W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- 100% BURN IN
- SHORT CIRCUIT PROTECTION
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS

Voltage Set-point Accuracy		
Single/Dual		+/-2% max.
Triple	5V	+/-2% max.
	12V/15V	+/-5% max.
Temperature Coefficient		+/-0.05% /°C
Ripple & Noise(20MHz BW)		150mVp-p max.
Line Regulation		
Single/Dual		+/-0.5% max.
Triple	5V	+/-0.5% max.
	12V/15V	+/-1% max.
Load Regulation		
Single/Dual		+/-0.5% max.
Triple		+/-5% max.

INPUT SPECIFICATIONS

Input Voltage Range	2:1or4:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to +71°C
Storage Temperature	-55°C to +100°C
Cooling	Free-Air Convection
Humidity	95% max.
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Transient Response	500uS max.

GENERAL SPECIFICATIONS

Efficiency	75% min.
Isolation Voltage	1500 VDC min.
Isolation Resistance	10^9 ohms min.
Isolation Capacitance	2500pF max.
Switching Frequency	100KHz min.
MTBF	>400,000 Hours
Weight	110g typ.
Case Material	Six-Side Shielded Case
Potting Material	Epoxy(UL94V-0)
Case Size	
Package "A"	50.8mm*50.8mm*21.0mm
Package "C"	50.8mm*50.8mm*11.0mm

- **2:1 25W-30W OUTPUT**

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
KAWS-1205	9-18	5	5000	80	A
KAWS-1209	9-18	9	3333	84	A
KAWS-1212	9-18	12	2500	84	A
KAWS-1215	9-18	15	2000	84	A
KAWS-1224	9-18	24	1250	85	A
KAWD-1205	9-18	+/-5	+/-2500	80	A
KAWD-1212	9-18	+/-12	+/-1250	80	A
KAWD-1215	9-18	+/-15	+/-1000	80	A
KAWT-12/0512	9-18	+5,+/-12	3500,+/-310	80	A
KAWT-12/0515	9-18	+5,+/-15	3500,+/-250	80	A
KAWS-2405	18-36	5	5000	80	A
KAWS-2409	18-36	9	3333	85	A
KAWS-2412	18-36	12	2500	85	A
KAWS-2415	18-36	15	2000	85	A
KAWS-2424	18-36	24	1250	86	A
KAWD-2405	18-36	+/-5	+/-2500	80	A
KAWD-2412	18-36	+/-12	+/-1250	85	A
KAWD-2415	18-36	+/-15	+/-1000	85	A
KAWD-2424	18-36	+/-24	+/-625	85	A
KAWT-24/0512	18-36	+5,+/-12	3500,+/-310	82	A
KAWT-24/0515	18-36	+5,+/-15	3500,+/-250	82	A
KAWS-4805	36-72	5	5000	80	A
KAWS-4809	36-72	9	3333	82	A
KAWS-4812	36-72	12	2500	82	A
KAWS-4815	36-72	15	2000	82	A
KAWS-4824	36-72	24	1250	83	A
KAWD-4805	36-72	+/-5	+/-2500	80	A
KAWD-4812	36-72	+/-12	+/-1250	82	A
KAWD-4815	36-72	+/-15	+/-1000	82	A
KAWT-48/0512	36-72	+5,+/-12	3500,+/-310	82	A
KAWT-48/0515	36-72	+5,+/-15	3500,+/-250	82	A

4:1 25W-30W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
KAWS-1205T	9-36	5	5000	80	A
KAWS-1209T	9-36	9	3333	79	A
KAWS-1212T	9-36	12	2500	81	A
KAWS-1215T	9-36	15	2000	81	A
KAWS-1224T	9-36	24	1250	81	A
KAWD-1205T	9-36	+/-5	+/-2500	80	A
KAWD-1212T	9-36	+/-12	+/-1250	80	A
KAWD-1215T	9-36	+/-15	+/-1000	80	A
KAWT-12/0512T	9-36	+5,+/-12	3500,+/-310	80	A
KAWT-12/0515T	9-36	+5,+/-15	3500,+/-250	80	A
KAWS-2405T	18-72	5	5000	80	A
KAWS-2412T	18-72	12	2500	81	A
KAWS-2415T	18-72	15	2000	81	A
KAWS-2424T	18-72	24	1250	81	A
KAWS-2430T	18-72	30	1000	81	A
KAWD-2405T	18-72	+/-5	+/-2500	80	A
KAWD-2412T	18-72	+/-12	+/-1250	81	A
KAWD-2415T	18-72	+/-15	+/-1000	81	A
KAWT-24/0512T	18-72	+5,+/-12	3500,+/-310	80	A
KAWT-24/0515T	18-72	+5,+/-15	3500,+/-250	82	A

2:1 25W-30W OUTPUT

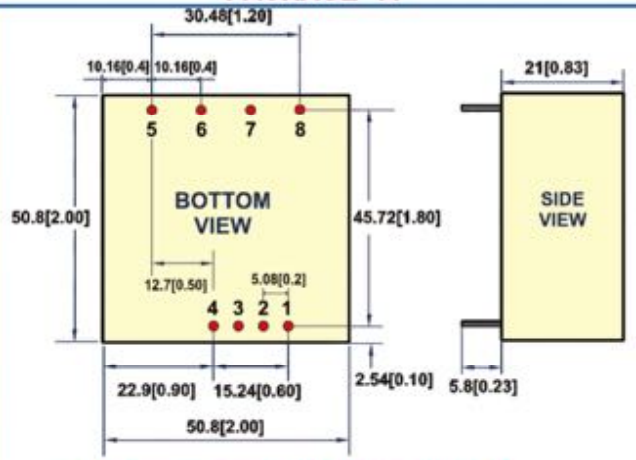
KAWS-1205EL	9-18	5	6000	80	C
KAWS-1209EL	9-18	9	3333	80	C
KAWS-1212EL	9-18	12	2500	83	C
KAWS-1215EL	9-18	15	2000	83	C
KAWS-1224EL	9-18	24	1250	80	C
KAWD-1205EL	9-18	+/-5	+/-2500	80	C
KAWD-1212EL	9-18	+/-12	+/-1250	83	C
KAWD-1215EL	9-18	+/-15	+/-1000	83	C
KAWS-2403.3EL	18-36	3.3	6000	78	C
KAWS-2405EL	18-36	5	6000	86	C
KAWS-2409EL	18-36	9	3333	80	C
KAWS-2412EL	18-36	12	2500	85	C
KAWS-2415EL	18-36	15	2000	85	C
KAWS-2424EL	18-36	24	1250	80	C
KAWD-2405EL	18-36	+/-5	+/-2500	83	C
KAWD-2412EL	18-36	+/-12	+/-1250	85	C
KAWD-2415EL	18-36	+/-15	+/-1000	85	C
KAWS-4803.3EL	36-72	3.3	6000	78	C
KAWS-4805EL	36-72	5	6000	84	C
KAWS-4809EL	36-72	9	3333	80	C
KAWS-4812EL	36-72	12	2500	85	C
KAWS-4815EL	36-72	15	2000	85	C
KAWS-4824EL	36-72	24	1250	80	C
KAWD-4805EL	36-72	+/-5	+/-2500	84	C
KAWD-4812EL	36-72	+/-12	+/-1250	85	C
KAWD-4815EL	36-72	+/-15	+/-1000	85	C

4:1 25W-30W

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	PACKAGE
KAWS-1205TEL	9-36	5	6000	80	C
KAWS-1209TEL	9-36	9	3333	82	C
KAWS-1212TEL	9-36	12	2500	84	C
KAWS-2405TEL	18-72	5	6000	84	C
KAWS-2409TEL	18-72	9	3333	85	C
KAWS-2412TEL	18-72	12	2500	85	C
KAWS-2424TEL	18-72	24	1250	85	C

MECHANICAL DIMENSIONS

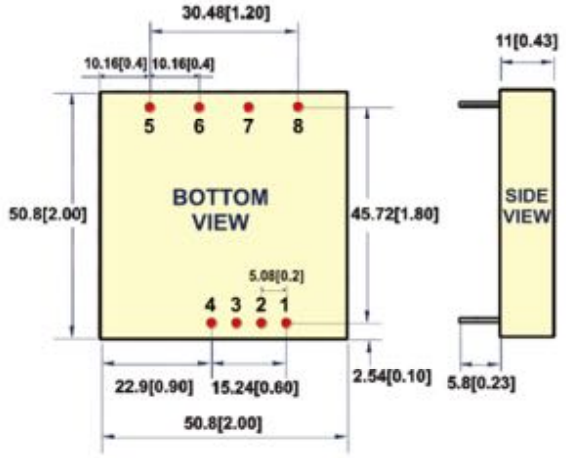
PACKAGE "A"



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	NP	-Vin	+Vin	NC	+Vout	-Vout	Trim
DUAL					+Vout	Com.	-Vout	Trim
TRIPLE					+Aux.	+5V out	Com.	-Aux.

PACKAGE "C"



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	NP	-Vin	+Vin	NP	+Vout	-Vout	Trim
DUAL					+Vout	Com.		NP

KDW SERIES *30W-40W WIDE INPUT RANGE*

DANUBE

FEATURES

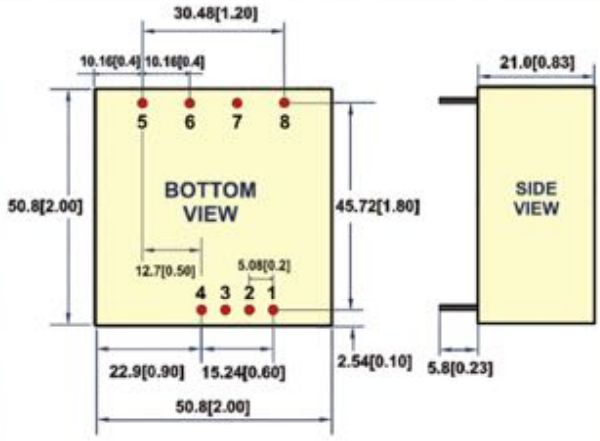
- 30W-40W DIL PACKAGE
- 9-18V,18-36V,36-72V WIDE INPUT RANGE
- SIX-SIDE SHIELDED CASE
- INDUSTRY STANDARD PACKAGE
- 100% BURN IN
- HIGH EFFICIENCY
- RoHS COMPLIANT
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	80% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.			Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	1200pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +71°C	Switching Frequency	100KHz min.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +100°C	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Potting Material	Epoxy(UL94V-0)

2:1 30W-40W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KDWS-1212	9-18	12	3000	82	1500
KDWS-1215	9-18	15	2400	82	1500
KDWS-1224	9-18	24	1500	82	1500
KDWS-2412	18-36	12	3000	82	1500
KDWS-2415	18-36	15	2400	83	1500
KDWS-2424	18-36	24	1667	85	1500
KDWD-2412	18-36	+/-12	+/-1650	85	1500
KDWD-2415	18-36	+/-15	+/-1300	85	1500
KDWS-4812	36-72	12	3000	82	1500
KDWS-4815	36-72	15	2400	83	1500
KDWS-4824	36-72	24	1667	85	1500
KDWD-4812	36-72	+/-12	+/-1650	85	1500
KDWD-4815	36-72	+/-15	+/-1300	85	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	NP	-Vin	+Vin	NC	+Vout	-Vout	Trim
DUAL			-Vin	+Vin	+Vout	Com.	-Vout	Trim

KQW SERIES *40W WIDE INPUT RANGE*

DANUBE

FEATURES

- 40W DIL PACKAGE
- HIGH EFFICIENCY
- 100% BURN IN
- SIX-SIDE SHIELDED CASE
- INDUSTRY STANDARD PACKAGE
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 or 4:1 Input Range	Efficiency	90% typ.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2500pF max.
Load Regulation	+/-0.5% max.	Operating Temperature		Switching Frequency	250KHz typ.
Minimum Load	10% of Full Load	No Heat-Sink	-40°C to +60°C	Case Size	50.8mm*50.8mm*11.0mm
Short Circuit Protection	Continuous	With Heat-Sink	-40°C to +75°C	Potting Material	Epoxy(UL94V-0)
Short Circuit Restart	Automatic	Storage Temperature	-55°C to +100°C	Cooling	Free-Air Convection

2:1 33W~40W OUTPUT

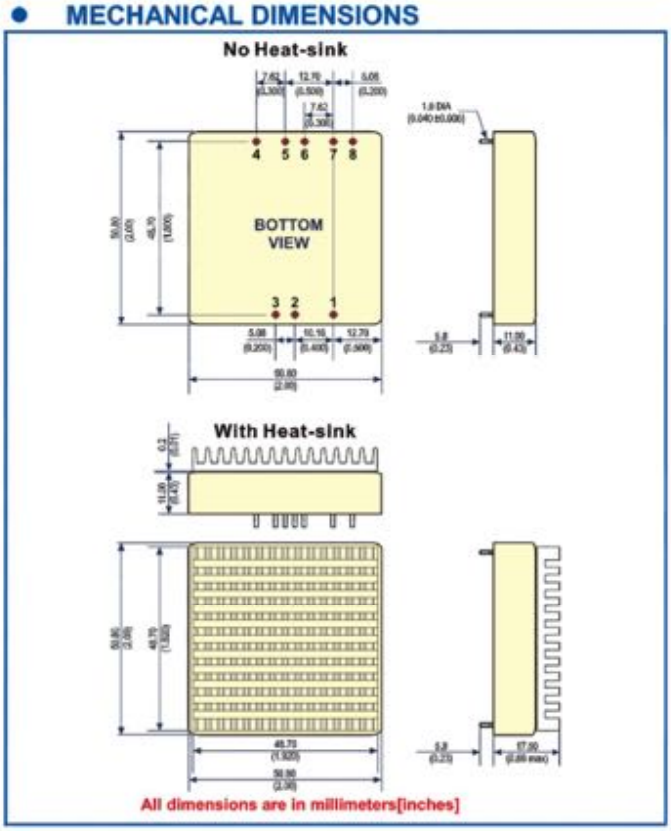
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KQWS-1203.3(HS)	9-18	3.3	10000	88	1500
KQWS-1205(HS)	9-18	5	8000	91	1500
KQWS-1209(HS)	9-18	9	4444	91	1500
KQWS-1212(HS)	9-18	12	3333	90	1500
KQWS-1215(HS)	9-18	15	2667	90	1500
KQWS-2403.3(HS)	18-36	3.3	10000	89	1500
KQWS-2405(HS)	18-36	5	8000	93	1500
KQWS-2409(HS)	18-36	9	4444	91	1500
KQWS-2412(HS)	18-36	12	3333	91	1500
KQWS-2415(HS)	18-36	15	2667	91	1500
KQWS-4803.3(HS)	36-75	3.3	10000	90	1500
KQWS-4805(HS)	36-75	5	8000	92	1500
KQWS-4809(HS)	36-75	9	4444	91	1500
KQWS-4812(HS)	36-75	12	3333	91	1500
KQWS-4815(HS)	36-75	15	2667	91	1500

4:1 33W~40W OUTPUT

KQWS-1203.3T(HS)	9-36	3.3	10000	87	1500
KQWS-1205T(HS)	9-36	5	8000	89	1500
KQWS-1209T(HS)	9-36	9	4444	85	1500
KQWS-1212T(HS)	9-36	12	3333	88	1500
KQWS-1215T(HS)	9-36	15	2667	87	1500
KQWS-2403.3T(HS)	18-75	3.3	10000	87	1500
KQWS-2405T(HS)	18-75	5	8000	89	1500
KQWS-2409T(HS)	18-75	9	4444	86	1500
KQWS-2412T(HS)	18-75	12	3333	88	1500
KQWS-2415T(HS)	18-75	15	2667	88	1500

