UKAS QUALITY MANAGEMENT

Registration No 043-A

The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 043

URS

Certificate of Registration

This certificate has been awarded to

DANUBE ENTERPRISE CO., LTD./DEPTH ENTERPRISE CO., LTD.

A2, No. 255, Fengren Road,
Renwu Shiang,
Kaohsiung County,
Taiwan, R.O.C.

in recognition of the
organization's Quality System which complies with

ISO 9001:2000

The scope of activities covered by this certificate are defined below

DESIGN, MANUFACTURE AND SALES OF DC-DC CONVERTERS

Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization

Certificate Number: 92210 Issue No. 2

Date of Issue: 01 September 2006 (29/08/03)

Expiry Date: 31 August 2009

Issued by: On behalf of the Schemes Manager

UNITED REGISTRAR OF SYSTEMS LIMITED

URS is a member of Registrar of Standards (Holdings) Limited.

Cert 1U Iss 1

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,1W,2W,3W,5W,8W,10W,15W,20W,30W,40W,60W

Cost Effective Designs , Wide Input Range Type

Isolation Output:1000 Vdc Isolation To 3000 Vdc Isolation

Transformer

Driver Transformers

Common Mode EMI Suppression Inductors

Surface Mountable Transformers

Switch Mode Power Transformer

Danube Enterprise Co., Ltd.
A2,No. 255, Fengren Rd., Renwu Shiang , Kaohsiung County 814 , Taiwan R.O.C.
Tel:886-7- 3755165 Fax:886-7- 3755330
E-Mail:danube@ms10.hinet.net
http://www.danube.com.tw

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DANUBE

TABLE OF CONTENTS

DANUBE

Particular specifications may be available. Please contact factory.

ORDERING CODE DETAILS:

C W	S	-	1 2	0 5	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		

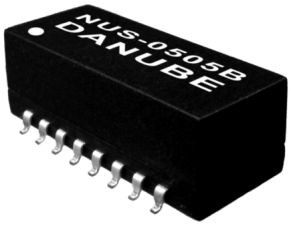
(4). Output Voltage(V)
(5). Package
(6). Output Power(W)
(7). **M**: Metal Case
G: Wide Input Range 3:1
T: Wide Input Range 4:1

NU SERIES *1W TO 2W UNREGULATED*

DANUBE

FEATURES

- LOW COST
- UP TO 2W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- MTBF>2,000,000 HOURS
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	71%-78%
Temperature Coefficient	+/-0.03%/℃	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℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-8% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	100KHz min
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	79	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

1.8W OUTPUT

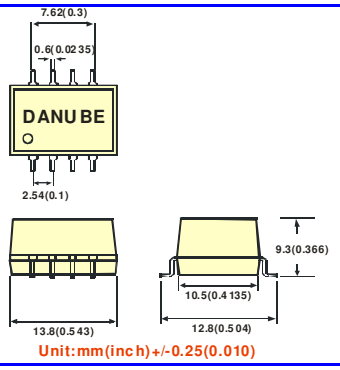
NUS-0505B	5	5	360	72	B
NUS-0509B	5	9	200	75	B
NUS-0512B	5	12	150	77	B
NUS-0515B	5	15	120	77	B
NUS-1205B	12	5	360	73	B
NUS-1212B	12	12	150	78	B
NUS-1215B	12	15	120	78	B

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-1212B2	12	12	167	83	B
NUS-1215B2	12	15	133	85	B

MECHANICAL DIMENSIONS

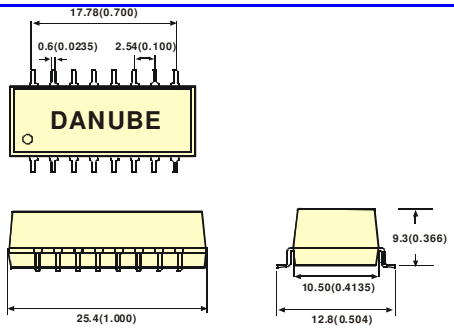
PACKAGE "A"



Unit:mm(inch)+/-0.25(0.010)

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

PACKAGE "B"



Unit:mm(inch)+/-0.25(0.010)

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

MU SERIES *1W UNREGULATED*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	70%-82%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000-3000 VDC min
Ripple & Noise(20MHz BW)	100mVp-p max	ENVIRONMENTAL SPECIFICATIONS		Isolation Resistance	10^9 ohms min
Line Regulation	+/-1.2% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-8% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	100KHz min
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

1000VDC ISOLATION

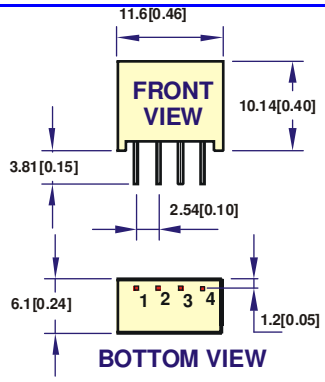
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	PACKAGE
MUS-0505	5	5	200	73	A
MUS-0509	5	9	110	77	A
MUS-0512	5	12	84	79	A
MUS-0515	5	15	67	79	A
MUS-1203.3	12	3.3	300	74	A
MUS-1205	12	5	200	74	A
MUS-1209	12	9	110	79	A
MUS-1212	12	12	84	82	A
MUS-1215	12	15	67	82	A
MUS-2403.3	24	3.3	300	73	B
MUS-2405	24	5	200	73	B
MUS-2409	24	9	110	77	B
MUS-2412	24	12	84	77	B
MUS-2415	24	15	67	77	B

3000VDC ISOLATION

MUS-0505-3K	5	5	200	73	B
MUS-0512-3K	5	12	84	79	B
MUS-0515-3K	5	15	67	79	B
MUS-1205-3K	12	5	200	74	B
MUS-1212-3K	12	12	84	82	B
MUS-1215-3K	12	15	67	82	B
MUS-2405-3K	24	5	200	73	B
MUS-2412-3K	24	12	84	77	B
MUS-2415-3K	24	15	67	77	B

MECHANICAL DIMENSIONS

PACKAGE "A"



All dimensions are in mm[inches]

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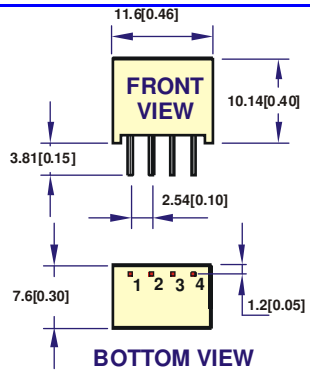


All dimensions are in mm[inches]

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

MAU SERIES *1W UNREGULATED*

DANUBE

FEATURES

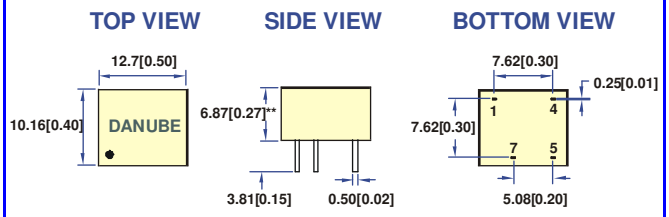
- DUAL IN LINE PACKAGE
- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- UL 94V-0 PACKAGE MATERIAL
- MTBF>2,000,000 HOURS
- INTERNAL SMD TECHNOLOGY
- RoHS COMPLIANT
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	70%-82%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000 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℃ to +71℃	Switching Frequency	100KHz min
Minimum Load	20% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>2,000,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Transient Response	200uS max	Humidity	95% max		

1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
MAUS-0305	3	5	200	70	1000
MAUS-03.305	3.3	5	200	71	1000
MAUS-0505	5	5	200	77	1000
MAUS-0509	5	9	110	77	1000
MAUS-0512	5	12	84	79	1000
MAUS-0515	5	15	67	79	1000
MAUS-1205	12	5	200	76	1000
MAUS-1209	12	9	110	79	1000
MAUS-1212	12	12	84	82	1000
MAUS-1215	12	15	67	82	1000
MAUS-2405	24	5	200	77	1000
MAUS-2409	24	9	110	77	1000
MAUS-2412	24	12	84	77	1000
MAUS-2415	24	15	67	80	1000
MAUS-4805	48	5	200	72	1000
MAUS-4809	48	9	110	77	1000
MAUS-4812	48	12	84	77	1000
MAUS-4815	48	15	67	79	1000

MECHANICAL DIMENSIONS

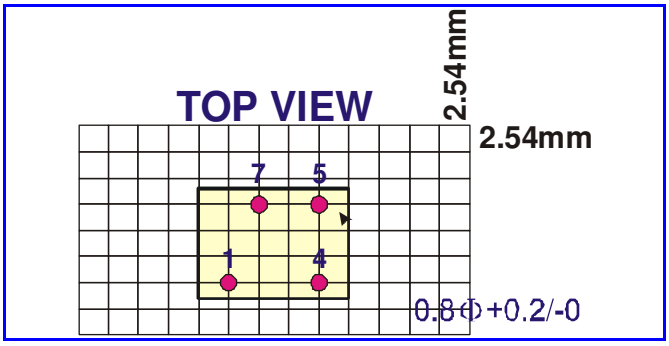


All dimensions are in mm[inches]