[1] *KQWS-****HS WITH HEAT-SINK*

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	-Vin	+Vin	-Sense	+Sense	+Vout	-Vout	Trim

FHW SERIES *50W WIDE INPUT RANGE*

DANUBE

FEATURES

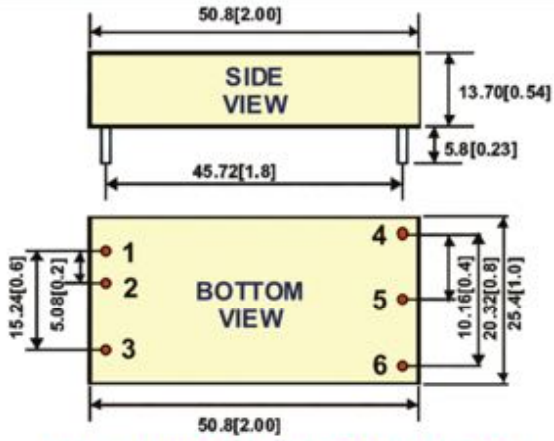
- 50W DIL PACKAGE
- 18-36V,36-75V WIDE INPUT RANGE
- HIGH EFFICIENCY
- OVER TEMPERATURE PROTECTION
- INPUT UVLO & OVLO
- INDUSTRY STANDARD PACKAGE
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	92% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	3000pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +55°C	Switching Frequency	300KHz typ.
Minimum Load	10% of Full Load	Storage Temperature	-55°C to +125°C	MTBF	>300,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	500uS max.	Humidity	95% max.	Case Size	50.8mm*25.4mm*13.7mm

2:1 50W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
FHWS-2405	18-36	5	10000	92	1500
FHWS-2412	18-36	12	4170	92	1500
FHWS-2415	18-36	15	3333	92	1500
FHWS-4805	36-75	5	10000	92	1500
FHWS-4812	36-75	12	4170	92	1500
FHWS-4815	36-75	15	3333	92	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters [inches]

PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	Remote ON/OFF	+Vout	-Vout	Trim

KHW SERIES *40W-80W WIDE INPUT RANGE*

DANUBE

FEATURES

- 40W-80W DIL PACKAGE
- 9-18V,18-36V,36-75V WIDE INPUT RANGE
- HIGH EFFICIENCY
- 100% BURN IN
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.03% /°C
Ripple & Noise(20MHz BW)	100mVp-p max.
Line Regulation	+/-0.5% max.
Load Regulation	+/-0.5% max.
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Transient Response	500uS max.

INPUT SPECIFICATIONS		
Input Voltage Range		2:1 Input Range
Input Filter		Pi Network
Protection		Fuse Recommended
ENVIRONMENTAL SPECIFICATIONS		
Operating Temperature		
No Heat-Sink	40-60W	-40°C to +55°C
	80W	-40°C to +40°C
With Heat-Sink	80W	-40°C to +50°C

GENERAL SPECIFICATIONS	
Efficiency	92% typ.
Isolation Voltage	1500 VDC min.
Isolation Resistance	10^9 ohms min.
Isolation Capacitance	2500pF max.
Switching Frequency	250KHz typ.
Case Size	50.8mm*50.8mm*11.0mm
Potting Material	Epoxy(UL94V-0)
Storage Temperature	-55°C to +100°C

2:1 40W~60W OUTPUT

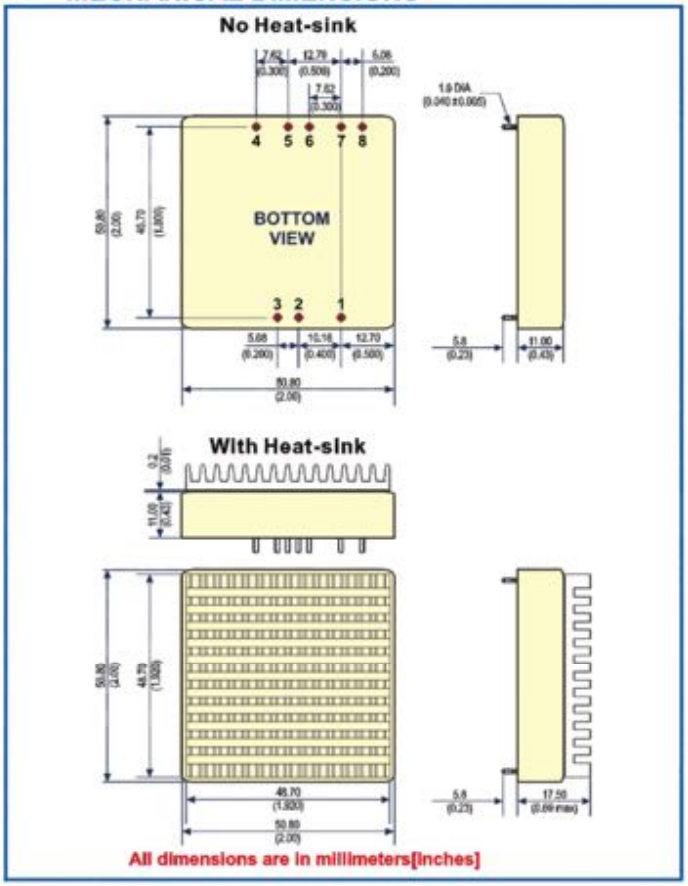
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KHWS-1205	9-18	5	12000	91	1500
KHWS-1212	9-18	12	5000	92	1500
KHWS-1215	9-18	15	4000	92	1500
KHWS-2403.3	18-36	3.3	12000	92	1500
KHWS-2405	18-36	5	12000	90	1500
KHWS-2412	18-36	12	5000	93	1500
KHWS-2415	18-36	15	4000	93	1500
KHWS-4803.3	36-75	3.3	12000	92	15000
KHWS-4805	36-75	5	12000	92	1500
KHWS-4812	36-75	12	5000	92	1500
KHWS-4815	36-75	15	4000	92	1500

2:1 80W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KHWS-2405-80W(HS)	18-36	5	16000	92	1500
KHWS-2412-80W(HS)	18-36	12	6666	92	1500
KHWS-2415-80W(HS)	18-36	15	5333	92	1500
KHWS-4805-80W(HS)	36-75	5	16000	92	1500
KHWS-4812-80W(HS)	36-75	12	6666	92	1500
KHWS-4815-80W(HS)	36-75	15	5333	92	1500

[1] *KHWS-****-80WHS WITH HEAT-SINK*

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	-Vin	+Vin	-Sense	+Sense	+Vout	-Vout	Trim

KHWD SERIES *60W WIDE INPUT RANGE*

DANUBE

FEATURES

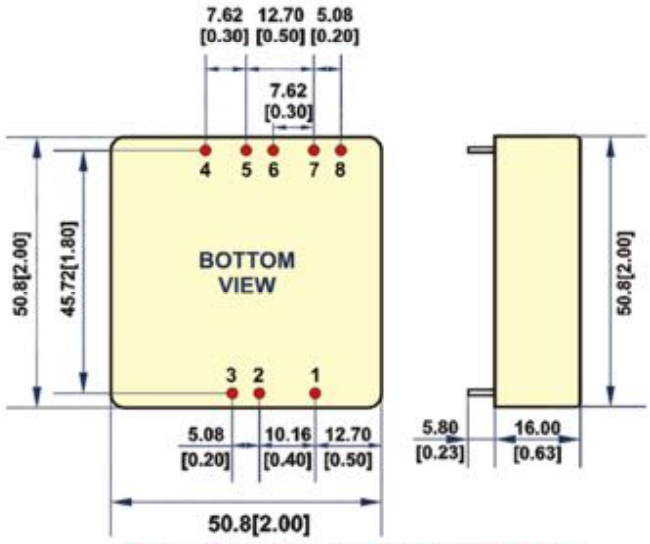
- 60W DIL PACKAGE
- 18-36V,36-75V WIDE INPUT RANGE
- HIGH EFFICIENCY
- 100% BURN IN
- UL94V-0 PACKAGE MATERIAL
- INDUSTRY STANDARD PACKAGE
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	91% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2500pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +55°C	Switching Frequency	250KHz typ.
Minimum Load	10% of Full Load	Case Temperature	+110°C max.	Case Material	Six-Side Shielded Case
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +110°C	Case Size	50.8mm*50.8mm*16.0mm
Transient Response	500uS max.	Cooling	Free-Air Convection	Weight	86g typ.

2:1 60W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (Ma)	EFF. (%)	ISOLATION (VDC)
KHWD-2412	18-36	+/-12	+/-2500	90	1500
KHWD-2415	18-36	+/-15	+/-2000	90	1500
KHWD-4812	36-75	+/-12	+/2500	91	1500
KHWD-4815	36-75	+/-15	+/-2000	91	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5 & 6	7	8
DUAL	Remote ON/OFF	-Vin	+Vin	+Vout	Common	-Vout	Trim

KHW-100W SERIES *90W-100W WIDE INPUT RANGE*

DANUBE

FEATURES

- 90W-100W DIL PACKAGE
- 18-36V,36-75V WIDE INPUT RANGE
- 100% BURN IN
- INDUSTRY STANDARD PACKAGE
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

REACH COMPLIANT

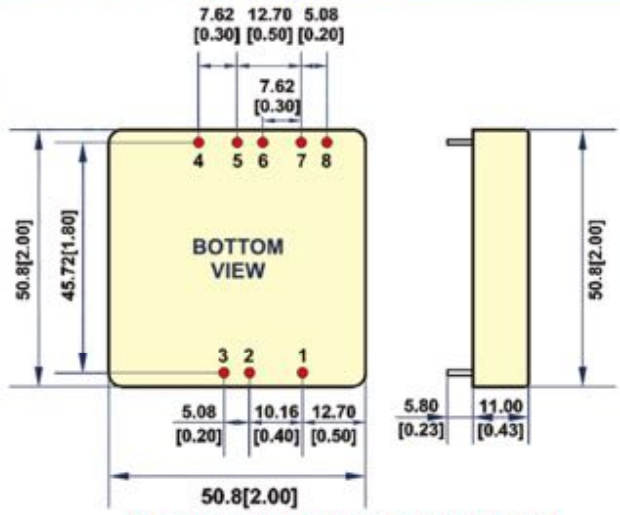
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	2:1 Input Range	Efficiency	92% typ.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	150mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-0.5% max.	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	2500pF max.
Load Regulation	+/-0.5% max.	Operating Temperature	-40°C to +55°C (with derating)	Switching Frequency	250KHz typ.
Minimum Load	10% of Full Load			Case Material	Six-Side Shielded Case
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +110°C	Case Size	50.8mm*50.8mm*11.0mm
Short Circuit Restart	Automatic	Humidity	95% max.	Weight	67g typ.

2:1 90W-100W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
KHWS-2405-90W	18-36	5	18000	92	1500
KHWS-2412-100W	18-36	12	8333	92	1500
KHWS-2415-100W	18-36	15	6666	92	1500
KHWS-4805-90W	36-75	5	18000	92	1500
KHWS-4812-100W	36-75	12	8333	92	1500
KHWS-4815-100W	36-75	15	6666	92	1500

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5	6	7	8
SINGLE	Remote ON/OFF	-Vin	+Vin	-Sense	+Sense	+Vout	-Vout	Trim

NSD05-S SERIES *5W REGULATED SINGLE OUTPUT*

DANUBE

FEATURES

- WIDE 4:1 DC INPUT RANGE
- 1000VDC I/O ISOLATION
- BUILT-IN REMOTE ON/OFF CONTROL
- PROTECTIONS: SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COOLING BY FREE AIR CONVECTION
- 100% FULL LOAD BURN-IN TEST
- LOW COST, HIGH RELIABILITY
- 2 YEARS WARRANTY

CB

CE

REACH COMPLIANT

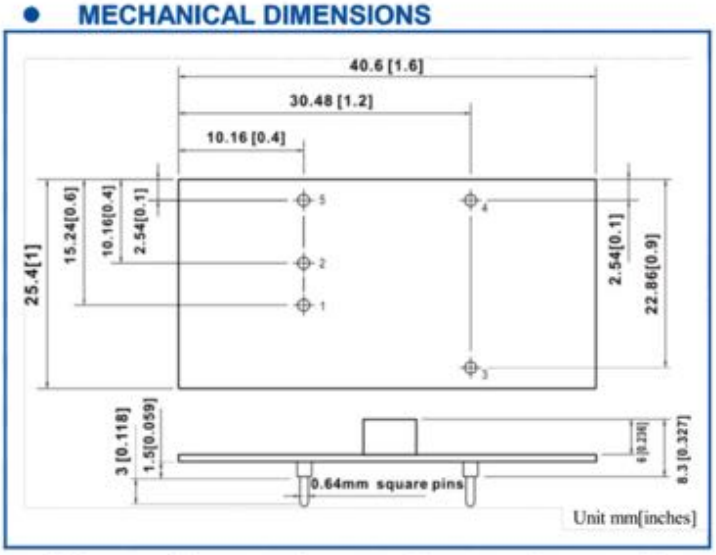
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	4:1 Input Range	Efficiency	72% min.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Pi Network	Isolation Voltage	1000 VDC min.
Ripple & Noise(20MHz BW)	75mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		MTBF	>914,400 Hours
Load Regulation	+/-2% max.	Operating Temperature	-25°C to +70°C	Case Size	40.6mm*25.4mm*8.3mm
Short Circuit Protection	Continuous	Storage Temperature	-40°C to +85°C	Weight	7g typ.
Short Circuit Restart	Automatic	Humidity	95% max.		

SINGLE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
NSD05-12S3	9.2-36	3.3	1200	72	1000
NSD05-12S5	9.2-36	5	1000	76	1000
NSD05-12S12	9.2-36	12	420	82	1000
NSD05-12S15	9.2-36	15	330	83	1000
NSD05-48S3	18-72	3.3	1200	75	1000
NSD05-48S5	18-72	5	1000	78	1000
NSD05-48S12	18-72	12	420	83	1000
NSD05-48S15	18-72	15	330	85	1000

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	-Vout	Remote ON/OFF

NSD10 SERIES *10W WIDE INPUT RANGE*

DANUBE

FEATURES

- WIDE 4:1 DC INPUT RANGE
- PROTECTIONS: SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- 1000VDC I/O ISOLATION
- BUILT-IN EMI FILTER
- COOLING BY FREE AIR CONVECTION
- 100% FULL LOAD BURN-IN TEST
- LOW COST, HIGH RELIABILITY
- 2 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	4:1 Input Range	Efficiency	72% min.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Pi Network	Isolation Voltage	1000 VDC min.
Ripple & Noise(20MHz BW)	75mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		MTBF	>1,878,500 Hours
Load Regulation	+/-3% max.	Operating Temperature	-25°C to +70°C	Case Size	50.8mm*25.4mm*10mm
Short Circuit Protection	Continuous	Storage Temperature	-40°C to +85°C	Weight	0.02kg typ.
Short Circuit Restart	Automatic	Humidity	95% max.		

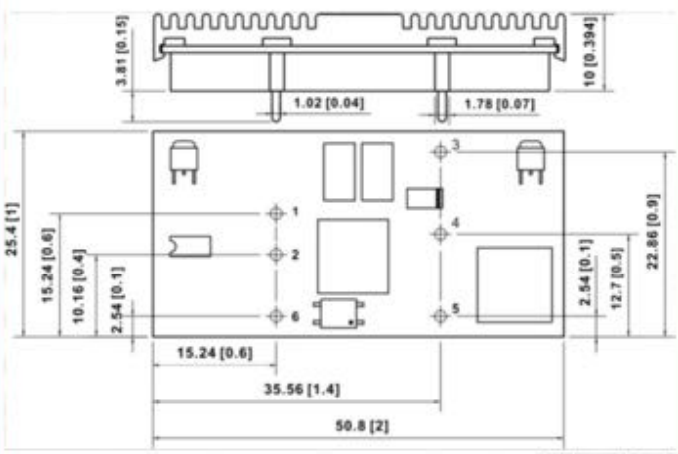
SINGLE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
NSD10-12S3	9.8-36	3.3	2500	72	1000
NSD10-12S5	9.8-36	5	2000	75	1000
NSD10-12S9	9.8-36	9	1100	78	1000
NSD10-12S12	9.8-36	12	830	79	1000
NSD10-12S15	9.8-36	15	670	80	1000
NSD10-48S3	22-72	3.3	2500	74	1000
NSD10-48S5	22-72	5	2000	77	1000
NSD10-48S9	22-72	9	1100	78	1000
NSD10-48S12	22-72	12	830	79	1000
NSD10-48S15	22-72	15	670	80	1000

DUAL OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
NSD10-12D5	9.8-36	+/-5	+/-1000	76	1000
NSD10-12D12	9.8-36	+/-12	+/-420	77	1000
NSD10-12D15	9.8-36	+/-15	+/-330	77	1000
NSD10-48D5	22-72	+/-5	+/-1000	78	1000
NSD10-48D12	22-72	+/-12	+/-420	77	1000
NSD10-48D15	22-72	+/-15	+/-330	77	1000

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5	6
SINGLE	+Vin	-Vin	+Vout	NC	-Vout	Remote ON/OFF
DUAL	+Vin	-Vin	+Vout	Com.	-Vout	

NSD15 SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

- WIDE 4:1 DC INPUT RANGE
- OUTPUT VOLTAGE TRIMMING FUNCTION
- BUILT-IN EMI FILTER
- BUILT-IN REMOTE ON/OFF CONTROL
- PROTECTIONS: SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COOLING BY FREE AIR CONVECTION
- 100% FULL LOAD BURN-IN TEST
- LOW COST, HIGH RELIABILITY
- 2 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	4:1 Input Range	Efficiency	73% min.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Pi Network	Isolation Voltage	1500 VDC min.
Ripple & Noise(20MHz BW)	100mVp-p max.	Protection	Fuse Recommended	Isolation Resistance	10^9 ohms min.
Line Regulation	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		MTBF	>1,673,100 Hours
Load Regulation	+/-2% max.	Operating Temperature	-25°C to +70°C	Case Size	50.8mm*38.1mm*9.82mm
Short Circuit Protection	Continuous	Storage Temperature	-40°C to +85°C	Weight	0.03kg typ.
Short Circuit Restart	Automatic	Humidity	95% max.		

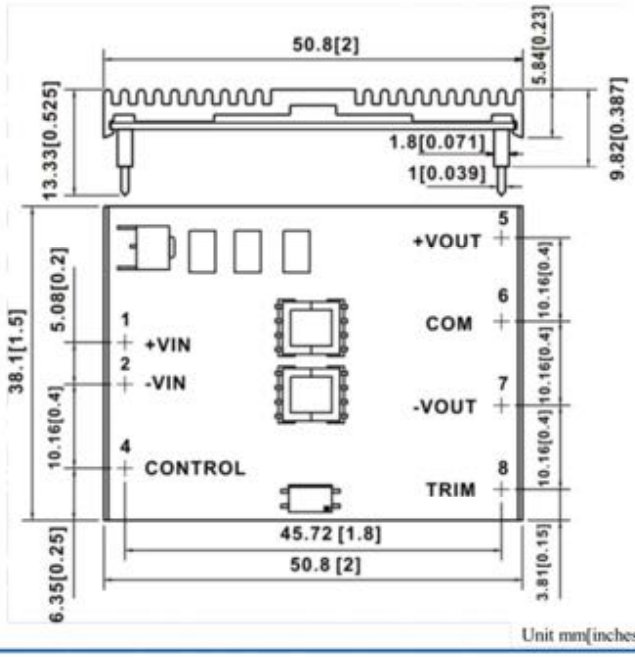
SINGLE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
NSD15-12S3	9.4-36	3.3	3750	73	1500
NSD15-12S5	9.4-36	5	3000	77	1500
NSD15-12S12	9.4-36	12	1250	81	1500
NSD15-12S15	9.4-36	15	1000	81	1500
NSD15-48S3	18-72	3.3	3750	77	1500
NSD15-48S5	18-72	5	3000	81	1500
NSD15-48S12	18-72	12	1250	84	1500
NSD15-48S15	18-72	15	1000	85	1500

DUAL OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)	ISOLATION (VDC)
NSD15-12D5	9.4-36	+/-5	+/-1500	76	1500
NSD15-12D12	9.4-36	+/-12	+/-620	80	1500
NSD15-12D15	9.4-36	+/-15	+/-500	80	1500
NSD15-48D5	18-72	+/-5	+/-1500	80	1500
NSD15-48D12	18-72	+/-12	+/-620	84	1500
NSD15-48D15	18-72	+/-15	+/-500	84	1500

MECHANICAL DIMENSIONS



PIN	1	2	3	4	5	6	7	8
SINGLE	+Vin	-Vin	NP	Remote	NP	+Vout	-Vout	Trim
DUAL	+Vin	-Vin	NP	ON/OFF	+Vout	Com.	-Vout	Trim

D78Bxx-0.5 SERIES *0.5Amp Non-Isolated*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- 6.5-32V, 9-18V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

REACH COMPLIANT

RoHS COMPLIANT

OUTPUT SPECIFICATIONS			INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS		
Voltage Set-point Accuracy		+/-2% max.	Input Voltage Range	6.5-32V, 9-18V	Efficiency		80% min.
Temperature Coefficient		+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage		Non-Isolation
Ripple & Noise(20MHz BW)		100mVp-p max.			Switching Frequency		280KHz min.
Line Regulation	D78Bxx-0.5	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Case Material		Non-Conductive Plastic
	D78BxxT-0.5	+/-1.5% max.	Operating Temperature	-40°C to +85°C (with derating)	Weight		1.3g typ.
Load Regulation	D78Bxx-0.5	+/-1% max.			Case Size		11.7mm*7.5mm*10.1mm
	D78BxxT-0.5	+/-1.5% max.	Storage Temperature	-55°C to +125°C	MTBF	+25°C	>3,260,000 Hours
Short Circuit Protection		Continuous	Humidity	95% max.		+71°C	>1,130,000 Hours

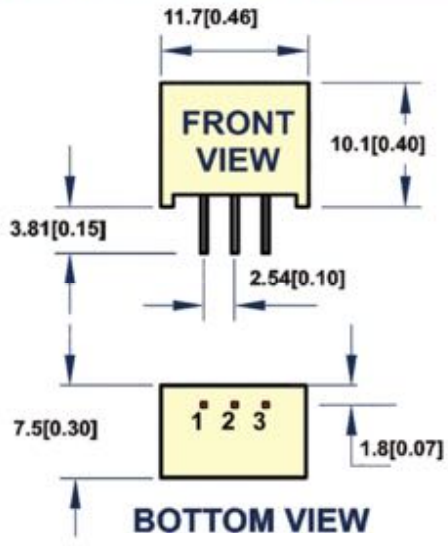
SELECTION GUIDE(1)

MODEL NUMBER	INPUT (VDC)	NOMIMAL (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
D78B33-0.5	6.5-32	12	3.3	500	84
D78B05-0.5	6.5-32	12	5	500	89
D78B09-0.5	11-32	24	9	500	91
D78B12-0.5	15-32	24	12	500	93
D78B15-0.5	18-32	24	15	500	95

SELECTION GUIDE(2)

MODEL NUMBER	INPUT (VDC)	NOMIMAL (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
D78B33T-0.5	9-18	12	3.3	500	85
D78B05T-0.5	9-18	12	5	500	90

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

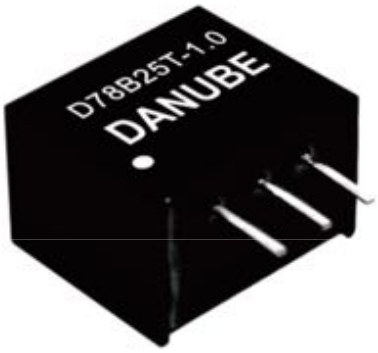
PIN	1	2	3
SINGLE	+Vin	GND	+Vout

D78Bxxx-1.0 SERIES *1.0A Non-Isolated*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- 6.5-20V, 9-18V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS			INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS		
Voltage Set-point Accuracy		+/-2% max.	Input Voltage Range	6.5-20V, 9-18V	Efficiency		80% min.
Temperature Coefficient		+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage		Non-Isolation
Ripple & Noise(20MHz BW)		100mVp-p max.			Switching Frequency		280KHz min.
Line Regulation	D78BxxM-1.0	+/-1% max.	**ENVIRONMENTAL SPECIFICATIONS**		Case Material		Non-Conductive Plastic
	D78BxxT-1.0	+/-1.5% max.	Operating Temperature	-40°C to +85°C (with derating)	Weight		1.3g typ.
Load Regulation	D78BxxM-1.0	+/-1% max.			Case Size		11.7mm*7.5mm*10.1mm
	D78BxxT-1.0	+/-1.5% max.	Storage Temperature	-55°C to +125°C	MTBF	+25°C	>3,260,000 Hours
Short Circuit Protection		Continuous	Humidity	95% max.		+71°C	>1,130,000 Hours

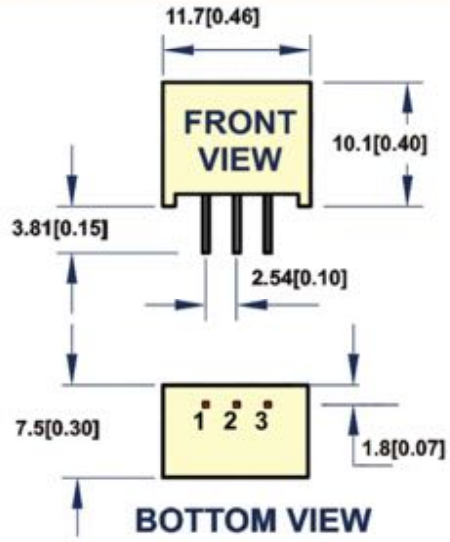
SELECTION GUIDE(1)

MODEL NUMBER	INPUT (VDC)	NOMINAL (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
D78B25M-1.0	6.5-20	12	2.5	1000	82
D78B33M-1.0	6.5-20	12	3.3	1000	84
D78B05M-1.0	6.5-20	12	5	1000	89

SELECTION GUIDE(2)

MODEL NUMBER	INPUT (VDC)	NOMINAL (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
D78B25T-1.0	9-18	12	2.5	1000	84
D78B33T-1.0	9-18	12	3.3	1000	86
D78B05T-1.0	9-18	12	5	1000	90

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

PIN	1	2	3
SINGLE	+Vin	GND	+Vout

OSNxxW SERIES *1.25-4Amp Non-Isolated*

DANUBE

FEATURES

- 5-24V OUT / 1.25-4A SIP PACKAGE
- 20-53V,30-53V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- COST-EFFECTIVE OPEN FRAME DESIGN
- RoHS COMPLIANT
- 2 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	20-53V, 30-53V	Efficiency	90% min.
Temperature Coefficient	+/-0.05% /°C	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Ripple & Noise(20MHz BW) 5V	100mVp-p max.	Protection	Fuse Recommended	Switching Frequency	250KHz typ.
12V-24V	1%Vp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		SIP Package	
Line Regulation	+/-0.5% max.	Operating Temperature	-40°C to +70°C (with derating)	OSN02W-xxSxx	50.8mm*13.0mm*10.7mm
Load Regulation	+/-0.5% max.			OSN04W-xxSxx	50.8mm*26.0mm*10.7mm
Short Circuit Protection	Continuous	Storage Temperature	-55°C to +125°C		

1.25A-2.5A SIP PACKAGES

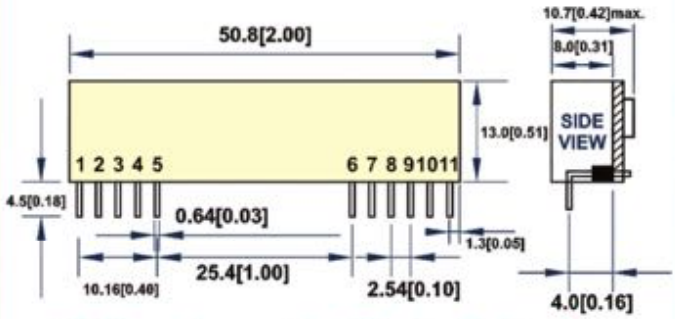
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)	PACKAGE
OSN02W-24S05	20-53	5	2.5	90	A
OSN02W-24S12	20-53	12	2.5	96	A
OSN02W-24S15	20-53	15	2	96	A
OSN02W-48S24	30-53	24	1.25	94	A

2.5A-4A SIP PACKAGES

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)	PACKAGE
OSN04W-24S05	20-53	5	4	90	B
OSN04W-24S12	20-53	12	4	95	B
OSN04W-24S15	20-53	15	4	96	B
OSN04W-48S24	30-53	24	2.5	95	B

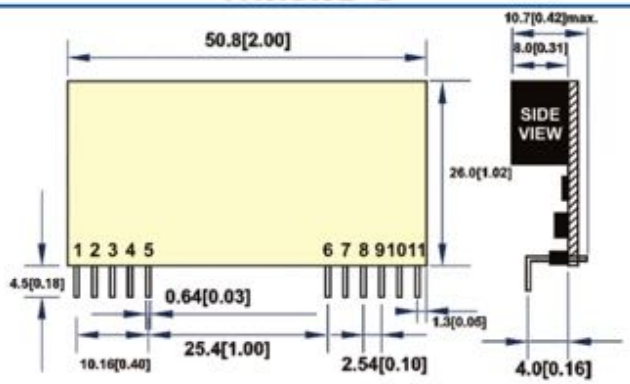
MECHANICAL DIMENSIONS

PACKAGE "A"



All dimensions are in millimeters[inches]

PACKAGE "B"



All dimensions are in millimeters[inches]

PIN	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11
SINGLE	+Vout	+Vout	Com.	+Vin	NC	ON/OFF Control

PIN	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11
SINGLE	+Vout	+Vout	Com.	+Vin	NC	ON/OFF Control

OSN10W SERIES *10A Non-Isolated*

DANUBE

FEATURES

- 0.75V~5.0V OUT / 10A
- 8.3V-14V WIDE INPUT RANGE
- SIP, SMD PACKAGE
- HIGH EFFICIENCY
- COST-EFFECTIVE OPEN FRAME DESIGN
- 2 YEARS WARRANTY

REACH COMPLIANT

RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	8.3-14V	Efficiency	82% min.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Switching Frequency	300KHz typ.
Line Regulation	+/-0.3% typ.	Operating Temperature	-40°C to +85°C	MTBF	>670,000 Hours
Load Regulation	+/-0.4% typ.	Storage Temperature	-55°C to +125°C	SIP Package	50.8mm*13.0mm*6.0mm
Short Circuit Protection	Continuous	Over Load Protection	180% typ.	SMD Package	33.0mm*13.5mm*7.6mm