Note: **7.62[0.30] for 24V and 48V input voltage

PIN	1	4	5	7
SINGLE	-Vin	+Vin	+Vout	-Vout

RECOMMENDED FOOTPRINT

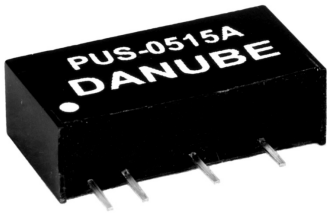


PU SERIES *1W UNREGULATED*

DANUBE

FEATURES

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



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS		
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency		70%-83%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage		1000-3000 VDC
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	+/-8% max	Operating Temperature	-25℃ to +71℃	Isolation Resistance		10^9 ohms min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	Isolation Capacitance		80pF max
Short Circuit Protection	Momentary	Humidity	95% max	Switching Frequency		100KHz min
Transient Response	100uS max	Case Material	Non-Conductive Plastic	MTBF		>2,000,000 Hours

● 1000VDC 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□	5	5	200	71	A or B or E
PUS-0509□	5	9	111	78	A or B or E
PUS-0512□	5	12	84	79	A or B or E
PUS-0515□	5	15	67	79	A or B or E
PUD-0505□	5	+/-5	+/-100	72	A or B
PUD-0512□	5	+/-12	+/-42	79	A or B
PUD-0515□	5	+/-15	+/-34	77	A or B
PUS-1203.3□	12	3.3	300	74	A or B
PUS-1205□	12	5	200	74	A or B or E
PUS-1209□	12	9	111	78	A or B or E
PUS-1212□	12	12	84	82	A or B or E
PUS-1215□	12	15	67	82	A or B or E
PUD-1205□	12	+/-5	+/-100	74	A or B
PUD-1212□	12	+/-12	+/-42	79	A or B
PUD-1215□	12	+/-15	+/-34	83	A or B
PUS-2403.3C	24	3.3	300	73	C
PUS-2405C	24	5	200	73	C
PUS-2409C	24	9	111	75	C
PUS-2412C	24	12	84	77	C
PUS-2415C	24	15	67	80	C
PUS-2424C	24	24	42	77	C
PUD-2405C	24	+/-5	+/-100	73	C
PUD-2412C	24	+/-12	+/-42	77	C
PUD-2415C	24	+/-15	+/-34	80	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

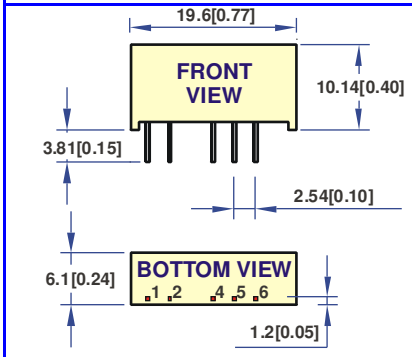
[1] *PU*-****□* *□:PACKAGE CODE*

● 3000VDC ISOLATION

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

● MECHANICAL DIMENSIONS

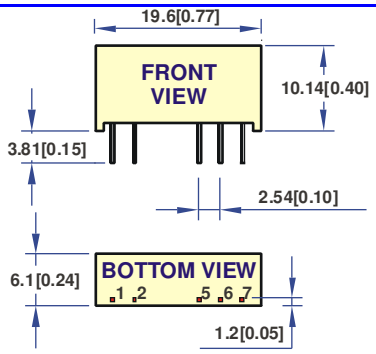
PACKAGE "A"



All dimensions are in mm[inches]

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

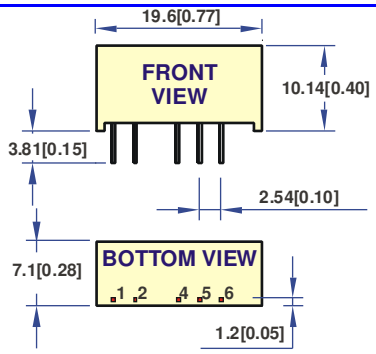
PACKAGE "B"



All dimensions are in mm[inches]

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

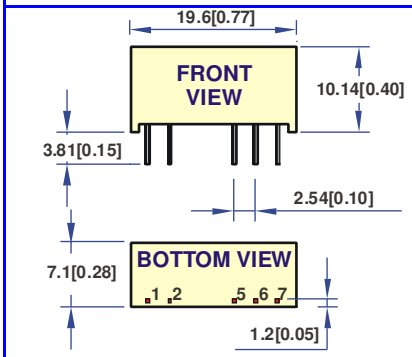
PACKAGE "C"



All dimensions are in mm[inches]

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

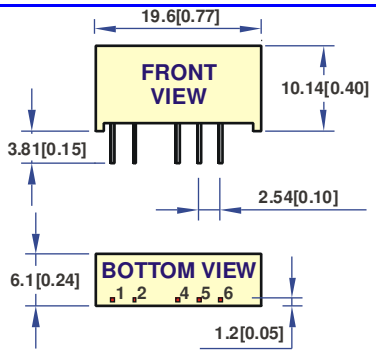
PACKAGE "D"



All dimensions are in mm[inches]

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

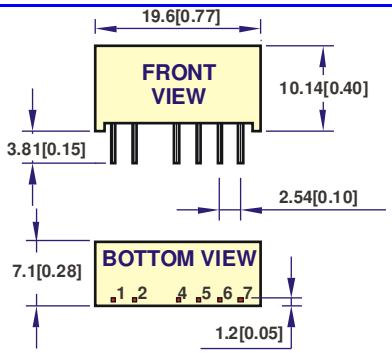
PACKAGE "E"



All dimensions are in mm[inches]

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

PACKAGE "F"



All dimensions are in mm[inches]

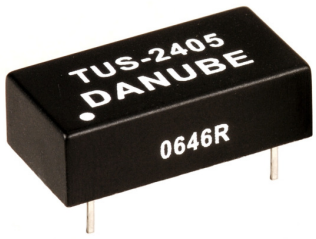
PIN	1	2	4	5	6	7
SINGLE						
DUAL	+Vin	-Vin	+5V/Vout 1	-5V/Vout 1	+ Vout 2	- Vout 2

TU SERIES *1W UNREGULATED*

DANUBE

FEATURES

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



RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	70%-82%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000 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℃ to +71℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>2,000,000 Hours
Short Circuit Protection	Momentary	Humidity	95% max	Case Material	Non-Conductive Plastic

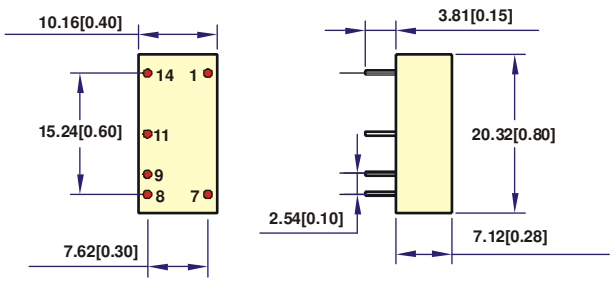
● 1000VDC ISOLATION

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
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"

BOTTOM VIEW SIDE VIEW

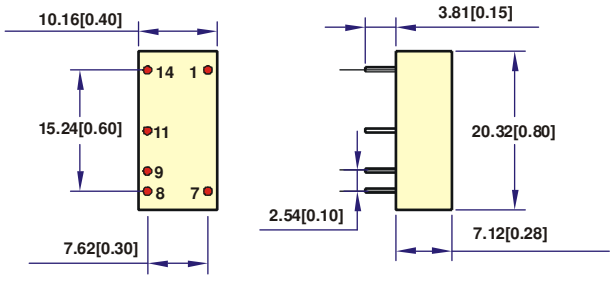


All dimensions are in millimeters[inches]

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

PACKAGE "B"

BOTTOM VIEW SIDE VIEW



All dimensions are in millimeters[inches]

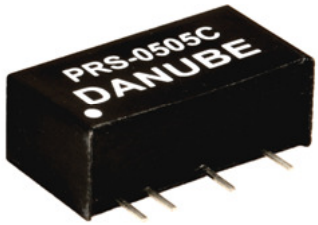
PIN	1	7	8	9	11	14
SINGLE	-Vin	NC	NP	+Vout	-Vout	+Vin

PR SERIES *1W REGULATED*

DANUBE

FEATURES

- UP TO 1W REGULATED OUTPUT POWER
- SINGLE IN LINE PACKAGE
- LOW COST
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- 1000VDC ISOLATION
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY
- 3 YEARS WARRANTY

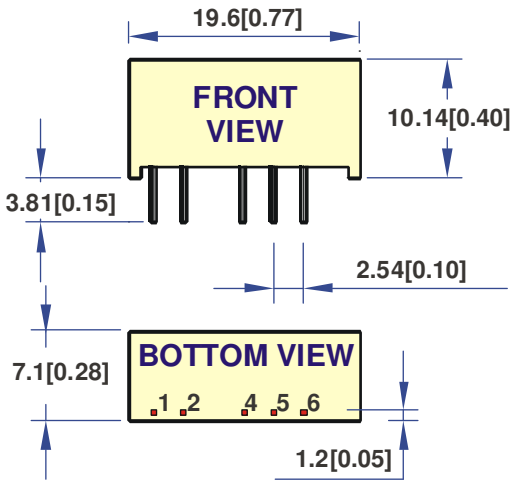


OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	50% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000 VDC min
Ripple & Noise(20MHz BW)	100mVp-p max	Protection	Fuse 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	-25℃ to +71℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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		