10A SIP PACKAGE

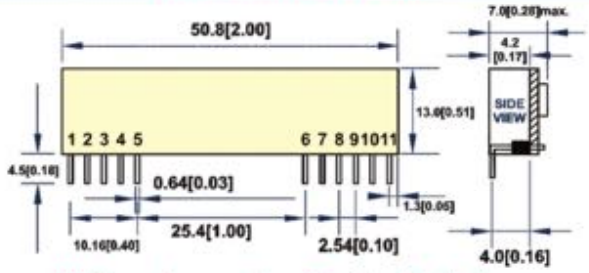
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)
		0.75	10	82
OSN10WHN		1.2	10	87
	Vo(set)≦3.63	1.5	10	89
	Vin = 8.3-14	1.8	10	90
	Vo(set)>3.63	2.0	10	91
OSN10WHP	Vin = 8.3-13.2	2.5	10	92
		3.3	10	93
		5.0	10	95

10A SMD PACKAGE

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)
		0.75	10	82
OSN10WSN		1.2	10	87
	Vo(set)≦3.63	1.5	10	89
	Vin = 8.3-14	1.8	10	90
	Vo(set)>3.63	2.0	10	91
OSN10WSP	Vin = 8.3-13.2	2.5	10	92
		3.3	10	93
		5.0	10	95

MECHANICAL DIMENSIONS

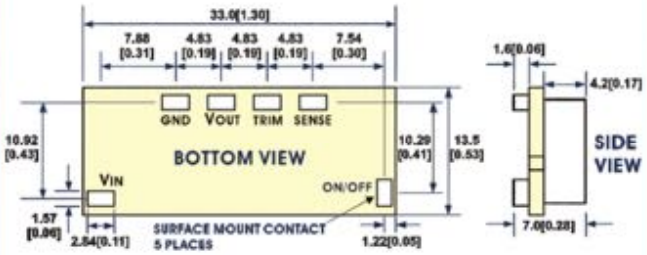
OSN10WH PACKAGE



All dimensions are in millimeters[inches]

PIN	1 & 2	3	4	5 & 6	7 & 8	9	10	11
SINGLE	+Vout	Sense	+Vout	Com.	+Vin	NC	Trim	ON/OFF Control

OSN10WS PACKAGE



All dimensions are in millimeters[inches]

[1] *OSN10WH(S)N* — *ON/OFF LOGIC-NEGATIVE LOGIC*
OSN10WH(S)P — *ON/OFF LOGIC-POSITIVE LOGIC*

OSN16W SERIES *16A Non-Isolated*

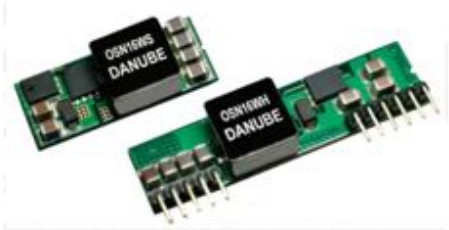
DANUBE

FEATURES

- 0.75V~5.0V OUT / 16A
- 8.3V-14V WIDE INPUT RANGE
- SIP, SMD PACKAGE
- HIGH EFFICIENCY
- COST-EFFECTIVE OPEN FRAME DESIGN
- 2 YEARS WARRANTY

REACH COMPLIANT

RoHS COMPLIANT



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max.	Input Voltage Range	8.3-14V	Efficiency	81% min.
Temperature Coefficient	+/-0.03% /°C	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Ripple & Noise(20MHz BW)	100mVp-p max.	**ENVIRONMENTAL SPECIFICATIONS**		Switching Frequency	300KHz typ.
Line Regulation	+/-0.3% typ.	Operating Temperature	-40°C to +85°C	MTBF	>670,000 Hours
Load Regulation	+/-0.4% typ.	Storage Temperature	-55°C to +125°C	SIP Package	50.8mm*13.0mm*8.3mm
Short Circuit Protection	Continuous	Over Load Protection	180% typ.	SMD Package	33.0mm*13.5mm*8.5mm

16A SIP PACKAGE

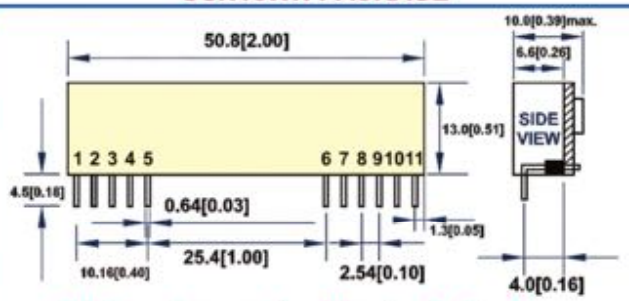
MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)
OSN16WHN	Vo(set)≦3.63 Vin = 8.3-14	0.75	16	81
		1.2	16	85
		1.5	16	88
		1.8	16	89
OSN16WHP	Vo(set)>3.63 Vin = 8.3-13.2	2.0	16	91
		2.5	16	92
		3.3	16	93
		5.0	16	94

16A SMD PACKAGE

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (A)	EFF. (%)
OSN16WSN	Vo(set)≦3.63 Vin = 8.3-14	0.75	16	81
		1.2	16	87
		1.5	16	89
		1.8	16	90
OSN16WSP	Vo(set)>3.63 Vin = 8.3-13.2	2.0	16	91
		2.5	16	92
		3.3	16	94
		5.0	16	95

MECHANICAL DIMENSIONS

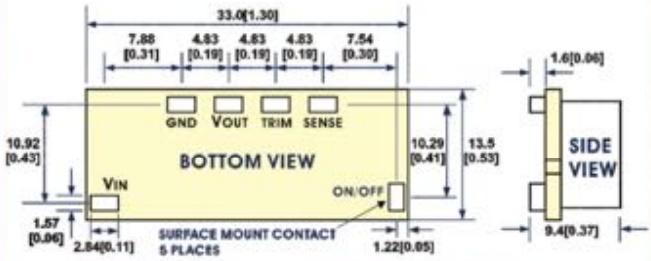
OSN16WH PACKAGE



All dimensions are in millimeters[inches]

PIN	1 & 2	3	4	5 & 6	7 & 8	9	10	11
SINGLE	+Vout Sense	+Vout	Com.	+Vin	NC	Trim	ON/OFF Control	

OSN16WS PACKAGE



All dimensions are in millimeters[inches]

[1] *OSN16WH(S)N* — *ON/OFF LOGIC-NEGATIVE LOGIC*
OSN16WH(S)P — *ON/OFF LOGIC-POSITIVE LOGIC*

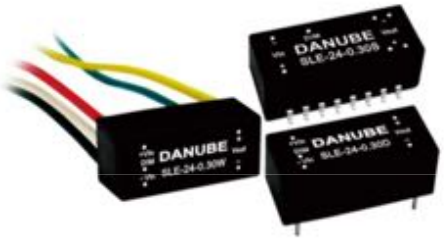
SLE-24 SERIES *0.3A-0.7A DC-DC LED Driver*

DANUBE

FEATURES

- CONSTANT CURRENT LED DRIVER
- SHORT CIRCUIT AND OVER TEMPERATURE PROTECTED
- WIDE INPUT AND OUTPUT VOLTAGE RANGE
- INPUT VOLTAGE UP TO 36V
- PWM DIMMING CONTROL
- FULLY ISOLATED PLASTIC CASE WITH IP67 LEVEL
- 3 YEARS WARRANTY

IP67



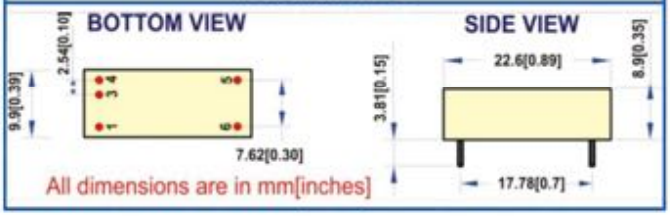
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Temperature Coefficient	+/-0.03% /°C	Input Voltage Range	9-36VDC	Efficiency	95% typ.
Output Current Accuracy	+/-6 % max.	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Output Voltage Range	2-32V	**ENVIRONMENTAL SPECIFICATIONS**		Operating Frequency	40KHz min.
Short Circuit Protection	Continuous	Operating Temperature		MTBF	>1,000,000 Hours
		300mA/350mA/500mA	-40°C to +85°C	Potting Material	Epoxy(UL94V-0)
Storage Temperature	-55°C to +125°C	600mA/700mA	-40°C to +71°C	Case Material	Non-Conductive Plastic

SELECTION GUIDE

MODEL[1] NUMBER	INPUT NOMINAL (VDC)	INPUT (VDC)	OUTPUT		EFF. (%)
			VOLTAGE (VDC)	CURRENT (mA)	
SLE-24-0.30D(W)	24	9-36	2-32	0-300	95
SLE-24-0.35D(W)	24	9-36	2-32	0-350	95
SLE-24-0.50D(W)	24	9-36	2-32	0-500	95
SLE-24-0.60D(W)	24	9-36	2-32	0-600	95
SLE-24-0.70D(W)	24	9-36	2-32	0-700	95
SLE-24-0.30S	24	9-32	2-28	0-300	95
SLE-24-0.35S	24	9-32	2-28	0-350	95
SLE-24-0.50S	24	9-32	2-28	0-500	95
SLE-24-0.60S	24	9-32	2-28	0-600	95
SLE-24-0.70S	24	9-32	2-28	0-700	95

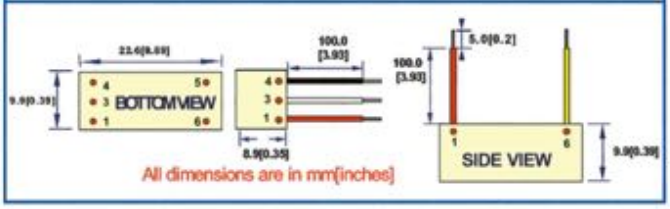
MECHANICAL DIMENSIONS

PACKAGE "D"



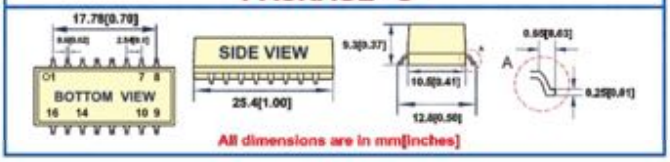
PINOUT	1	3	4	5	6
	+Vin	PWM DIM	-Vin	-Vout	+Vout

PACKAGE "W"



PINOUT	1 (Red)	3 (White)	4 (Black)	5 (Blue)	6 (Yellow)
	+Vin	PWM DIM	-Vin	-Vout	+Vout

PACKAGE "S"



PINOUT	1	14	16	9 & 10	7 & 8
	+Vin	PWM DIM	-Vin	-Vout	+Vout

[1] *SLE-24-xxxxD* — *FOR PINS PACKAGE STYLE*
SLE-24-xxxxW — *FOR WIRED PACKAGE STYLE*
SLE-24-xxxxS — *FOR SMD PACKAGE STYLE*

CLE-12 SERIES *0.3A-0.6A DC-DC LED Driver*

DANUBE

FEATURES

- CONSTANT CURRENT LED DRIVER
- HIGH EFFICIENCY UP TO 90%
- SHORT CIRCUIT AND OVER TEMPERATURE PROTECTED
- WIDE INPUT AND OUTPUT VOLTAGE RANGE
- INPUT VOLTAGE UP TO 36V
- PWM DIMMING CONTROL
- 3 YEARS WARRANTY

IP67

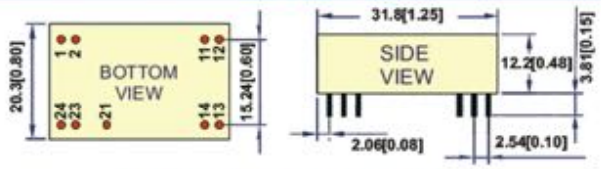
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Temperature Coefficient	+/-0.03% /°C	Input Voltage Range	9-36VDC	Efficiency	90% typ.
Output Current Accuracy	+/-6 % max.	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Output Voltage Range	2-40V	**ENVIRONMENTAL SPECIFICATIONS**		Operating Frequency	350KHz typ.
Short Circuit Protection	Continuous	Operating Temperature		MTBF	>350,000 Hours
		300mA/350mA	-40°C to +71°C	Case Size (D&W)	31.8mm*20.3mm*12.2mm
Storage Temperature	-55°C to +125°C	500mA/600mA	-40°C to +65°C		

SELECTION GUIDE

MODEL[1] NUMBER	INPUT NOMINAL (VDC)	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
CLE-12-0.30D(W)	12	9-36	2-40	0-300	90
CLE-12-0.35D(W)	12	9-36	2-40	0-350	90
CLE-12-0.50D(W)	12	9-30	2-32	0-500	90
CLE-12-0.60D(W)	12	9-28	2-30	0-600	90

MECHANICAL DIMENSIONS

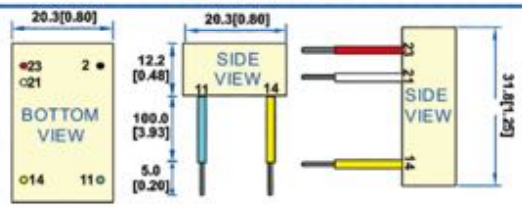
PACKAGE "D"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

PACKAGE "W"



All dimensions are in mm[inches]

PINOUT	2 (Black)	11 (Blue)	14 (Yellow)	21 (White)	23 (Red)
	-Vin	-Vout	+Vout	PWM DIM	+Vin

[1] *CLE-12-xxxD* *FOR PINS PACKAGE STYLE*
CLE-12-xxxW *FOR WIRED PACKAGE STYLE*

CLE-24 SERIES *1.0A-1.5A DC-DC LED Driver*

DANUBE

FEATURES

- CONSTANT CURRENT LED DRIVER
- HIGH EFFICIENCY UP TO 96%
- SHORT CIRCUIT AND OVER TEMPERATURE PROTECTED
- WIDE INPUT AND OUTPUT VOLTAGE RANGE
- INPUT VOLTAGE UP TO 36V
- PWM/DC DIMMING CONTROL
- 3 YEARS WARRANTY

IP67

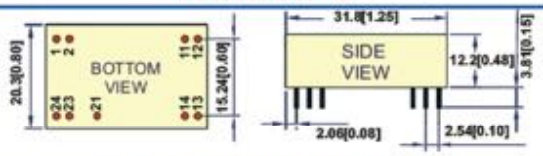
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Temperature Coefficient	+/-0.03% /°C	Input Voltage Range	6-36VDC	Efficiency	96% typ.
Output Current Accuracy	+/-6 % max.	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Output Voltage Range	2-30V	**ENVIRONMENTAL SPECIFICATIONS**		Operating Frequency	1,000KHz max.
Short Circuit Protection	Continuous	Operating Temperature	-40°C to +71°C	MTBF	>1,000,000 Hours
		Storage Temperature	-55°C to +125°C	Case Size (D&W)	31.8mm*20.3mm*12.2mm
				Case Size (S)	31.8mm*20.3mm*10.9mm

SELECTION GUIDE

MODEL[1] NUMBER	INPUT NOMINAL (VDC)	INPUT (VDC)	OUTPUT		EFF. (%)
			VOLTAGE (VDC)	CURRENT (mA)	
CLE-24-1.00D(W)(S)	24	6-36	2-30	0-1000	96
CLE-24-1.20D(W)(S)	24	6-36	2-30	0-1200	96
CLE-24-1.50D(W)(S)	24	6-36	2-30	0-1500	96

MECHANICAL DIMENSIONS

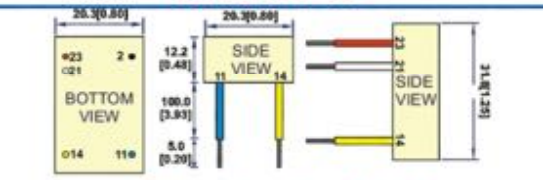
PACKAGE "D"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

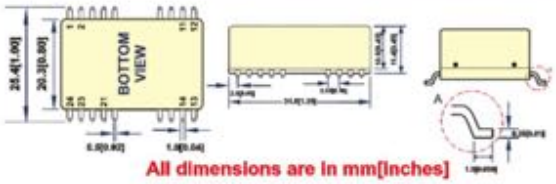
PACKAGE "W"



All dimensions are in mm[inches]

PINOUT	2 (Black)	11 (Blue)	14 (Yellow)	21 (White)	23 (Red)
	-Vin	-Vout	+Vout	PWM DIM	+Vin

PACKAGE "S"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

[1] *CLE-24-xxxD* — *FOR PINS PACKAGE STYLE*
CLE-24-xxxW — *FOR WIRED PACKAGE STYLE*
CLE-24-xxxS — *FOR SMD PACKAGE STYLE*

CLE-48 SERIES *0.3A-1.0A DC-DC LED Driver*

DANUBE

FEATURES

- CONSTANT CURRENT LED DRIVER
- HIGH EFFICIENCY UP TO 97%
- SHORT CIRCUIT AND OVER TEMPERATURE PROTECTED
- WIDE INPUT AND OUTPUT VOLTAGE RANGE
- INPUT VOLTAGE UP TO 56V
- PWM DIMMING CONTROL
- FULLY ISOLATED PLASTIC CASE WITH IP67 LEVEL
- 3 YEARS WARRANTY

IP67

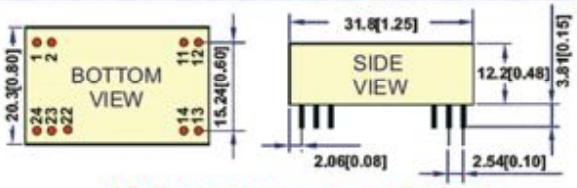
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Temperature Coefficient	+/-0.03% /°C	Input Voltage Range	9-56VDC	Efficiency	97% typ.
Output Current Accuracy	+/-6 % max.	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Output Voltage Range	2-52V	**ENVIRONMENTAL SPECIFICATIONS**		Operating Frequency	40KHz min.
Short Circuit Protection	Continuous	Operating Temperature		MTBF	>1,000,000 Hours
		300mA/350mA/500mA	-40°C to +85°C	Case Size (D&W)	31.8mm*20.3mm*12.2mm
Storage Temperature	-55°C to +125°C	600mA/700mA/1000mA	-40°C to +71°C	Case Size (S)	31.8mm*20.3mm*10.9mm

SELECTION GUIDE

MODEL[1] NUMBER	INPUT NOMINAL (VDC)	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF. (%)
CLE-48-0.30D(W)(S)	48	9-56	2-52	0-300	97
CLE-48-0.35D(W)(S)	48	9-56	2-52	0-350	97
CLE-48-0.50D(W)(S)	48	9-56	2-52	0-500	97
CLE-48-0.60D(W)(S)	48	9-56	2-52	0-600	97
CLE-48-0.70D(W)(S)	48	9-56	2-52	0-700	97
CLE-48-1.00D(W)(S)	48	9-56	2-52	0-1000	97

MECHANICAL DIMENSIONS

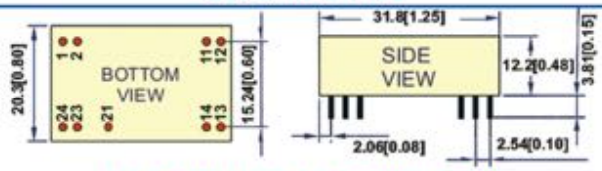
PACKAGE "D"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	22	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

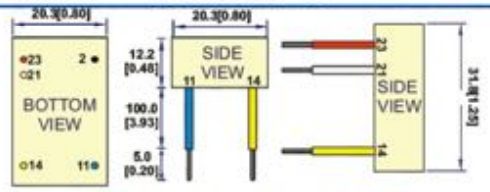
PACKAGE "DA"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

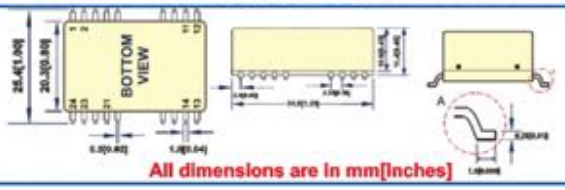
PACKAGE "W"



All dimensions are in mm[inches]

PINOUT	2 (Black)	11 (Blue)	14 (Yellow)	21 (White)	23 (Red)
	-Vin	-Vout	+Vout	PWM DIM	+Vin

PACKAGE "S"



All dimensions are in mm[inches]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

[1] *CLE-48-xxxD* *FOR PINS PACKAGE STYLE*
CLE-48-xxxW *FOR WIRED PACKAGE STYLE*
CLE-48-xxxS *FOR SMD PACKAGE STYLE*

CALE-48 SERIES *1.0A-1.5A DC-DC LED Driver*

DANUBE

FEATURES

- CONSTANT CURRENT LED DRIVER
- HIGH EFFICIENCY UP TO 96%
- SHORT CIRCUIT AND OVER TEMPERATURE PROTECTED
- WIDE INPUT AND OUTPUT VOLTAGE RANGE
- INPUT VOLTAGE UP TO 52V
- PWM DIMMING CONTROL
- FULLY ISOLATED PLASTIC CASE WITH IP67 LEVEL
- 3 YEARS WARRANTY

IP67

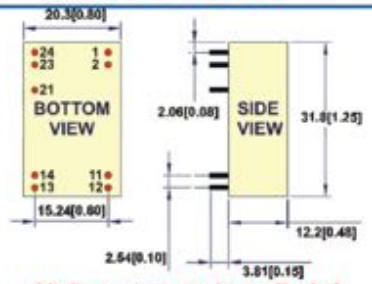
OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Temperature Coefficient	+/-0.03% /°C	Input Voltage Range	9-52VDC	Efficiency	96% typ.
Output Current Accuracy	+/-6 % max.	Input Filter	Capacitor Type	Isolation Voltage	Non-Isolation
Output Voltage Range	2-46V	**ENVIRONMENTAL SPECIFICATIONS**		Operating Frequency	1,000KHz max.
Short Circuit Protection	Continuous	Operating Temperature		MTBF	>900,000 Hours
		1000mA/1200mA	-40°C to +71°C	Case Size (D&W)	31.8mm*20.3mm*12.2mm
Storage Temperature	-55°C to +125°C	1500mA	-40°C to +65°C		

SELECTION GUIDE

MODEL[1] NUMBER	INPUT NOMINAL (VDC)	INPUT (VDC)	OUTPUT		EFF. (%)
			VOLTAGE (VDC)	CURRENT (mA)	
CALE-48-1.00D(W)	48	9-52	2-46	0-1000	96
CALE-48-1.20D(W)	48	9-52	2-46	0-1200	96
CALE-48-1.50D(W)	48	9-52	2-46	0-1500	96

MECHANICAL DIMENSIONS

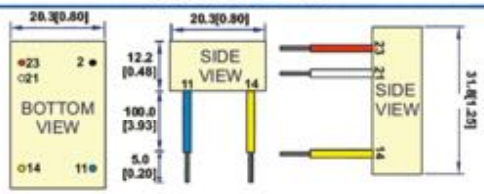
PACKAGE "DA"



All dimensions are in mm[inchs]

PINOUT	1 & 2	11 & 12	13 & 14	21	23 & 24
	-Vin	-Vout	+Vout	PWM DIM	+Vin

PACKAGE "W"



All dimensions are in mm[inches]

PINOUT	2 (Black)	11 (Blue)	14 (Yellow)	21 (White)	23 (Red)
	-Vin	-Vout	+Vout	PWM DIM	+Vin

CALE-48-xxxD *FOR PINS PACKAGE STYLE*
CALE-48-xxxW *FOR WIRED PACKAGE STYLE*

IRM-01 SERIES *1W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.075W
- COMPLY WITH EN55032 CLASS B WITHOUT ANY ADDITIOANL COMPONENTS
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-305VAC; 120~430VDC

Input frequency range..... 47-63Hz

Input AC current (typ.)..... 25mA/115VAC;18mA/230VAC; 16mA/277VAC

Input Inrush current (typ.). 5A/115VAC, 10A/230VAC

Overload protection..... 110% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-0.5% max.

Output setup, rise time..... 600ms, 30ms/230VAC 600ms, 30ms/115VAC at full load

Output hold up time (typ.). 40ms/230VAC, 12ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +85 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +100 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level, (surge L-N:1KV) criteria A

MTBF..... 1960Khrs min. MIL-HDBK-217F(25 °C)

Dimension(L*W*H)..... PCB mounting : 33.7*22.2*15mm

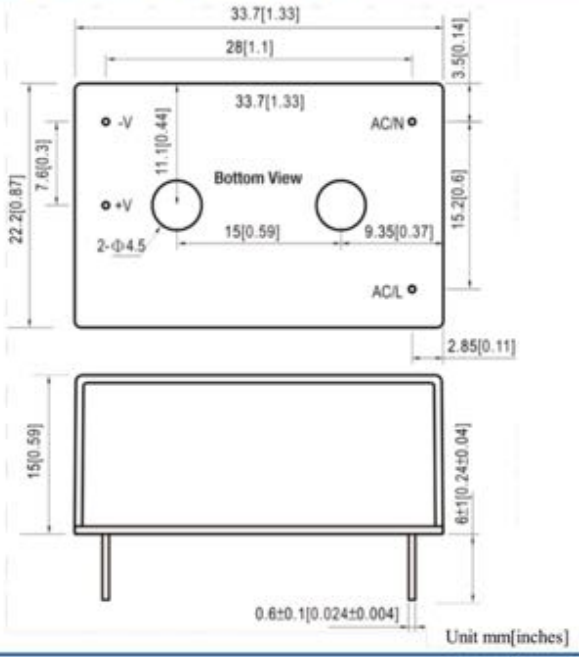
SMD : 33.7*22.2*16mm

Packing..... 0.024Kg; 640pcs/ 16.3 Kg/ 0.95CUFT

IRM-01 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (mA)			
IRM-01-3.3	3.3	0~300	+/-2.5	150	66
IRM-01-5	5	0~200	+/-2.5	150	70
IRM-01-9	9	0~111	+/-2.5	150	72
IRM-01-12	12	0~83	+/-2.5	150	74
IRM-01-15	15	0~67	+/-2.5	200	75
IRM-01-24	24	0~42	+/-2.5	200	77

MECHANICAL DIMENSIONS



IRM-02 SERIES *2W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.075W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-305VAC; 120-430VDC

Input frequency range..... 47-63Hz

Input AC current (typ.)..... 45mA/115VAC, 30mA/230VAC
25mA/277VAC

Input Inrush current (typ.). 5A/115VAC, 10A/230VAC

Overload protection..... 110% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-0.5% max.

Output setup, rise time..... 600ms, 30ms at full load

Output hold up time (typ.). 40ms/230VAC, 12ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +85 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +100 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level, (surge L-N:1KV) criteria A

MTBF..... 1960Khrs min. MIL-HDBK-217F(25 °C)

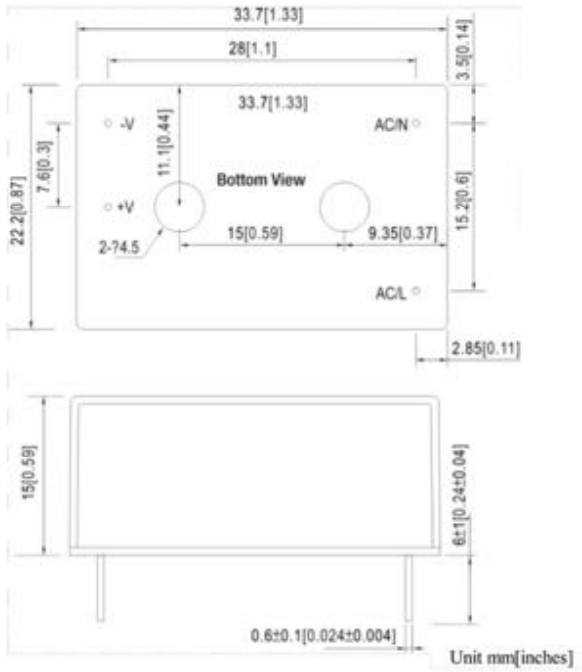
Dimension.....(L*W*H) PCB mounting : 33.7*22.2*15mm
SMD : 33.7*22.2*16mm

Packing..... 0.024Kg; 640pcs/ 16.3 Kg/ 0.95CUFT

IRM-02 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (mA)			
IRM-02-3.3	3.3	0~600	+/-2.5	150	66
IRM-02-5	5	0~400	+/-2.5	150	70
IRM-02-9	9	0~222	+/-2.5	150	72
IRM-02-12	12	0~167	+/-2.5	150	74
IRM-02-15	15	0~133	+/-2.5	200	75
IRM-02-24	24	0~83	+/-2.5	200	77

MECHANICAL DIMENSIONS



IRM-03 SERIES *3W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.075W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-305VAC; 120-430VDC

Input frequency range..... 47-63Hz

Input AC current (typ.)..... 70mA/115VAC;40mA/230VAC; 35mA/277VAC

Input Inrush current (typ.). 10A/115VAC, 20A/230VAC

Overload protection..... 105%~260% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 600ms, 30ms/230VAC 600ms, 30ms/115VAC at full load

Output hold up time (typ.). 40ms/230VAC, 8ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +85 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +100 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950, TUV EN60335-1

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N : 1KV), criteria A,

MTBF..... 2137.6Khrs min. MIL-HDBK-217F(25 °C)

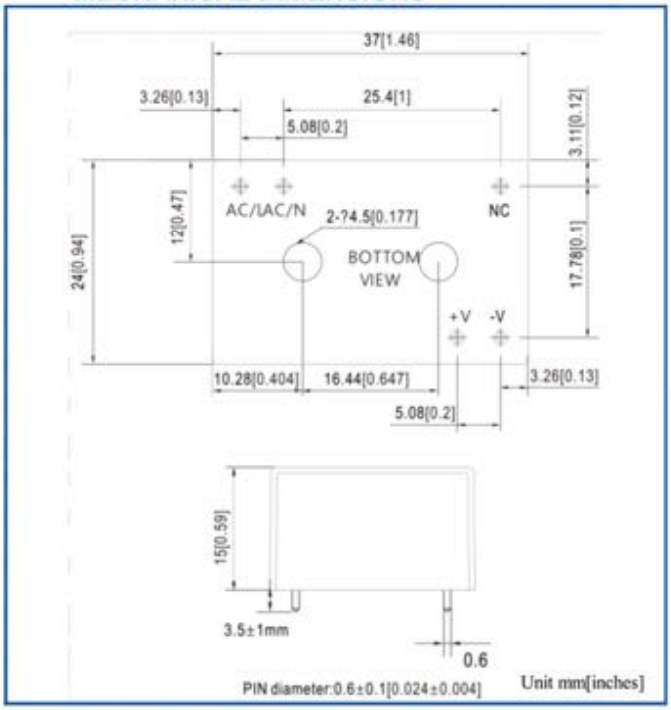
Dimension.....(L*W*H) PCB mounting: 37*24*15mm SMD : 37*24*16mm

Packing..... 0.026Kg;560pcs/15.3Kg/0.96CUFT

IRM-03 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (mA)			
IRM-03-3.3	3.3	0~900	+/-2.5	100	68
IRM-03-5	5	0~600	+/-2.5	100	72
IRM-03-9	9	0~333	+/-2.5	100	77
IRM-03-12	12	0~250	+/-2.5	150	78
IRM-03-15	15	0~200	+/-2.5	200	78
IRM-03-24	24	0~125	+/-2.5	240	80

MECHANICAL DIMENSIONS



IRM-05 SERIES *5W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS II
- NO LOAD POWER CONSUMPTION<0.1W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

LPS

CE

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GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input AC current (typ.)..... 0.12A/115VAC; 0.08A/230VAC

Input inrush current (typ.). Cold start 20A/115VAC, 40A/230VAC

Overload protection..... 115% ~ 260% rated output power

Output line regulation..... +/-0.3% max.