1W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	OUTPUT POWER (Watt)
		VOLTAGE (VDC)	CURRENT (mA)		
PRS-0505C	4.5-5.5	5	200	57	1
PRS-0509C	4.5-5.5	9	100	58	0.9
PRS-0512C	4.5-5.5	12	84	61	1
PRS-0515C	4.5-5.5	15	67	62	1
PRS-1205C	10.8-13.2	5	200	59	1
PRS-1209C	10.8-13.2	9	100	56	0.9
PRS-1212C	10.8-13.2	12	84	53	1
PRS-1215C	10.8-13.2	15	67	63	1
PRS-2405C	21.6-26.4	5	200	62	1
PRS-2409C	21.6-26.4	9	100	60	0.9
PRS-2412C	21.6-26.4	12	84	63	1
PRS-2415C	21.6-26.4	15	67	61	1
PRS-2424C	21.6-26.4	24	42	61	1

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

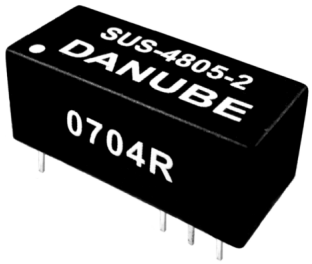
PIN	1	2	4	5	6
SINGLE	+Vin	-Vin	-Vout	NP	+Vout

SU SERIES *0.5W TO 2W UNREGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- 0.5W TO 2W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY



RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	70%-83%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000 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℃ to +71℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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	1000
SUS-0512-1	5	12	42	79	1000
SUS-0515-1	5	15	34	77	1000
SUS-1205-1	12	5	100	76	1000
SUS-1212-1	12	12	42	83	1000
SUS-1215-1	12	15	34	83	1000
SUS-2405-1	24	5	100	74	1000
SUS-2412-1	24	12	42	77	1000
SUS-2415-1	24	15	34	83	1000

1W OUTPUT

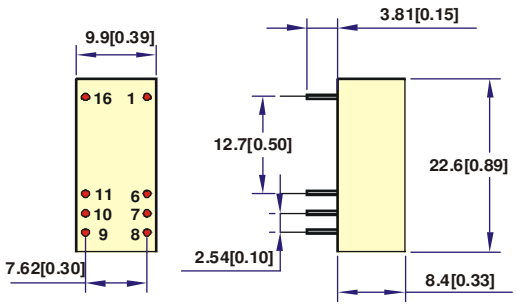
SUS-0505-2	5	5	200	73	1000
SUS-0509-2	5	9	111	75	1000
SUS-0512-2	5	12	84	78	1000
SUS-0515-2	5	15	67	79	1000
SUS-1205-2	12	5	200	74	1000
SUS-1209-2	12	9	111	79	1000
SUS-1212-2	12	12	84	82	1000
SUS-1215-2	12	15	67	82	1000
SUS-2405-2	24	5	200	72	1000
SUS-2409-2	24	9	111	80	1000
SUS-2412-2	24	12	84	77	1000
SUS-2415-2	24	15	67	83	1000
SUS-4805-2	48	5	200	74	1000
SUS-4812-2	48	12	84	80	1000
SUS-4815-2	48	15	67	80	1000

2W OUTPUT

SUS-0505-3	5	5	400	80	1000
SUS-0509-3	5	9	222	79	1000
SUS-0512-3	5	12	167	80	1000
SUS-0515-3	5	15	133	82	1000
SUS-1205-3	12	5	400	78	1000
SUS-1209-3	12	9	222	78	1000
SUS-1212-3	12	12	167	83	1000
SUS-1215-3	12	15	133	85	1000
SUS-2405-3	24	5	400	78	1000
SUS-2412-3	24	12	167	81	1000
SUS-2415-3	24	15	133	83	1000

MECHANICAL DIMENSIONS

BOTTOM VIEW SIDE VIEW



All dimensions are in mm[inches]

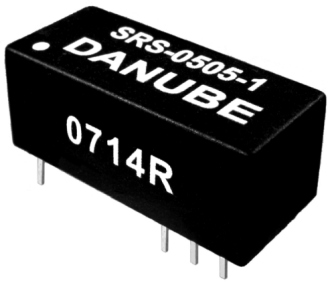
PIN	1 & 16	6 & 11	7 & 10	8 & 9
SINGLE	+Vin	-Vout	+Vout	-Vin

SR SERIES *0.5W TO 1W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 1W REGULATED OUTPUT POWER
- 100% BURNED IN
- EFFICIENCYUP TO 72%
- NO HEATSINK REQUIRED
- 3 YEARS WARRANTY
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY



RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	50% min
Temperature Coefficient	+/-0.05%/℃	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	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-0.5% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Humidity	95% max	MTBF	>2,000,000 Hours
Short Circuit Protection	Current Limit			Case Material	Non-Conductive Plastic

0.5W OUTPUT

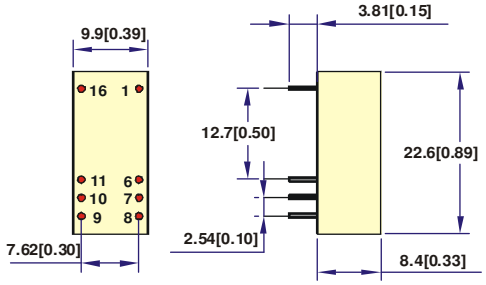
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	ISLOATION (VDC)
SRS-0505-1	4.5-5.5	5	100	62	1000
SRS-0509-1	4.5-5.5	9	56	57	1000
SRS-0512-1	4.5-5.5	12	42	62	1000
SRS-0515-1	4.5-5.5	15	34	58	1000
SRS-1205-1	10.8-13.2	5	100	67	1000
SRS-1209-1	10.8-13.2	9	56	63	1000
SRS-1212-1	10.8-13.2	12	42	65	1000
SRS-1215-1	10.8-13.2	15	34	65	1000
SRS-2405-1	21.6-26.4	5	100	61	1000
SRS-2409-1	21.6-26.4	9	56	61	1000
SRS-2412-1	21.6-26.4	12	42	58	1000
SRS-2415-1	21.6-26.4	15	34	70	1000
SRS-4805-1	43.2-52.8	5	100	58	1000
SRS-4809-1	43.2-52.8	9	56	58	1000
SRS-4812-1	43.2-52.8	12	42	55	1000
SRS-4815-1	43.2-52.8	15	34	55	1000

1W OUTPUT

SRS-0505-2	4.5-5.5	5	200	62	1000
SRS-0509-2	4.5-5.5	9	100	60	1000
SRS-0512-2	4.5-5.5	12	84	62	1000
SRS-0515-2	4.5-5.5	15	67	62	1000
SRS-1205-2	10.8-13.2	5	200	67	1000
SRS-1209-2	10.8-13.2	9	100	62	1000
SRS-1212-2	10.8-13.2	12	84	64	1000
SRS-1215-2	10.8-13.2	15	67	64	1000
SRS-2405-2	21.6-26.4	5	200	65	1000
SRS-2409-2	21.6-26.4	9	100	61	1000
SRS-2412-2	21.6-26.4	12	84	70	1000
SRS-2415-2	21.6-26.4	15	67	70	1000
SRS-4805-2	43.2-52.8	5	200	65	1000
SRS-4809-2	43.2-52.8	9	100	70	1000
SRS-4812-2	43.2-52.8	12	84	72	1000
SRS-4815-2	43.2-52.8	15	67	63	1000

MECHANICAL DIMENSIONS

BOTTOM VIEW SIDE VIEW



All dimensions are in mm[inches]

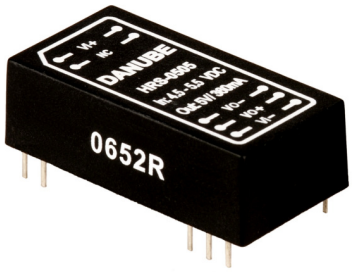
PIN	1 & 16	6 & 11	7 & 10	8 &9
SINGLE	+Vin	-Vout	+Vout	+Vin

HR SERIES *1.8W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- INTERNAL FILTERING
- UP TO 1.8W REGULATED OUTPUT POWER
- 100% BURNED IN
- LOW NOISE
- NO EXTERNAL COMPONENTS REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



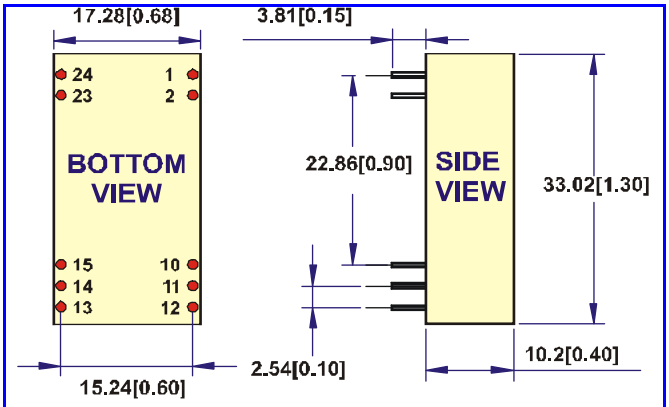
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	50% min
Temperature Coefficient	+/-0.03%/°C	Input Filter	Capacitor Type	Isolation Voltage	1000 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	-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		