Output load regulation..... +/-0.5% max.

Output setup, rise time..... 600ms, 30ms at full load

Output hold up time (typ.). 80ms/230VAC, 15ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032 (CISPR32) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 1495.8Khrs min. MIL-HDBK-217F(25 °C)

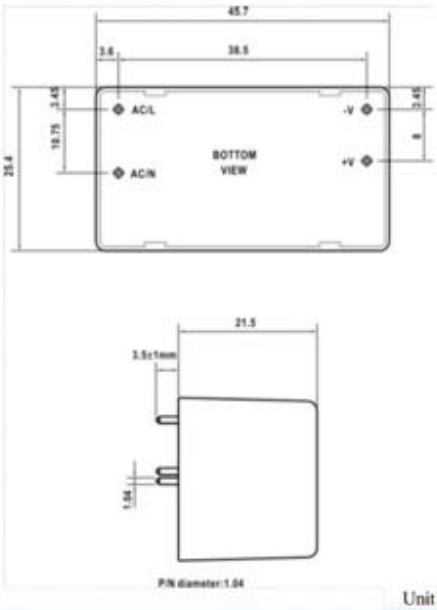
Dimension..... 45.7*25.4*21.5mm(L*W*H)

Packing..... 0.033Kg;270pcs/ 9.8Kg/0.97CUFT

IRM-05 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-05-3.3	3.3	0~1.25	+/-2.5	200	68
IRM-05-5	5	0~1.00	+/-2.5	200	71
IRM-05-12	12	0~0.42	+/-2.5	200	75
IRM-05-15	15	0~0.33	+/-2.5	200	75
IRM-05-24	24	0~0.23	+/-2.5	200	77

MECHANICAL DIMENSIONS



Unit mm[inches]

IRM-10 SERIES *10W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS II
- NO LOAD POWER CONSUMPTION<0.1W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

LPS

CE

CB

c UL us

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 0.25A/115VAC; 0.15A/230VAC

Input Inrush current (typ.). Cold start 20A/115VAC, 40A/230VAC

Overload protection..... 115% ~ 190% rated output power

Output line regulation..... +/-0.3% max.

Output load regulation..... +/-0.5% max.

Output setup, rise time..... 600ms, 30ms at full load

Output hold up time (typ.). 30ms/230VAC, 8ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032 (CISPR32) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 1495.8Khrs min. MIL-HDBK-217F(25 °C)

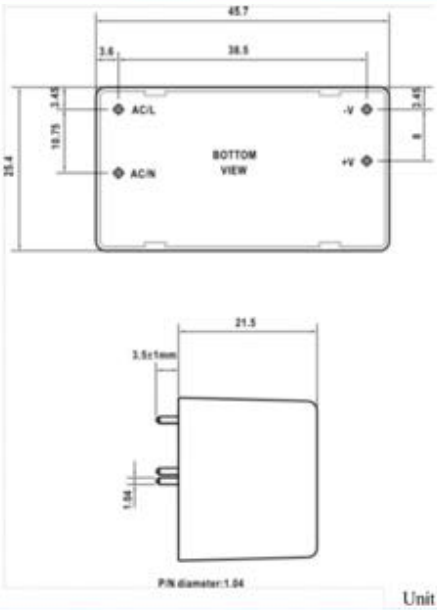
Dimension..... 45.7*25.4*21.5mm(L*W*H)

Packing..... 0.033Kg; 270pcs/9.8Kg/0.97CUFT

IRM-10 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-10-3.3	3.3	0~2.50	+/-2.5	200	74
IRM-10-5	5	0~2.00	+/-2.5	200	77
IRM-10-12	12	0~0.85	+/-2.5	200	82
IRM-10-15	15	0~0.67	+/-2.5	200	82
IRM-10-24	24	0~0.42	+/-2.5	200	82

MECHANICAL DIMENSIONS



Unit mm[inches]

IRM-15 SERIES *15W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.1W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 0.35A/115VAC; 0.2A/230VAC

Input inrush current (typ.). Cold start 20A/115VAC, 40A/230VAC

Overload protection..... 115% ~ 190% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 1000ms, 20ms/230VAC, 1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 40ms/230VAC, 10ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 970.3Khrs min. MIL-HDBK-217F(25 °C)

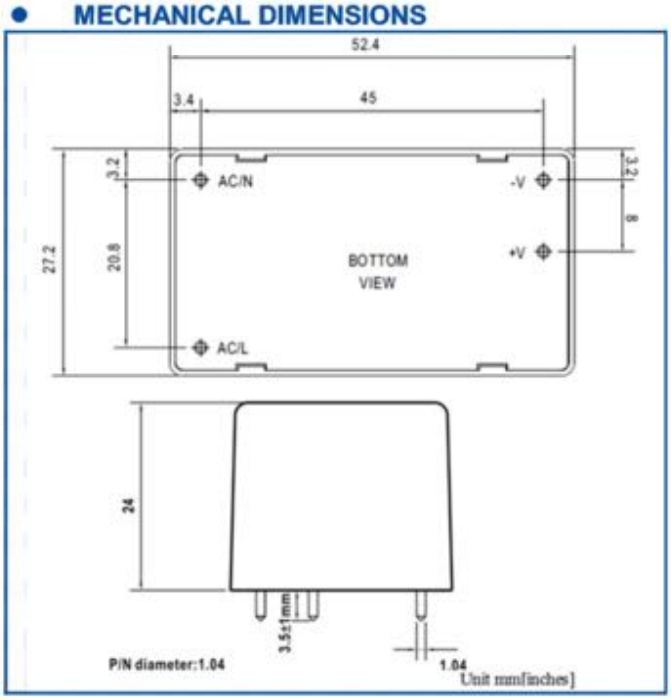
Dimension..... 52.4*27.2*24.0mm(L*W*H)

Packing..... 0.05Kg/240pcs/13Kg/0.97CUFT

IRM-15 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-15-3.3	3.3	0~3.50	+/-2.5	200	74
IRM-15-5	5	0~3.00	+/-2.5	200	78
IRM-15-12	12	0~1.25	+/-2.5	200	82
IRM-15-15	15	0~1.00	+/-2.5	200	82
IRM-15-24	24	0~0.63	+/-2.5	200	83

MECHANICAL DIMENSIONS



IRM-20 SERIES *20W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.1W
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 0.6A/115VAC; 0.4A/230VAC

Input inrush current (typ.). Cold start 20A/115VAC, 40A/230VAC

Overload protection..... 115% ~ 160% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 1000ms, 20ms/230VAC, 1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 40ms/230VAC, 8ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 970.3Khrs min. MIL-HDBK-217F(25 °C)

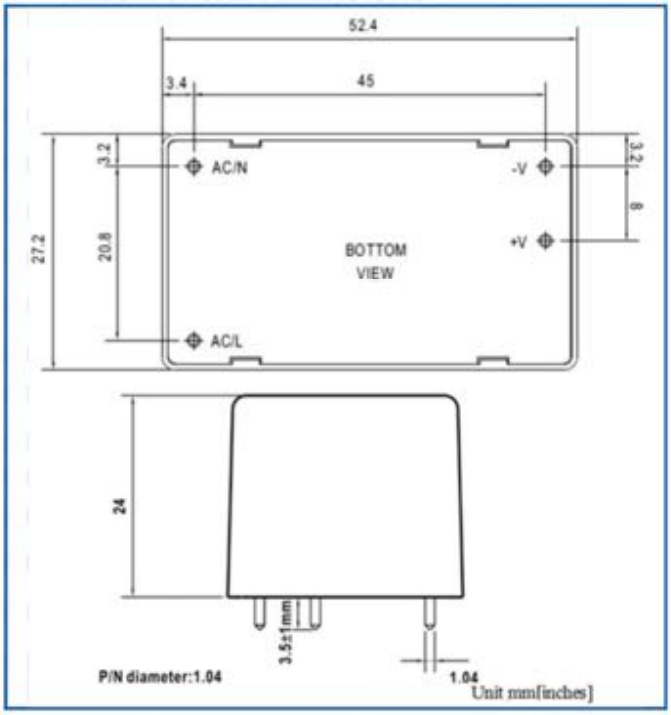
Dimension..... 52.4*27.2*24.0mm(L*W*H)

Packing..... 0.05kg;240pcs/13Kg/0.97CUFT

IRM-20 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-20-3.3	3.3	0~4.50	+/-2.5	200	76
IRM-20-5	5	0~4.00	+/-2.5	200	79
IRM-20-12	12	0~1.80	+/-2.5	200	84
IRM-20-15	15	0~1.40	+/-2.5	200	84
IRM-20-24	24	0~0.90	+/-2.5	200	85

MECHANICAL DIMENSIONS



IRM-30 SERIES *30W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.1W
- PASS LPS
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

LPS CE CB c UL us

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 0.75A/115VAC; 0.5A/230VAC

Input Inrush current (typ.). Cold start 25A/115VAC, 45A/230VAC

Overload protection..... 105% ~ 160% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 1000ms, 30ms/230VAC, 1500ms, 30ms/115VAC at full load

Output hold up time (typ.). 40ms/230VAC, 12ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 593.3Khrs min. MIL-HDBK-217F(25 °C)

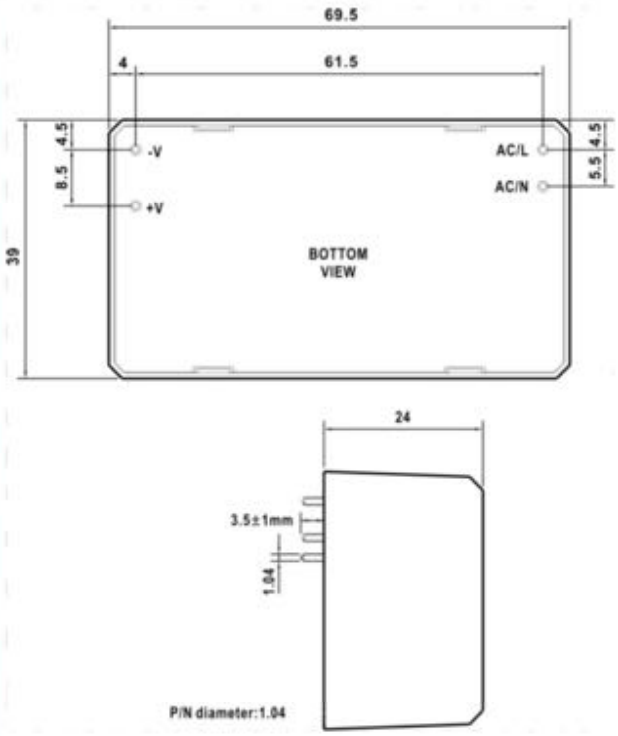
Dimension..... 69.5*39*24.0mm(L*W*H)

Packing..... 0.094Kg;144pcs/14.5Kg/0.97CUFT

IRM-30 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-30-5	5	0~6.00	+/-2.5	120	83
IRM-30-12	12	0~2.50	+/-2.5	150	88
IRM-30-15	15	0~2.00	+/-2.5	200	88
IRM-30-24	24	0~1.30	+/-2.5	240	88.5
IRM-30-48	48	0~0.63	+/-2.5	300	90

MECHANICAL DIMENSIONS



Unit mm[inches]

IRM-45 SERIES *45W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.1W
- PASS LPS (Except for 5V)
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

LPS (except for 5V)

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 1.5A/115VAC; 0.75A/230VAC

Input Inrush current (typ.). Cold start 30A/115VAC, 60A/230VAC

Overload protection..... 115% ~ 160% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 1000ms, 30ms/230VAC, 2000ms, 30ms/115VAC at full load

Output hold up time (typ.). 50ms/230VAC, 12ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 1212Khrs min. MIL-HDBK-217F(25 °C)

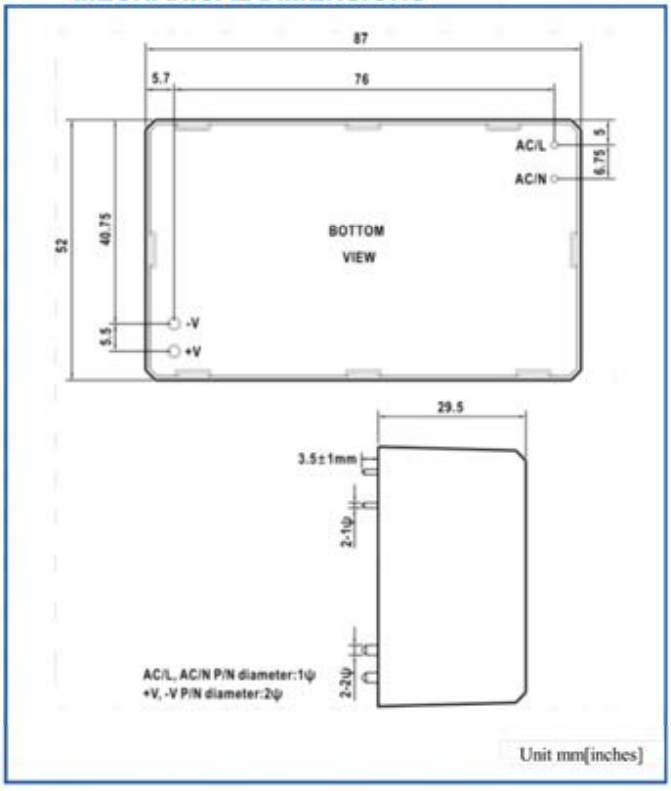
Dimension..... 87*52*29.5mm(L*W*H)

Packing..... 0.195Kg;60pcs/12.7Kg/0.97CUFT

IRM-45 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-45-5	5	0~8.00	+/-2.5	80	83.5
IRM-45-12	12	0~3.80	+/-2.5	150	87.5
IRM-45-15	15	0~3.00	+/-2.5	180	88.5
IRM-45-24	24	0~1.90	+/-2.5	200	89.5
IRM-45-48	48	0~0.94	+/-2.5	300	90.5

MECHANICAL DIMENSIONS



IRM-60 SERIES *60W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- COMPACT SIZE
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- NO LOAD POWER CONSUMPTION<0.1W
- PASS LPS (Except for 5V)
- 100 % FULL LOAD BURN-IN TEST
- HIGH RELIABILITY
- 3 YEARS WARRANTY

LPS (except for 5V)

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC

Input frequency range..... 47-440Hz

Input AC current((typ.)..... 1.8A/115VAC; 1A/230VAC

Input Inrush current (typ.). Cold start 30A/115VAC, 60A/230VAC

Overload protection..... 115% ~ 160% rated output power

Output line regulation..... +/-0.5% max.