1.8W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
HRS-0505	4.5-5.5	5	360	53	1000
HRS-0509	4.5-5.5	9	200	58	1000
HRS-0512	4.5-5.5	12	150	58	1000
HRS-0515	4.5-5.5	15	120	60	1000
HRS-1205	10.8-13.2	5	360	56	1000
HRS-1209	10.8-13.2	9	200	60	1000
HRS-1212	10.8-13.2	12	150	60	1000
HRS-1215	10.8-13.2	15	120	62	1000
HRS-2405	21.6-26.4	5	360	58	1000
HRS-2409	21.6-26.4	9	200	62	1000
HRS-2412	21.6-26.4	12	150	62	1000
HRS-2415	21.6-26.4	15	120	64	1000
HRS-4805	43.2-52.8	5	360	57	1000
HRS-4809	43.2-52.8	9	200	59	1000
HRS-4812	43.2-52.8	12	150	60	1000
HRS-4815	43.2-52.8	15	120	60	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inchs]

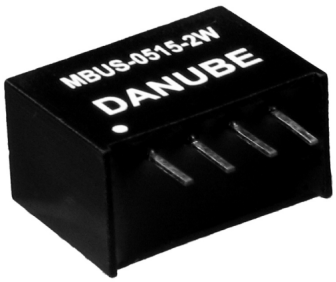
PIN	1 & 24	2 & 23	10 & 15	11 & 14	12 & 13
SINGLE	+Vin	NC	-Vout	+Vout	-Vin

MBU SERIES *2W UNREGULATED*

DANUBE

FEATURES

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



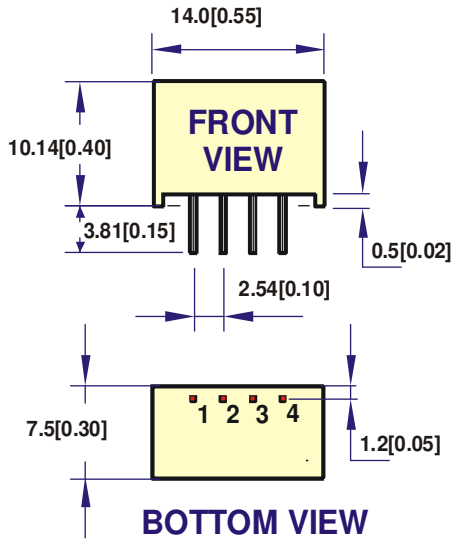
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	72%-85%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation Voltage	1000 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℃ to +71℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>1,700,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Transient Response	100uS max	Humidity	95% max		

2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
MBUS-0505-2W	5	5	400	77	1000
MBUS-0509-2W	5	9	222	79	1000
MBUS-0512-2W	5	12	167	80	1000
MBUS-0515-2W	5	15	133	82	1000
MBUS-1205-2W	12	5	400	78	1000
MBUS-1209-2W	12	9	222	78	1000
MBUS-1212-2W	12	12	167	83	1000
MBUS-1215-2W	12	15	133	85	1000
MBUS-2405-2W	24	5	400	78	1000
MBUS-2409-2W	24	9	222	78	1000
MBUS-2412-2W	24	12	167	81	1000
MBUS-2415-2W	24	15	133	83	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

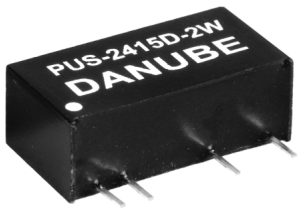
PIN	1	2	3	4
SINGLE	-Vin	+Vin	-Vout	+Vout

PU-2W SERIES *2W UNREGULATED*

DANUBE

FEATURES

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



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max	Efficiency	70%-83%
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitor Type	Isolation	
Ripple & Noise(20MHz BW)	100mVp-p max	Protection	Fuse Recommended	Voltage	1000-3000 VDC min
Line Regulation	+/-1.2% max	ENVIRONMENTAL SPECIFICATIONS		Resistance	10^9 ohms min
Load Regulation	+/-8% max	Operating Temperature	-25℃ to +71℃	Capacitance	80pF max
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	Switching Frequency	100KHz min
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	MTBF	>1,800,000 Hours
Transient Response	100uS max	Humidity	95% max	Case Material	Non-Conductive Plastic

1000VDC ISOLATION

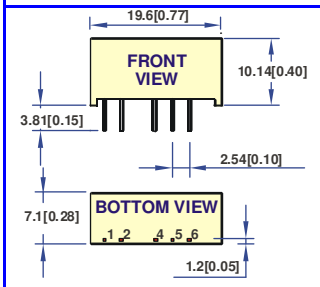
MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	PACKAGE
PUS-0503.3-2W	5	3.3	500	73	C
PUS-0505-2W	5	5	400	77	C
PUS-0509-2W	5	9	222	79	C
PUS-0512-2W	5	12	167	80	C
PUS-0515-2W	5	15	133	82	C
PUD-0505-2W	5	+/-5	+/-200	82	C
PUD-0512-2W	5	+/-12	+/-84	80	C
PUD-0515-2W	5	+/-15	+/-67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

3000VDC ISOLATION

PUS-0505D-2W	5	5	400	77	D
PUS-0512D-2W	5	12	167	80	D
PUS-0515D-2W	5	15	133	82	D
PUD-0505D-2W	5	+/-5	+/-200	82	D
PUD-0512D-2W	5	+/-12	+/-84	80	D
PUD-0515D-2W	5	+/-15	+/-67	82	D
PUS-1205D-2W	12	5	400	78	D
PUS-1212D-2W	12	12	167	83	D
PUS-1215D-2W	12	15	133	85	D
PUD-1205D-2W	12	+/-5	+/-200	78	D
PUD-1212D-2W	12	+/-12	+/-84	83	D
PUD-1215D-2W	12	+/-15	+/-67	85	D
PUS-2405D-2W	24	5	400	78	D
PUS-2412D-2W	24	12	167	81	D
PUS-2415D-2W	24	15	133	83	D
PUD-2405D-2W	24	+/-5	+/-200	78	D
PUD-2412D-2W	24	+/-12	+/-84	81	D
PUD-2415D-2W	24	+/-15	+/-67	83	D

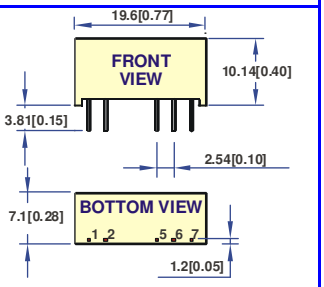
MECHANICAL DIMENSIONS

PACKAGE "C"



All dimensions are in mm[inches]

PACKAGE "D"



All dimensions are in mm[inches]

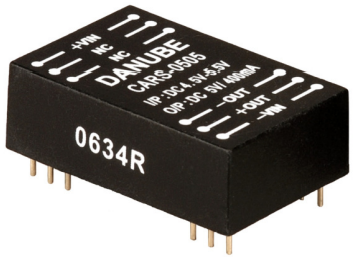
PIN	1	2	4	5	6	1	2	5	6	7
SINGLE	+Vin	-Vin	-Vout	NP	+Vout	+Vin	-Vin	-Vout	NP	+Vout
DUAL	+Vin	-Vin	-Vout	COMMON	+Vout	+Vin	-Vin	-Vout	COMMON	+Vout

CAR SERIES *2W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 2W REGULATED OUTPUT POWER
- 100% BURNED IN
- FIVE-SIDED SHIELD TO REDUCE EMI
- NO EXTERNAL COMPONENTS REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



RoHS COMPLIANT

OUTPUT SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max
Temperature Coefficient	+/-0.05%/℃
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	Current Limit
Transient Response	100uS max

INPUT SPECIFICATIONS	
Input Voltage Range	+/-10% max
Input Filter	Pi Network
Protection	Fuse Recommended

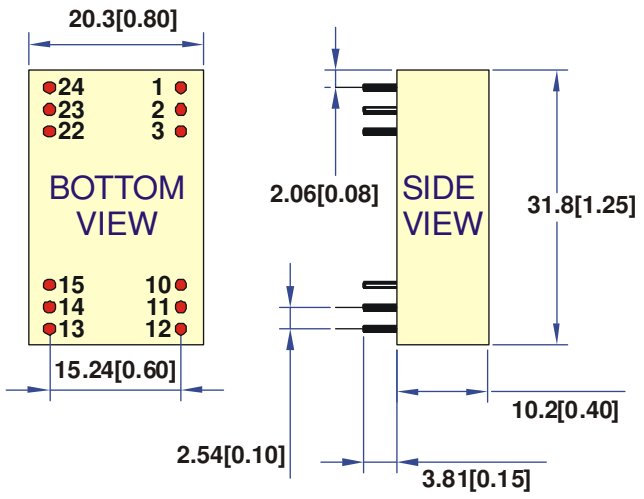
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	-25℃ to +71℃
Storage Temperature	-55℃ to +125℃
Cooling	Free-Air Convection
Humidity	95% max

GENERAL SPECIFICATIONS	
Efficiency	58% min
Isolation Voltage	1000 VDC min
Isolation Resistance	10^9 ohms min
Isolation Capacitance	80pF max
Switching Frequency	50KHz min
MTBF	>850,000 Hours
Case Material	Non-Conductive Plastic 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	1000
CARS-0509(M)	4.5-5.5	9	222	63	1000
CARS-0512(M)	4.5-5.5	12	167	65	1000
CARS-0515(M)	4.5-5.5	15	133	64	1000
CARD-0512(M)	4.5-5.5	+/-12	+/-84	62	1000
CARD-0515(M)	4.5-5.5	+/-15	+/-67	62	1000
CARS-1205(M)	10.8-13.2	5	400	61	1000
CARS-1209(M)	10.8-13.2	9	222	63	1000
CARS-1212(M)	10.8-13.2	12	167	66	1000
CARS-1215(M)	10.8-13.2	15	133	69	1000
CARD-1212(M)	10.8-13.2	+/-12	+/-84	66	1000
CARD-1215(M)	10.8-13.2	+/-15	+/-67	65	1000
CARS-2405(M)	21.6-26.4	5	400	63	1000
CARS-2409(M)	21.6-26.4	9	222	66	1000
CARS-2412(M)	21.6-26.4	12	167	69	1000
CARS-2415(M)	21.6-26.4	15	133	69	1000
CARD-2412(M)	21.6-26.4	+/-12	+/-84	65	1000
CARD-2415(M)	21.6-26.4	+/-15	+/-67	69	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inchs]

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

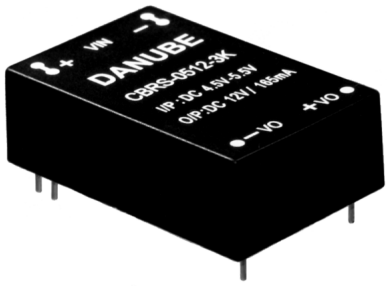
[1] *CAR*-**** ------ Non-Conductive Plastic*
CAR-****M ----- Five-Sided Shield Case*

CBR SERIES *2W TO 3W REGULATED*

DANUBE

FEATURES

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



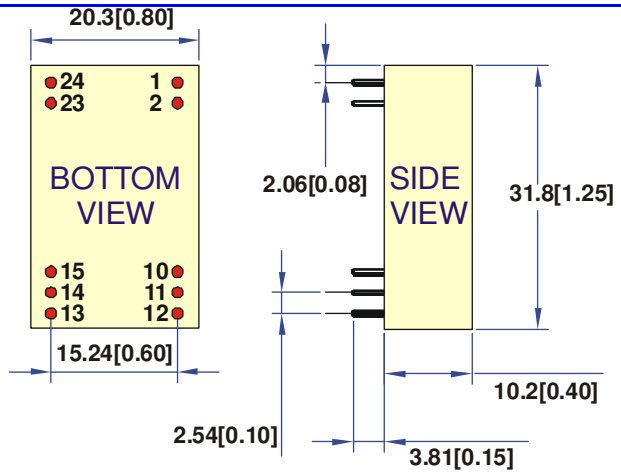
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	60% min
Temperature Coefficient	+/-0.03%/℃	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	+/-0.5% max	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Capacitance	80pF max
Load Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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		

2W-3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
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	63	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-4815-3K	43.2-52.8	+/-15	+/-100	64	3000

MECHANICAL DIMENSIONS



All dimensions are in mm[inchs]

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

1W SERIES *2W WIDE INPUT RANGE*

DANUBE

FEATURES

- 1000VDC ISOLATION
- 100% BURNED IN
- UP TO 2W REGULATED OUTPUT POWER
- NO HEATSINK REQUIRED
- 3 YEARS WARRANTY
- UL 94V-0 PACKAGE MATERIAL
- INTERNAL SMD TECHNOLOGY

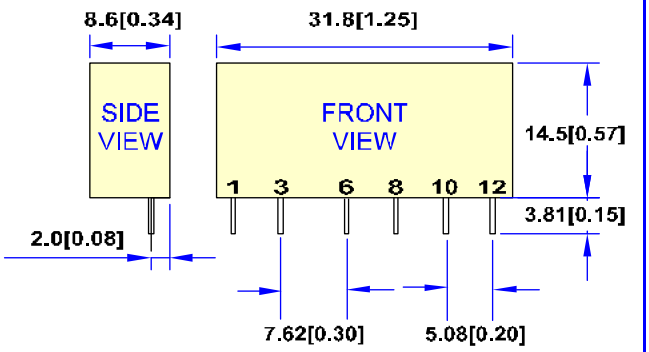
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	70% min
Temperature Coefficient	+/-0.03%/℃	Input Filter	Pi Network	Isolation Voltage	1000VDC 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	-25℃ to +71℃	Switching Frequency	75 KHz min
Minimum Load	20% of Full Load	Storage Temperature	-55℃ to +100℃	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic	Cooling	Free-Air Convection		
Transient Response	200uS max				

● 1.5W-2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
1WS-0505	4.5-9	5	300	70	1000
1WS-0509	4.5-9	9	200	72	1000
1WS-0512	4.5-9	12	150	72	1000
1WS-0515	4.5-9	15	120	72	1000
1WS-1205	9-18	5	400	75	1000
1WS-1209	9-18	9	222	74	1000
1WS-1212	9-18	12	168	78	1000
1WS-1215	9-18	15	133	78	1000
1WS-2405	18-36	5	400	74	1000
1WS-2409	18-36	9	222	75	1000
1WS-2412	18-36	12	168	78	1000
1WS-2415	18-36	15	133	78	1000
1WS-4805	36-72	5	400	74	1000
1WS-4809	36-72	9	222	75	1000
1WS-4812	36-72	12	168	78	1000
1WS-4815	36-72	15	133	78	1000

● MECHANICAL DIMENSION



All dimensions are in millimeters[inches]

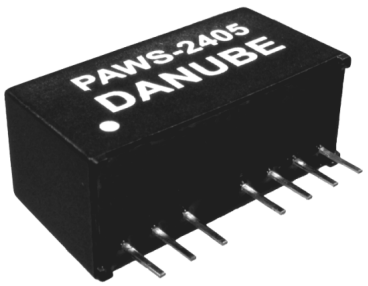
PIN	1	3	6	8	10	12
SINGLE	+Vin	-Vin	NC	NC	+Vout	-Vout

PAW SERIES *2W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- HIGH EFFICIENCY
- UP TO 2W REGULATED OUTPUT POWER
- NO EXTERNAL COMPONENTS REQUIRED
- INTERNAL FILTERING
- 100% BURNED IN
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



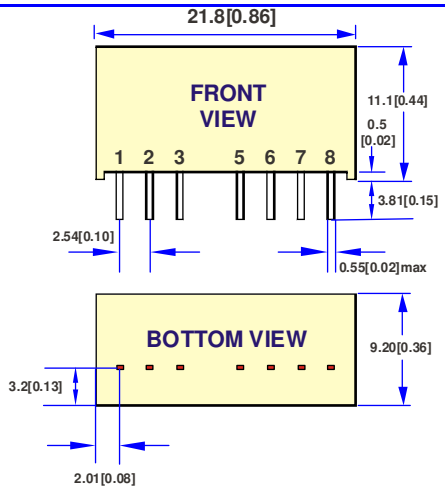
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	60% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000 VDC min
Ripple & Noise(20MHz BW)	100mVp-p max	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min
Line Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-0.5% max	Storage Temperature	-55℃ to +105℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Humidity	95% max	MTBF	>900,000 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(UL94-V0)

2W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
PAWS-0503.3	4.5-9	3.3	500	64	1000
PAWS-0505	4.5-9	5	400	66	1000
PAWS-0509	4.5-9	9	200	72	1000
PAWS-0512	4.5-9	12	150	72	1000
PAWS-0515	4.5-9	15	120	72	1000
PAWS-1203.3	9-18	3.3	500	67	1000
PAWS-1205	9-18	5	400	75	1000
PAWS-1209	9-18	9	222	74	1000
PAWS-1212	9-18	12	168	78	1000
PAWS-1215	9-18	15	133	78	1000
PAWS-2405	18-36	5	400	74	1000
PAWS-2409	18-36	9	222	75	1000
PAWS-2412	18-36	12	168	78	1000
PAWS-2415	18-36	15	133	78	1000
PAWS-4803.3	36-75	3.3	500	67	1000
PAWS-4805	36-75	5	400	74	1000
PAWS-4809	36-75	9	222	75	1000
PAWS-4812	36-75	12	168	78	1000
PAWS-4815	36-75	15	133	78	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

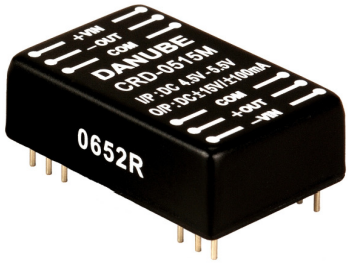
PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote On/Off	NC	+Vout	-Vout	NC

CR SERIES *3W REGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 3W REGULATED OUTPUT POWER
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