Output load regulation..... +/-1.0% max.

Output setup, rise time..... 1000ms, 30ms/230VAC, 2000ms, 30ms/115VAC at full load

Output hold up time (typ.). 50ms/230VAC, 12ms/115VAC at full load

Withstand voltage..... I/P-O/P:3000VAC

Working temperature..... -30 to +70 °C (refer to "derating curve")

Working humidity..... 20 to 90% RH non-condensing

Storage temp., Humidity... -40 to +85 °C, 10 ~ 95% RH

Safety standards..... UL60950-1, TUV EN60950-1 approved

EMC emission..... Compliance to EN55032(CISPR32) class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, heavy industry level (surge L-N:1KV), criteria A

MTBF..... 1226Khrs min. MIL-HDBK-217F(25 °C)

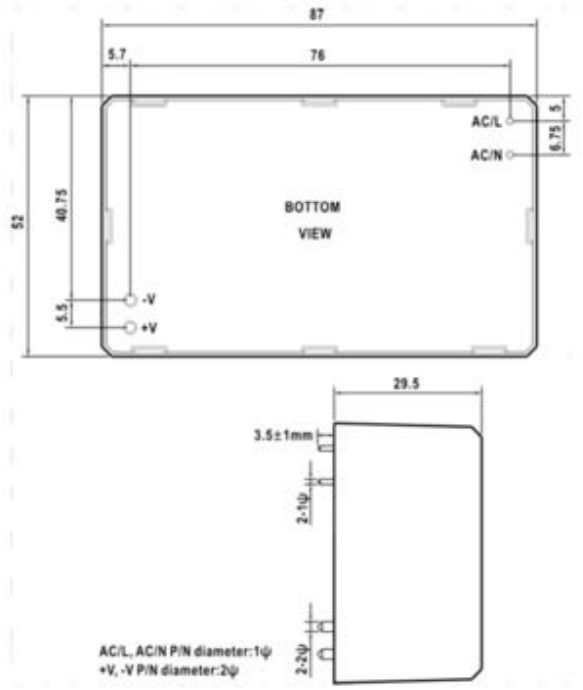
Dimension..... 87*52*29.5mm(L*W*H)

Packing..... 0.195Kg;60pcs/12.7Kg/0.97CUFT

IRM-60 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
IRM-60-5	5	0~10.00	+/-2.5	80	84
IRM-60-12	12	0~5.00	+/-2.5	120	87.5
IRM-60-15	15	0~4.00	+/-2.5	120	89
IRM-60-24	24	0~2.50	+/-2.5	150	90
IRM-60-48	48	0~1.25	+/-2.5	240	91

MECHANICAL DIMENSIONS



Unit mm[inches]

PM-05 SERIES *5W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS II
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input Inrush current (typ.). Cold start 25A/115VAC, 45A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/-1% max.

Output setup, rise time..... 1000ms, 20ms/230VAC
1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 100ms/230VAC, 24ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20 to +70 °C (refer to derating curve)

Working humidity..... 20 to 90% RH non-condensing

Safety standards..... UL60601-1, TUV EN60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11),
EN55022(CISPR22) Class B,
EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11,
EN55024, EN60601-1-2, EN61204-3,
medical level, criteria A

MTBF..... 1513.4Khrs min. MIL-HDBK-217F(25 °C)

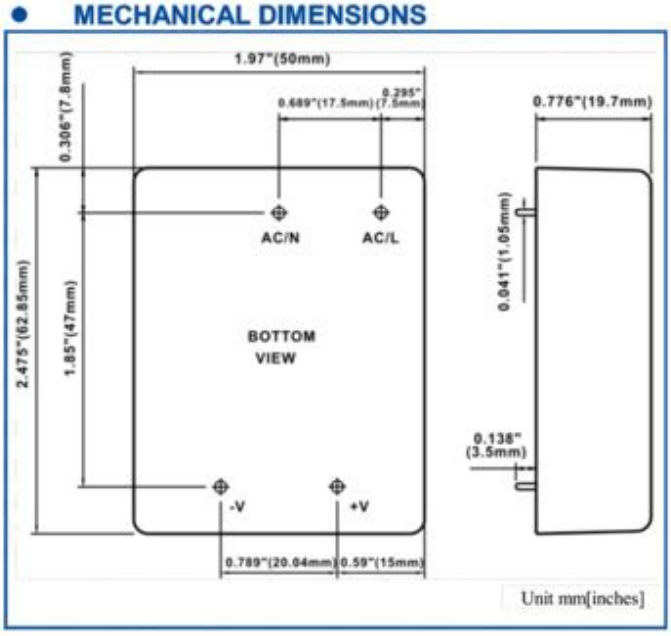
Dimension..... 62.85mm*50.0mm*19.7mm(L*W*H)

Weight..... 0.085kg

PM-05 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
PM-05-3.3	3.3	0~1.25	+/-3	80	67
PM-05-5	5	0~1.00	+/-2	80	71
PM-05-12	12	0~0.42	+/-2	150	73
PM-05-15	15	0~0.33	+/-2	150	74
PM-05-24	24	0~0.23	+/-2	240	76

MECHANICAL DIMENSIONS



PM-10 SERIES *10W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input inrush current (typ.). Cold start 25A/115VAC, 45A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1 % max.

Output load regulation..... +/-1% max.

Output setup, rise time..... 1000ms, 20ms/230VAC
1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 100ms/230VAC, 24ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20 °C to +70 °C (refer to derating curve)

Working humidity..... 20 to 90% RH non-condensing

Safety standards..... UL60601-1, TUV EN60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11),
EN55022(CISPR22) Class B,
N61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11,
EN55024, EN60601-1-2, EN61204-3,
medical level, criteria A

MTBF..... 723.2Khrs min. MIL-HDBK-217F(25 °C)

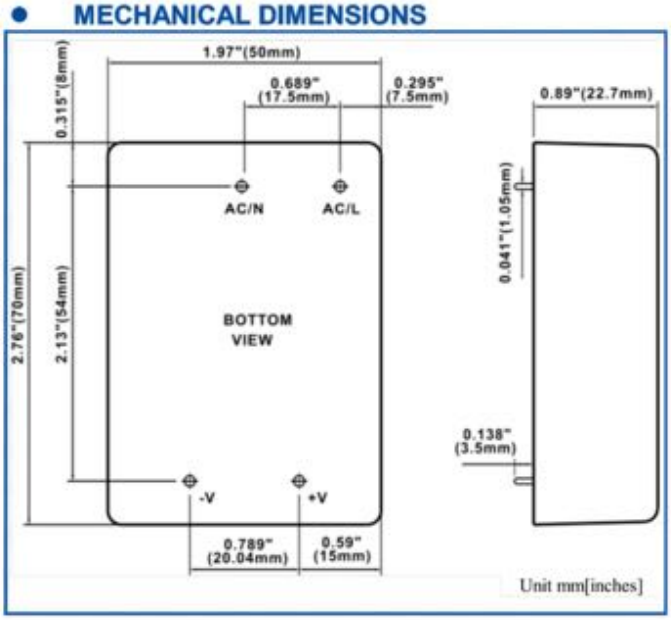
Dimension..... 70.0mm*50.0mm*22.7mm(L*W*H)

Weight..... 0.105kg

PM-10 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
PM-10-3.3	3.3	0~2.50	+/-3	150	66
PM-10-5	5	0~2.00	+/-2	150	74
PM-10-12	12	0~0.85	+/-2	150	78
PM-10-15	15	0~0.67	+/-2	150	79
PM-10-24	24	0~0.42	+/-2	240	79

MECHANICAL DIMENSIONS



PM-15 SERIES *15W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input Inrush current (typ.). Cold start 30A/115VAC, 50A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output regulation..... +/-1% max.

Output setup, rise time..... 1000ms, 20ms/230VAC
1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 100ms/230VAC, 24ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20 °C to +70 °C (refer to derating curve)

Working humidity..... 20 to 90% RH non-condensing

Safety standards..... UL60950-1, UL60601-1, TUV EN60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11), EN55022(CISPR22) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A

MTBF..... 499.7Khrs min. MIL-HDBK-217F(25 °C)

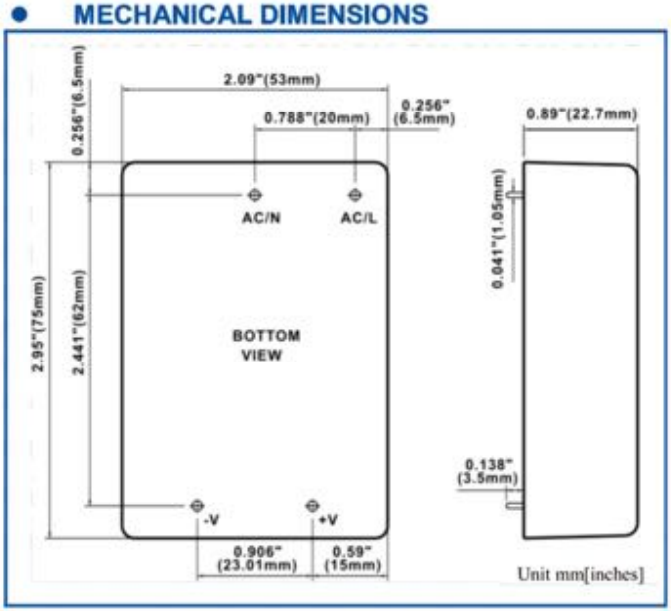
Dimension..... 75.0mm*53.0mm*22.7mm(L*W*H)

Weight..... 0.14kg

PM-15 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
PM-15-3.3	3.3	0~3.50	+/-3	80	73
PM-15-5	5	0~3.00	+/-2	80	76
PM-15-12	12	0~1.25	+/-2	150	78
PM-15-15	15	0~1.00	+/-2	150	79
PM-15-24	24	0~0.63	+/-2	240	81

MECHANICAL DIMENSIONS



PM-20 SERIES *20W AC-DC MODULE TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- LOW LEAKAGE CURRENT < 200 μA
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE
- ULTRA-MINIATURE SIZE,LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.75W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 90KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Frequency range..... 47-440Hz

Input inrush current (typ.). Cold start 30A/115VAC, 65A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/-1.5% max.

Output setup, rise time..... 500ms, 20ms/230VAC
500ms, 20ms/115VAC at full load

Output hold up time (typ.). 50ms/230VAC, 16ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC, I/P-FG:1500VAC
O/P-FG:1500VAC

Working temperature..... -20 °C to +60 °C (refer to derating curve)

Working humidity..... 20 to 90% RH non-condensing

Safety standards..... UL60601-1, TUV EN60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11),
EN55022(CISPR22) Class B,
EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11,
EN55024, EN60601-1-2,EN61204-3,medical
level, criteria A

MTBF..... 487.8Khrs min. MIL-HDBK-217F(25 °C)

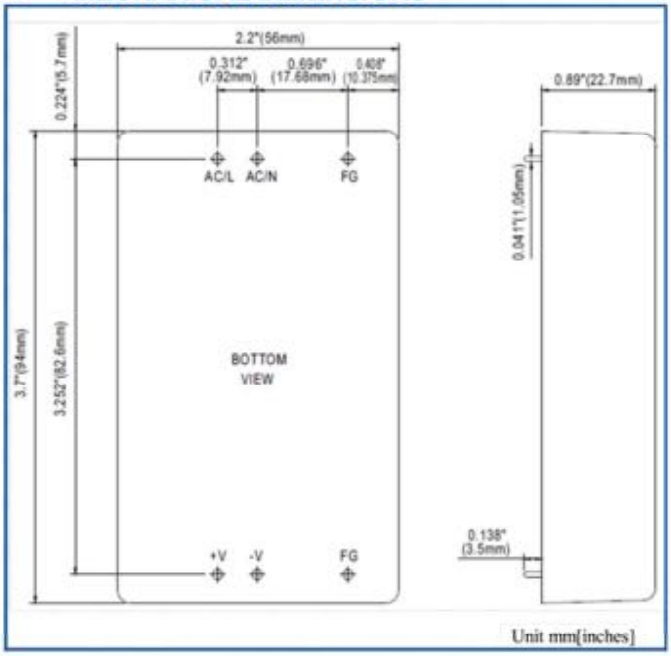
Dimension..... 94.0mm*56.0mm*22.7mm(L*W*H)

Weight..... 0.18kg

PM-20 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mV)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
PM-20-3.3	3.3	0~4.50	+/-3	80	71
PM-20-5	5	0~4.40	+/-2	80	75
PM-20-12	12	0~1.80	+/-2	150	81
PM-20-15	15	0~1.40	+/-2	150	83
PM-20-24	24	0~0.92	+/-2	240	84

MECHANICAL DIMENSIONS



NFM-05 SERIES *5W AC-DC ON BOARD TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE / OVER TEMPERATURE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input inrush current (typ.). Cold start, 25A/115VAC, 45A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/-1% max.

Over temp. protection..... Shut down o/p voltage, recovers automatically after temperature goes down

Output setup, rise time..... 1000ms, 20ms/230VAC
1000ms, 20ms/115VAC at full load

Output hold up time (typ.). 100ms/230VAC, 24ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20°C to +70 °C (refer to derating curve)

Safety standards..... UL60601-1, TUV EN60601-1, IEC60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11), EN55022(CISPR22) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A

MTBF..... 738.7Khrs min. MIL-HDBK-217F(25 °C)

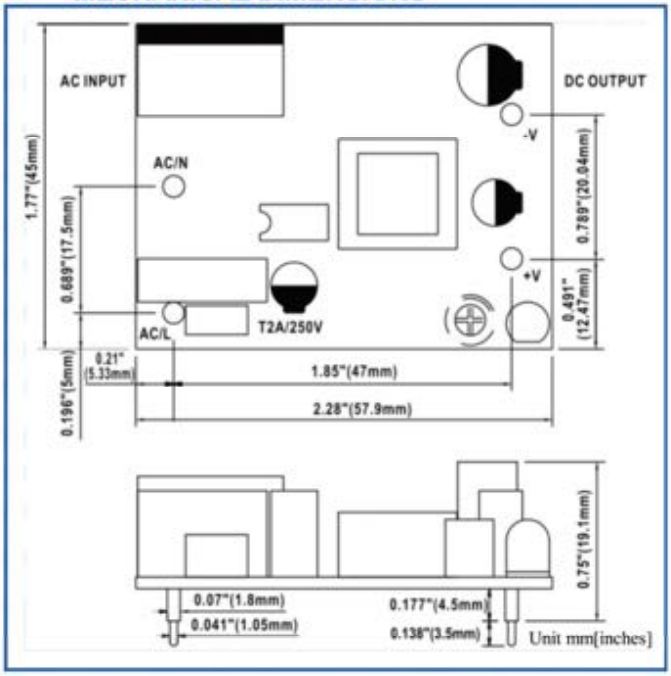
Dimension..... 58.0mm*45.0mm*19.1mm(L*W*H)

Packing..... 0.03kg

NFM-05 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
NFM-05-3.3	3.3	0~1.25	+/-2	80	67
NFM-05-5	5	0~1.00	+/-2	80	71
NFM-05-12	12	0~0.42	+/-1	150	73
NFM-05-15	15	0~0.33	+/-1	150	74
NFM-05-24	24	0~0.23	+/-1	240	76

MECHANICAL DIMENSIONS



NFM-10 SERIES *10W AC-DC ON BOARD TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE / OVER TEMPERATURE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Input frequency range..... 47-440Hz

Input inrush current (typ.). Cold start,25A/115VAC, 45A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/1% max.