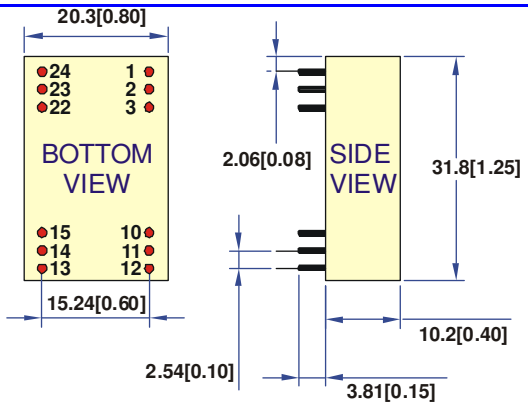
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	58% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000 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	-25℃ to +71℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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	1000
CRS-0509(M)	4.5-5.5	9	330	63	1000
CRS-0512(M)	4.5-5.5	12	250	65	1000
CRS-0515(M)	4.5-5.5	15	200	64	1000
CRS-0524(M)	4.5-5.5	24	125	64	1000
CRD-0505(M)	4.5-5.5	+/-5	+/-300	61	1000
CRD-0512(M)	4.5-5.5	+/-12	+/-125	65	1000
CRD-0515(M)	4.5-5.5	+/-15	+/-100	63	1000
CRS-1205(M)	10.8-13.2	5	600	61	1000
CRS-1209(M)	10.8-13.2	9	330	63	1000
CRS-1212(M)	10.8-13.2	12	250	66	1000
CRS-1215(M)	10.8-13.2	15	200	69	1000
CRS-1224(M)	10.8-13.2	24	125	69	1000
CRD-1212(M)	10.8-13.2	+/-12	+/-125	64	1000
CRD-1215(M)	10.8-13.2	+/-15	+/-100	69	1000
CRS-2405(M)	21.6-26.4	5	600	63	1000
CRS-2409(M)	21.6-26.4	9	330	66	1000
CRS-2412(M)	21.6-26.4	12	250	69	1000
CRS-2415(M)	21.6-26.4	15	200	69	1000
CRS-2424(M)	21.6-26.4	24	125	69	1000
CRD-2412(M)	21.6-26.4	+/-12	+/-125	64	1000
CRD-2415(M)	21.6-26.4	+/-15	+/-100	69	1000
CRS-4805(M)	43.2-52.8	5	600	63	1000
CRS-4809(M)	43.2-52.8	9	330	66	1000
CRS-4812(M)	43.2-52.8	12	250	69	1000
CRS-4815(M)	43.2-52.8	15	200	69	1000
CRS-4824(M)	43.2-52.8	24	125	69	1000
CRD-4812(M)	43.2-52.8	+/-12	+/-125	69	1000
CRD-4815(M)	43.2-52.8	+/-15	+/-100	69	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inchs]

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

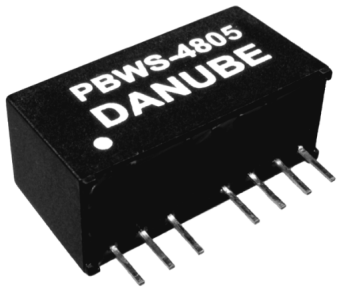
[1] *CR*-**** ------ Non-Conductive Plastic*
CR-****M ----- Five-Sided Shield Case*

PBW SERIES *3W WIDE INPUT RANGE*

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- HIGH EFFICIENCY
- UP TO 3W REGULATED OUTPUT POWER
- NO EXTERNAL COMPONENTS REQUIRED
- INTERNAL FILTERING
- 100% BURNED IN
- UL 94V-0 PACKAGE MATERIAL
- 3 YEARS WARRANTY



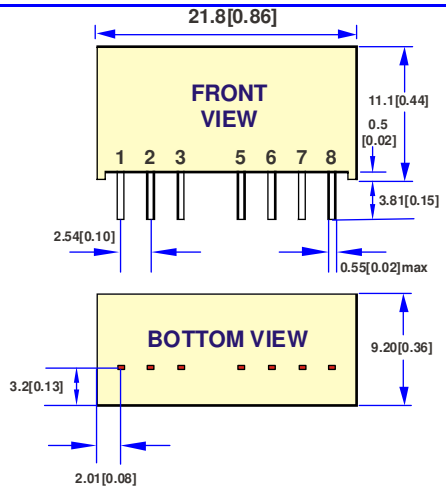
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	60% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000 VDC min
Ripple & Noise(20MHz BW)	100mVp-p max	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min
Line Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-0.5% max	Storage Temperature	-55℃ to +105℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Humidity	95% max	MTBF	>900,000 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(UL94-V0)

3W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
PBWS-0505	4.5-9	5	600	76	1000
PBWS-0509	4.5-9	9	333	77	1000
PBWS-0512	4.5-9	12	250	77	1000
PBWS-0515	4.5-9	15	200	77	1000
PBWS-1203.3	9-18	3.3	700	73	1000
PBWS-1205	9-18	5	600	77	1000
PBWS-1209	9-18	9	333	78	1000
PBWS-1212	9-18	12	250	78	1000
PBWS-1215	9-18	15	200	78	1000
PBWS-2405	18-36	5	600	77	1000
PBWS-2409	18-36	9	333	79	1000
PBWS-2412	18-36	12	250	79	1000
PBWS-2415	18-36	15	200	79	1000
PBWS-4803.3	36-75	3.3	700	73	1000
PBWS-4805	36-75	5	600	77	1000
PBWS-4809	36-75	9	333	78	1000
PBWS-4812	36-75	12	250	79	1000
PBWS-4815	36-75	15	200	79	1000

MECHANICAL DIMENSIONS



All dimensions are in mm[inches]

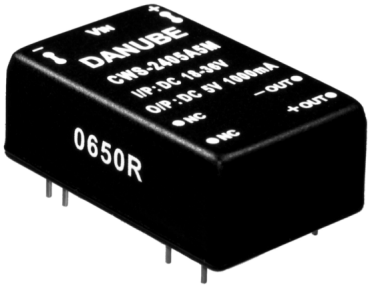
PIN	1	2	3	5	6	7	8
SINGLE	-Vin	+Vin	Remote On/Off	NC	+Vout	-Vout	NC

CW SERIES *3W - 8W WIDE INPUT RANGE*

DANUBE

FEATURES

- WIDE INPUT RANGE
- 100% BURNED IN
- SHORT CIRCUIT PROTECTION
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy		
Single/Dual		+/-2% max
Separate/Triple	Out1	+/-2% max
	Out2/Out3	+/-5% max
Temperature Coefficient		+/-0.05%/℃
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		+/-0.5% max
Separate/Triple	Out1	+/-1% max
	Out2/Out3	+/-5% max

INPUT SPECIFICATIONS

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

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-25℃ to +71℃
Storage Temperature	-55℃ to +125℃
Cooling	Free-Air Convection
Humidity	95% max
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Transient Response	200uS max

GENERAL SPECIFICATIONS

Efficiency		70% min
Isolation Voltage		
Single/Dual		1000-3000VDC
Separate/Triple	In to Out	1000VDC
	Out to Out	500VDC
Isolation Resistance		10^9 ohms min
Isolation Capacitance		250pF max
Switching Frequency		50KHz min
MTBF		>900,000 Hours
Case Material		Five-Side Shielded Case
Potting Material		Epoxy(UL94-V0)
Conducted Emissions		EN55022 Class A
Radiated Emissions		EN55022 Class A
Weight		17.5g Typ

● 2:1 3W OUTPUT ISOLATION 1000VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	PACKAGE
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(ABC)3M	9-18	3.3	700	70	A / B / C
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
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(ABC)3M	18-36	3.3	910	76	A / B / C
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
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(ABC)3M	36-72	3.3	700	72	A / B / C
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	82	A / B / C / D
CWS-4815(ABCD)3M	36-72	15	200	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	82	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	76	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-48093(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 1000VDC

CWS-1203.3(AB)3TM	9-36	3.3	700	68	A or B
CWS-1205(ABC)3TM	9-36	5	600	72	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
CWD-1205(ABC)3TM	9-36	+/-5	+/-300	71	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(AB)3TM	18-72	3.3	700	71	A or B
CWS-2405(ABC)3TM	18-72	5	600	74	A or B or C
CWS-2412(ABC)3TM	18-72	12	250	80	A or B or C
CWS-2415(ABC)3TM	18-72	15	200	80	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 1000VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
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
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
CWD-1205(AB)5M	9-18	+/-5	+/-500	75	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	82	A or B
CWS-2415(AB)5M	18-36	15	400	83	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	83	A or B
CWS-4812(AB)5M	36-72	12	470	83	A or B
CWS-4815(AB)5M	36-72	15	400	85	A or B
CWD-4805(AB)5M	36-72	+/-5	+/-500	77	A or B
CWD-4812(AB)5M	36-72	+/-12	+/-230	83	A or B
CWD-4815(AB)5M	36-72	+/-15	+/-190	85	A or B

● 4:1 4W-5W OUTPUT ISOLATION 1000VDC

CWS-1203.3A5TM	9-36	3.3	1200	73	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-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 7.5W-8W OUTPUT ISOLATION 1000VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWD-0512A8M	4.5-7	+/-12	+/-310	80	A
CWS-1203.3A8M	9-18	3.3	2000	75	A
CWS-1205A8M	9-18	5	1600	75	A
CWS-1209A8M	9-18	9	888	80	A
CWS-1212A8M	9-18	12	670	80	A
CWS-1215A8M	9-18	15	533	80	A
CWD-1205A8M	9-18	+/-5	+/-800	77	A
CWD-1209A8M	9-18	+/-9	+/-444	78	A
CWD-1212A8M	9-18	+/-12	+/-335	80	A
CWD-1215A8M	9-18	+/-15	+/-267	80	A
CWS-2403.3A8M	18-36	3.3	2000	78	A
CWS-2405A8M	18-36	5	1600	78	A
CWS-2409A8M	18-36	9	888	79	A
CWS-2412A8M	18-36	12	670	80	A
CWS-2415A8M	18-36	15	533	80	A
CWD-2405A8M	18-36	+/-5	+/-800	78	A
CWD-2409A8M	18-36	+/-9	+/-444	79	A
CWD-2412A8M	18-36	+/-12	+/-335	80	A
CWD-2415A8M	18-36	+/-15	+/-267	80	A
CWS-4805A8M	36-72	5	1600	78	A
CWS-4809A8M	36-72	9	888	79	A
CWS-4812A8M	36-72	12	670	80	A
CWS-4815A8M	36-72	15	533	80	A
CWD-4805A8M	36-72	+/-5	+/-800	78	A
CWD-4809A8M	36-72	+/-9	+/-444	79	A
CWD-4812A8M	36-72	+/-12	+/-335	80	A
CWD-4815A8M	36-72	+/-15	+/-267	80	A

● 4:1 3W DUAL SEPARATE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWD-120505F3TM	9-36	V1:5V	V1:300	72	F
		V2:5V	V2:300		
CWD-121212F3TM	9-36	V1:12V	V1:125	78	F
		V2:12V	V2:125		

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

● 4:1 5W DUAL SEPARATE OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWD-120505E5TM	9-36	V1:5V V2:5V	V1:450 V2:450	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

● 2:1 4W TRIPLE OUTPUT

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

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWS-1203.3A3M-3K	9-18	3.3	700	70	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-2409A3M-3K	18-36	9	330	79	A
CWS-2412A3M-3K	18-36	12	250	80	A
CWS-2415A3M-3K	18-36	15	200	80	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-4803.3A3M-3K	36-72	3.3	700	72	A
CWS-4805A3M-3K	36-72	5	600	76	A
CWS-4809A3M-3K	36-72	9	330	79	A
CWS-4812A3M-3K	36-72	12	250	82	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	82	A

● 4:1 3W OUTPUT ISOLATION 3000VDC

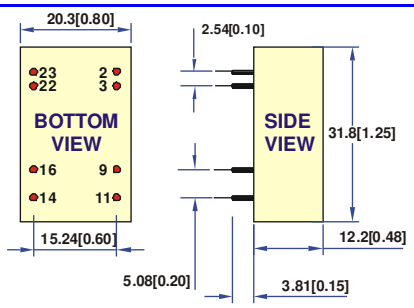
MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWS-1203.3A3TM-3K	9-36	3.3	700	68	A
CWS-1205A3TM-3K	9-36	5	600	72	A
CWS-1212A3TM-3K	9-36	12	250	78	A
CWS-1215A3TM-3K	9-36	15	200	78	A
CWD-1205A3TM-3K	9-36	+/-5	+/-300	71	A
CWD-1212A3TM-3K	9-36	+/-12	+/-125	78	A
CWD-1215A3TM-3K	9-36	+/-15	+/-100	78	A
CWS-2403.3A3TM-3K	18-72	3.3	700	71	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

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	PACKAGE
		VOLTAGE (VDC)	CURRENT (mA)		
CWS-1203.3A5M-3K	9-18	3.3	1200	75	A
CWS-1205A5M-3K	9-18	5	1000	75	A
CWS-1209A5M-3K	9-18	9	556	80	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-2403.3A5M-3K	18-36	3.3	1200	76	A
CWS-2405A5M-3K	18-36	5	1000	77	A
CWS-2409A5M-3K	18-36	9	556	81	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-4803.3A5M-3K	36-72	3.3	1200	74	A
CWS-4805A5M-3K	36-72	5	1000	77	A
CWS-4809A5M-3K	36-72	9	556	83	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	85	A

● MECHANICAL DIMENSIONS

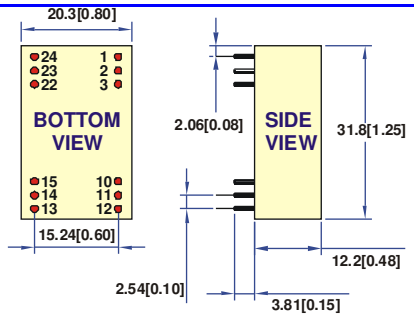
PACKAGE "A"



All dimensions are in mm[inchs]

PIN	2 & 3	9	11	14	16	22 & 23
SINGLE	-Vin	NC	NC	+Vout	-Vout	+Vin
DUAL	-Vin	Common	-Vout	+Vout	Common	+Vin

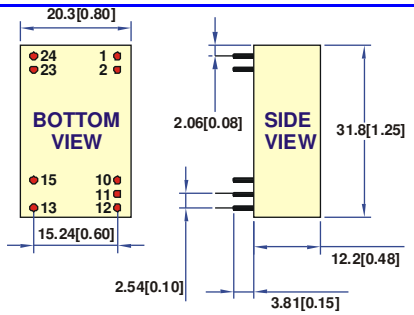
PACKAGE "B"



All dimensions are in mm[inchs]

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

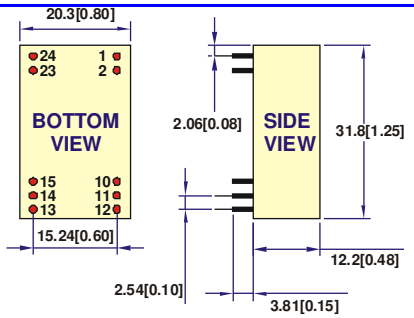
PACKAGE "C"



All dimensions are in mm[inchs]

PIN	1 & 2	10 & 11	12	13	15	22 & 23
SINGLE	+Vin	NC	-Vout	+Vout	NC	-Vin
DUAL	+Vin	Common	NC	-Vout	+Vout	-Vin

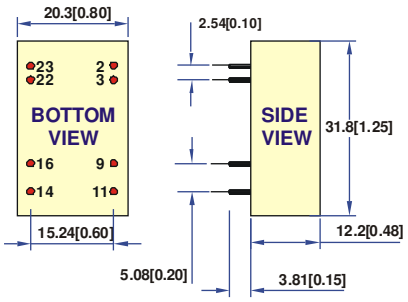
PACKAGE "D"



All dimensions are in mm[inchs]

PIN	1 & 24	2 & 23	10 & 15	11 & 14	12 & 13
SINGLE	+ Vin	-Vin	-Vout	NC	+Vout

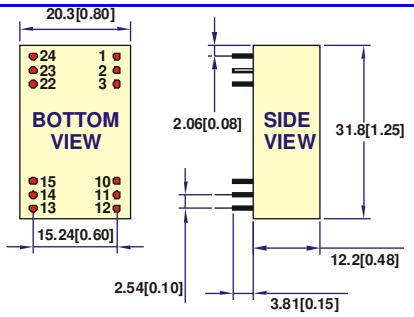
PACKAGE "E"



All dimensions are in mm[inchs]

PIN	2 & 3	9	11	14	16	22 & 23
SEPARATE	- Vin	-Vout2	+Vout2	+Vout1	-Vout1	+Vin

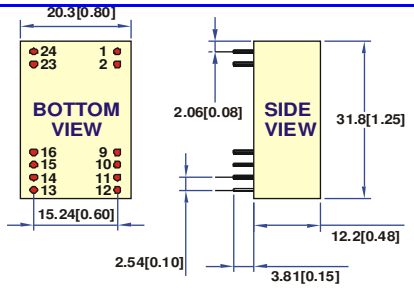
PACKAGE "F"



All dimensions are in mm[inchs]

PIN	1 & 24	2 & 23	3 & 22	10 & 15	11 & 14	12 & 13
SEPARATE	+ Vin	-Vout2	+Vout2	-Vout1	+Vout1	-Vin

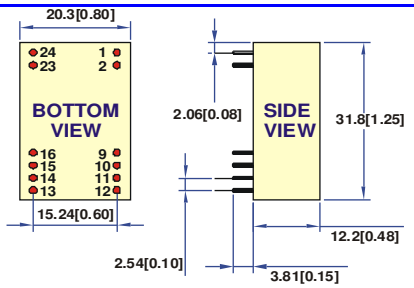
PACKAGE "P"



All dimensions are in mm[inchs]

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

PACKAGE "T"



All dimensions are in mm[inchs]

PIN	1 & 2	23 & 24	9 & 16	10 & 15	11 & 14	12 & 13
TRIPLE	-Vin	+Vin	-Vout3	Common	+Vout1	+Vout2

LW SERIES *5W WIDE INPUT RANGE*

DANUBE

FEATURES

- 5W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- REGULATED OUTPUT
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1-4:1 Input Range	Efficiency	70% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000-3000VDC 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℃ to +71℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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		