Output setup, rise time..... 1800ms, 20ms/230VAC
1800ms,20ms/115VAC at full load

Output hold up time (typ.). 100ms/230VAC, 24ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20°C to +70 °C (refer to derating curve)

Safety standards..... UL60601-1, TUV EN60601-1, IEC60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11), EN55022(CISPR22) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A

MTBF..... 723.2Khrs min. MIL-HDBK-217F(25 °C)

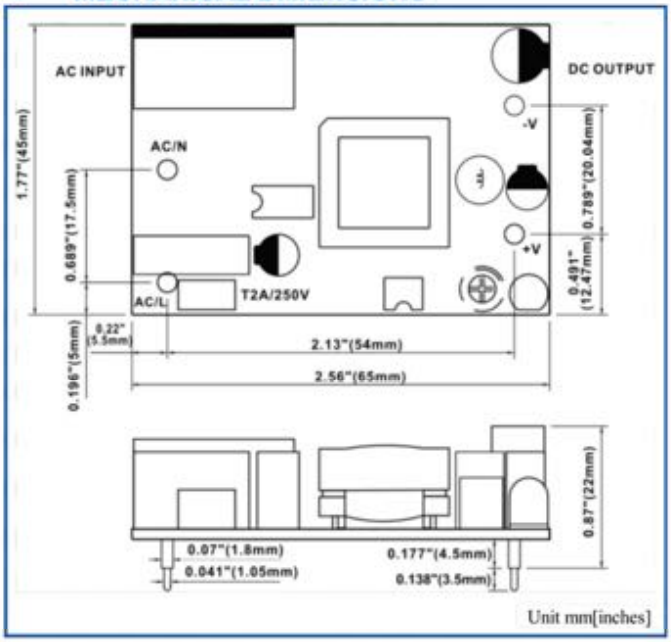
Dimension..... 65.0mm*45.0mm*22.0mm(L*W*H)

Weight..... 0.045kg

NFM-10 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
NFM-10-3.3	3.3	0~2.50	+/-2	150	66
NFM-10-5	5	0~2.00	+/-2	150	74
NFM-10-12	12	0~0.85	+/-1	150	78
NFM-10-15	15	0~0.67	+/-1	150	79
NFM-10-24	24	0~0.42	+/-1	240	79

MECHANICAL DIMENSIONS



NFM-15 SERIES *15W AC-DC ON BOARD TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE / OVER TEMPERATURE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- ISOLATION CLASS Ⅱ
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.5W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 67KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Frequency range..... 47-440Hz

Input inrush current(Typ.). Cold start 30A/115VAC,50A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/-1% max.

Output setup, rise time..... 1000ms, 20ms/230VAC
1000ms,20ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC

Working temperature..... -20°C to +70 °C (refer to derating curve)

Working Humidity..... 20 to 90%RH non-condensing

Safety standards..... UL60950-1, UL60601-1, TUV EN60601-1, IEC60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11), EN5022 (CISPR22) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A

MTBF..... 499.7Khrs min. MIL-HDBK-217F(25 °C)

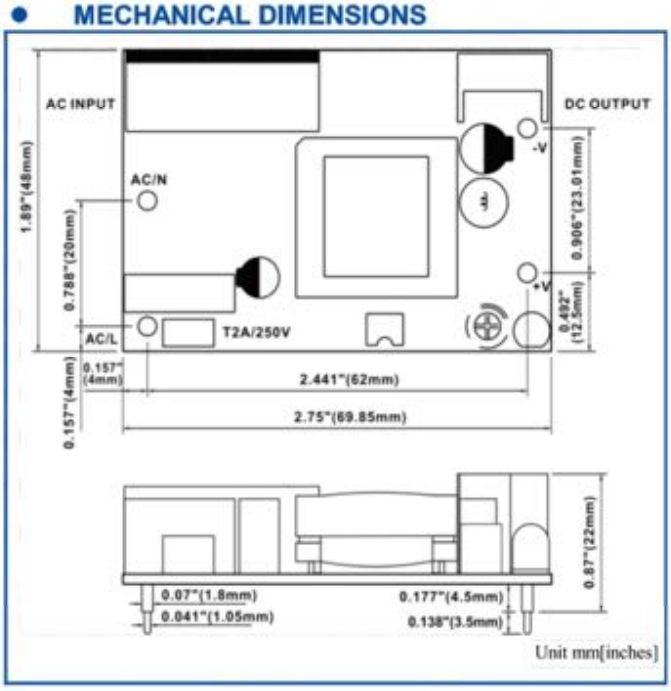
Dimension..... 70.0mm*48.0mm*22.0mm(L*W*H)

Packing..... 0.065kg

NFM-15 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
NFM-15-3.3	3.3	0~3.50	+/-2	80	73
NFM-15-5	5	0~3.00	+/-2	80	76
NFM-15-12	12	0~1.25	+/-1	150	78
NFM-15-15	15	0~1.00	+/-1	150	79
NFM-15-24	24	0~0.63	+/-1	240	81

MECHANICAL DIMENSIONS



NFM-20 SERIES *20W AC-DC ON BOARD TYPE*

DANUBE

FEATURES

- UNIVERSAL AC INPUT / FULL RANGE
- PROTECTIONS:SHORT CIRCUIT / OVERLOAD / OVER VOLTAGE / OVER TEMPERATURE
- ULTRA-MINIATURE SIZE, LIGHT WEIGHT
- COOLING BY FREE AIR CONVECTION
- OPTIONAL ON-BOARD TYPE VERSION AVAILABLE
- MEDICAL SAFETY APPROVED (MOPP LEVEL)
- NO LOAD POWER CONSUMPTION<0.75W
- 100 % FULL LOAD BURN-IN TEST
- FIXED SWITCHING FREQUENCY AT 90KHz
- HIGH RELIABILITY
- 3 YEARS WARRANTY

GENERAL SPECIFICATION

Input voltage range..... 85-264VAC; 120-370VDC

Frequency range..... 47-440Hz

Input inrush current(typ.).. Cold start 30A/115VAC,65A/230VAC

Overload protection..... Above 105% rated output power

Output line regulation..... +/-1% max.

Output load regulation..... +/-1.5% amx.

Output setup, rise time..... 500ms, 20ms/230VAC, 500ms, 20ms/115VAC at full load

Withstand voltage..... I/P-O/P:4000VAC,I/P-FG:1500VAC, OP/FG:1500VAC

Working temperature..... -20°C to +60 °C (refer to derating curve)

Working Humidity..... 20 to 90%RH non-condensing

Safety standards..... UL60601-1, TUV EN60601-1, IEC60601-1 approved

EMC emission..... Compliance to EN55011(CISPR11), EN5022(CISPR22) Class B, EN61000-3-2,-3

EMC immunity..... Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN60601-1-2, EN61204-3, medical level, criteria A

MTBF..... 487.8Khrs min. MIL-HDBK-217F(25 °C)

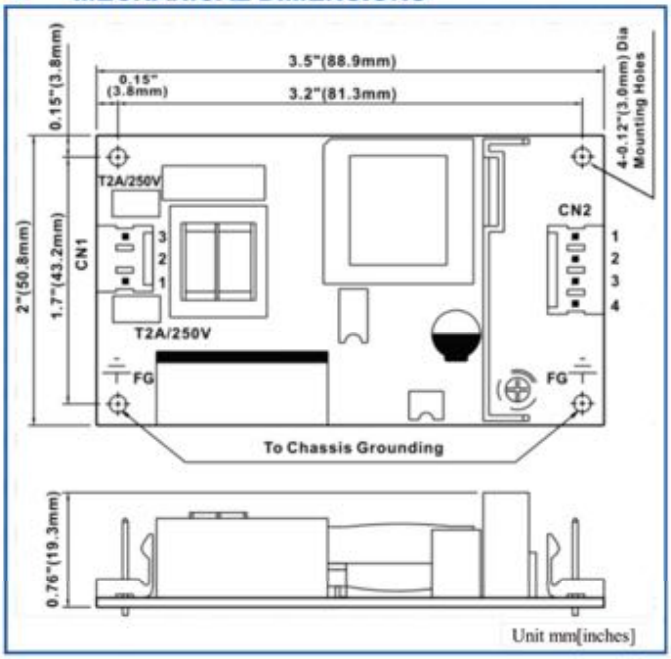
Dimension..... 89.0mm*51.0mm*19.3mm(L*W*H)

Packing..... 0.09kg

NFM-20 SERIES

MODEL NUMBER	OUTPUT		TOL. (%)	R&N (mVp-p)	EFF. (%)
	VOLTAGE (V)	CURRENT (A)			
NFM-20-3.3	3.3	0~4.50	+/-2	80	71
NFM-20-5	5	0~4.40	+/-2	80	75
NFM-20-12	12	0~1.80	+/-1	150	81
NFM-20-15	15	0~1.40	+/-1	150	83
NFM-20-24	24	0~0.92	+/-1	240	84

MECHANICAL DIMENSIONS



GLOSSARY

AMBIENT TEMPERATURE

The still-air temperature in the immediate vicinity of a power supply, measured a minimum of 4 inches(100mm) from the supply.

BURN-IN

In power supplies, a period during which a supply is energized and loaded to peak output, with the intent of finding potentially weak components. Typical burn-in tests can include temperature cycling, input cycling, and/or load cycling.

CROSS-REGULATION

In a multiple output power supply, the percent voltage change at one output caused by the load change on another output.

CROWBAR

An overvoltage protection circuit which rapidly places a low resistance shunt across the power supply output terminals if a predetermined voltage is exceeded. Crowbar typically used for linear power supplies for they fail with a high output voltage. Modern switch mode power supplies fail with low output voltages making a "crowbar circuit" unnecessary.

DERATING

The specified reduction in an operating parameter to improve reliability. Generally for power supplies, it is the reduction in output power at elevated temperatures.

EFFICIENCY

Ratio of output power to input power, generally measured at full load with nominal line conditions.

EMI (ELECTROMAGNETIC INTERFERENCE)

Unwanted energy, generally emitted from switching power supplies, which may be conducted or radiated.

ESR(EQUIVALENT SERIES RESISTANCE)

The amount of resistance in series with an ideal capacitor. In high freguency application low ESR is very important.

FLYBACK CONVERTER

A power supply switching circuit which normally used a single transistor. During the first half of the switching period the transistor is on and energy is stored in a transformer primary; during the second half period this energy is transferred to the transformer secondary and the load.

FORWARD CONVERTER

A power supply switching circuit in which energy is transferred to the transformer secondary when the switching transistor is on. In the circuit minimal energy is stored in the transformer.

HI-POT TEST (HIGH POTENTIAL TEST)

A test to determine if the breakdown voltage of a transformer or power supply exceeds the minimum requirement. It is performed by applying a high voltage between the two isolated test points.

HOLD-UP TIME

The time during which a power supply's output voltage remains within specification following the loss of input power.

INPUT FILTER

A low-pass or band-reject filter at the input of a power supply which reduces line noise fed to the supply. this filter may be external to the power supply.

INPUT VOLTAGE RANGE

The high and low input voltage limits within which a power supply or DC/DC converter meets its specifications.

ISOLATION

The electrical separation between input and output of a power supply by means of the power transformer. The isolation resistance (normally in megaohms) and the isolation capacitance (normally in picofarads) are generally specified and are a function of materials and spacings employed throughout the power supply.

ISOLATION VOLTAGE

The maximum AC or DC voltage which may be continuously applied from input to output and/or chassis of a power supply.

LINE REGULATION

The change in value of DC output voltage resulting from a change in AC input voltage over a specified range, or from low line to high line or from high line to low line. Normally specified as the + or - change from the nominal DC output voltage.

LOAD REGULATION

The change in value of DC output voltage resulting from a change in load resistance from open circuit to a value that yields maximum rated output current, or from full load to open circuit.

MINIMUM LOADING

Minimum current required for voltages to be in specified range. Generally in multiple output power supplies, a minimum load is required on the main output to ensure regulation of auxiliary outputs.

MTBF (MEAN TIME BETWEEN FAILURE)

The failure rate of a power supply, expressed in hours, established by the actual operation or calculation from a known standard such as MIL-HDBK-217.

GLOSSARY

NOMINAL VALUE

The stated or objective value for a quantity, such as output voltage, which may not be the actual value measured.

OPERATING TEMPERATURE

The range of ambient or case temperatures within which a power supply may be safely operated and meet its specifications.

OUTPUT CURRENT LIMITING

An output protection feature which limits the output current to a predetermined value in order to prevent damage to the power supply or the load under overload conditions. The supply is automatically restored to normal operation following removal of the overload.

OUTPUT VOLTAGE

The nominal value of the DC voltage at the output terminals of a power supply.

OUTPUT VOLTAGE ACCURACY

For a fixed output supply, the tolerance in percent of the output voltage with respect to its nominal value under all minimum or maximum conditions.

OVERLOAD PROTECTION

Protection of the power supply and associated equipment against excessive output current, including short-circuit current. Protection circuitry is electronic with automatic recovery. Current characteristic is normally foldback type.

OVERVOLTAGE PROTECTION

A power supply feature which shuts down the supply, or crowbars or clamps the output, when its voltage exceeds a preset level.

PARALLEL OPERATION

The connection of the outputs of two or more power supplies of the same output voltage to obtain a higher output current than from either supply alone. This requires power supplies specification designed to share the load.

PI FILTER

A commonly used filter at the input of a switching supply or DC/DC converter to reduce reflected ripple current. The filter usually consists of two parallel capacitors and a series inductance and is generally built into the supply.

PWM(PULSE-WIDTH MODULATION)

A method of voltage regulation used in switching supplies whereby the output is controlled by varying the width, but not the height, of a train of pulses which drive a power switch.

PUSH-PULL CONVERTER

A power switching circuit which uses a center-tapped transformer and two power switches which are driven on and off alternately. This circuit does not provide regulation by itself.

RATED OUTPUT CURRENT

The maximum load current which a power supply was designed to provide at a specified ambient temperature.

RIPPLE AND NOISE

The magnitude of AC voltage on the output of a power supply, expressed in millivolts peak-to-peak or RMS, at a specified band width. This is the result of feed through of the rectified line frequency, internal switching transients, and other random noise.

SHORT-CIRCUIT PROTECTION

A feature which limits the output current of a power supply under short-circuit conditions so that the supply will not be damaged.

SOFT START

A feature that lowers the peak inrush current during power supply turn-on.

STORAGE TEMPERATURE RANGE

The range of ambient temperatures within which a power supply may be safely stored, non-operating, with no degradation in its subsequent operation.

STANDBY CURRENT

The input current drawn by a ower supply under no load or when shut down by a control input.

SWITCHING FREQUENCY

The rate at which the DC voltage is switched in a DC-DC converter or switching power supply.

TEMPERATURE COEFFICIENT

A ratio by which the changes in power supply output voltage caused by temperature changes can be calculated. Usually output decreases as ambient temperature rises.

TRANSIENT RESPONSE

Time required for output voltage to return to regulated value after a step change of output current, usually specified in microseconds for a specified percentage of load chang