- 5W OUTPUT ISOLATION 1000VDC

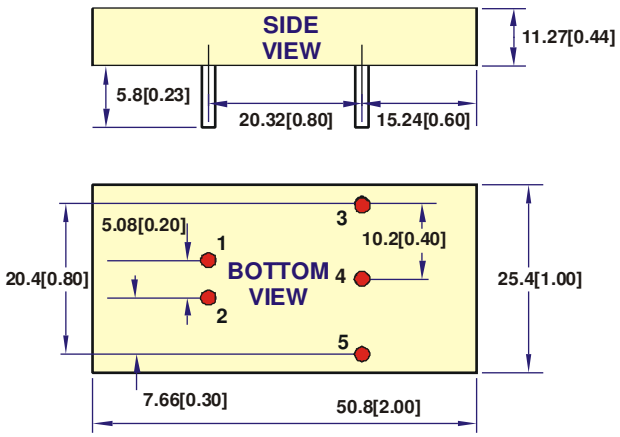
MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
LWS-0512H	4.5-9	12	417	70	1000
LWS-0515H	4.5-9	15	333	72	1000
LWD-0512H	4.5-9	+/-12	+/-208	72	1000
LWD-0515H	4.5-9	+/-15	+/-167	74	1000
LWS-1203.3H	9-18	3.3	1500	70	1000
LWS-1205H	9-18	5	1000	75	1000
LWS-1209H	9-18	9	556	80	1000
LWS-1212H	9-18	12	417	80	1000
LWS-1215H	9-18	15	333	81	1000
LWD-1205H	9-18	+/-5	+/-500	75	1000
LWD-1209H	9-18	+/-9	+/-278	79	1000
LWD-1212H	9-18	+/-12	+/-208	77	1000
LWD-1215H	9-18	+/-15	+/-167	81	1000
LWS-2403.3H	18-36	3.3	1500	71	1000
LWS-2405H	18-36	5	1000	77	1000
LWS-2409H	18-36	9	556	81	1000
LWS-2412H	18-36	12	417	82	1000
LWS-2415H	18-36	15	333	83	1000
LWD-2405H	18-36	+/-5	+/-500	77	1000
LWD-2409H	18-36	+/-9	+/-278	81	1000
LWD-2412H	18-36	+/-12	+/-208	82	1000
LWD-2415H	18-36	+/-15	+/-167	83	1000
LWS-4803.3H	36-72	3.3	1500	77	1000
LWS-4805H	36-72	5	1000	77	1000
LWS-4809H	36-72	9	556	83	1000
LWS-4812H	36-72	12	417	83	1000
LWS-4815H	36-72	15	333	79	1000
LWD-4805H	36-72	+/-5	+/-500	77	1000
LWD-4809H	36-72	+/-9	+/-278	83	1000
LWD-4812H	36-72	+/-12	+/-208	83	1000
LWD-4815H	36-72	+/-15	+/-167	85	1000
LWS-1203.3HT	9-36	3.3	1500	75	1000
LWS-1205HT	9-36	5	1000	78	1000

LWS-1209HT	9-36	9	556	76	1000
LWS-1212HT	9-36	12	417	79	1000
LWS-1215HT	9-36	15	333	80	1000
LWD-1205HT	9-36	+/-5	+/-500	77	1000
LWD-1212HT	9-36	+/-12	+/-208	77	1000
LWD-1215HT	9-36	+/-15	+/-167	80	1000
LWS-2403.3HT	18-72	3.3	1500	75	1000
LWS-2405HT	18-72	5	1000	75	1000
LWS-2409HT	18-72	9	556	78	1000
LWS-2412HT	18-72	12	417	80	1000
LWS-2415HT	18-72	15	333	81	1000
LWD-2412HT	18-72	+/-12	+/-208	81	1000
LWD-2415HT	18-72	+/-15	+/-167	81	1000

● 5W OUTPUT ISOLATION 3000VDC

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
LWS-0512H-3K	4.5-9	12	417	70	3000
LWS-0515H-3K	4.5-9	15	333	72	3000
LWS-1203.3H-3K	9-18	3.3	1500	70	3000
LWS-1205H-3K	9-18	5	1000	75	3000
LWS-1209H-3K	9-18	9	556	80	3000
LWS-1212H-3K	9-18	12	417	80	3000
LWS-1215H-3K	9-18	15	333	81	3000
LWD-1205H-3K	9-18	+/-5	+/-500	75	3000
LWD-1209H-3K	9-18	+/-9	+/-278	79	3000
LWD-1212H-3K	9-18	+/-12	+/-208	77	3000
LWD-1215H-3K	9-18	+/-15	+/-167	81	3000
LWS-2403.3H-3K	18-36	3.3	1500	71	3000
LWS-2405H-3K	18-36	5	1000	77	3000
LWS-2409H-3K	18-36	9	556	81	3000
LWS-2412H-3K	18-36	12	417	82	3000
LWS-2415H-3K	18-36	15	333	83	3000
LWD-2405H-3K	18-36	+/-5	+/-500	77	3000
LWD-2409H-3K	18-36	+/-9	+/-278	81	3000
LWD-2412H-3K	18-36	+/-12	+/-208	82	3000
LWD-2415H-3K	18-36	+/-15	+/-167	83	3000
LWS-4803.3H-3K	36-72	3.3	1500	77	3000
LWS-4805H-3K	36-72	5	1000	77	3000
LWS-4809H-3K	36-72	9	556	83	3000
LWS-4812H-3K	36-72	12	417	83	3000
LWS-4815H-3K	36-72	15	333	79	3000
LWD-4805H-3K	36-72	+/-5	+/-500	77	3000
LWD-4809H-3K	36-72	+/-9	+/-278	83	3000
LWD-4812H-3K	36-72	+/-12	+/-208	83	3000
LWD-4815H-3K	36-72	+/-15	+/-167	85	3000
LWS-1205HT-3K	9-36	5	1000	78	3000
LWS-1209HT-3K	9-36	9	556	76	3000
LWS-1212HT-3K	9-36	12	417	79	3000
LWS-1215HT-3K	9-36	15	333	80	3000
LWD-1205HT-3K	9-36	+/-5	+/-500	77	3000
LWD-1212HT-3K	9-36	+/-12	+/-208	77	3000
LWD-1215HT-3K	9-36	+/-15	+/-167	80	3000
LWS-2405HT-3K	18-72	5	1000	75	3000
LWS-2409HT-3K	18-72	9	556	78	3000
LWS-2412HT-3K	18-72	12	417	80	3000
LWS-2415HT-3K	18-72	15	333	81	3000
LWD-2412HT-3K	18-72	+/-12	+/-208	81	3000
LWD-2415HT-3K	18-72	+/-15	+/-167	81	3000

● MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

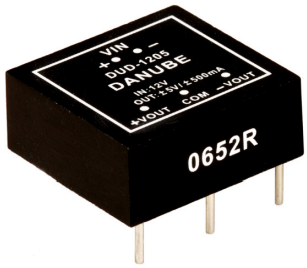
PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NP	-Vout
DUAL	+Vin	-Vin	+Vout	Common	-Vout

DU SERIES *5W UNREGULATED*

DANUBE

FEATURES

- DUAL IN LINE PACKAGE
- UP TO 5W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- HIGH EFFICIENCY
- 3 YEARS WARRANTY
- UL 94V-0 PACKAGE MATERIAL



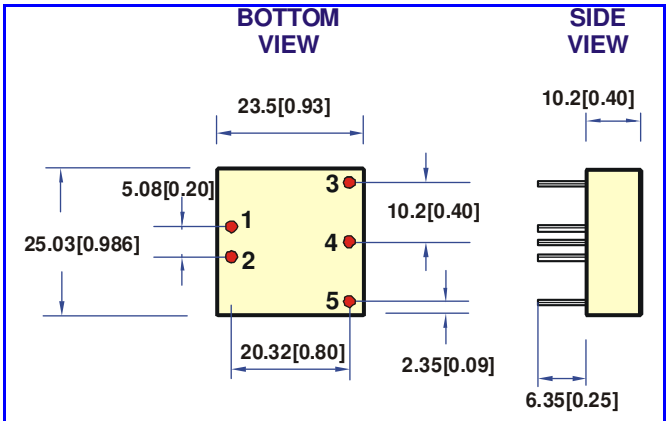
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-3% max	Input Voltage Range	+/-10% max	Efficiency	79%-90%
Temperature Coefficient	+/-0.03%/℃	Input Filter	Pi Network	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	-25℃ to +71℃	Isolation Capacitance	80pF max
Load Regulation	+/-8% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Humidity	95% max	MTBF	>850,000 Hours
Short Circuit Protection	Momentary	Cooling	Free-Air Convection	Case Material	Non-Conductive Plastic
Short Circuit Restart	Automatic			Potting Material	Epoxy(UL94-V0)

5W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
DUS-0503.3	5	3.3	1500	78	1000
DUS-0505	5	5	1000	83	1000
DUS-0512	5	12	417	87	1000
DUS-0515	5	15	333	87	1000
DUS-0524	5	24	208	87	1000
DUD-0505	5	+/-5	+/-500	83	1000
DUD-0512	5	+/-12	+/-208	87	1000
DUD-0515	5	+/-15	+/-167	87	1000
DUS-1203.3	12	3.3	1500	74	1000
DUS-1205	12	5	1000	84	1000
DUS-1212	12	12	417	87	1000
DUS-1215	12	15	333	87	1000
DUS-1224	12	24	208	86	1000
DUD-1205	12	+/-5	+/-500	84	1000
DUD-1212	12	+/-12	+/-208	87	1000
DUD-1215	12	+/-15	+/-167	87	1000
DUS-2403.3	24	3.3	1500	74	1000
DUS-2405	24	5	1000	83	1000
DUS-2412	24	12	417	85	1000
DUS-2415	24	15	333	87	1000
DUS-2424	24	24	208	86	1000
DUD-2405	24	+/-5	+/-500	83	1000
DUD-2412	24	+/-12	+/-208	90	1000
DUD-2415	24	+/-15	+/-167	90	1000
DUS-4824	48	24	208	83	1000

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

PIN	1	2	3	4	5
SINGLE	+Vin	-Vin	+Vout	NO PIN	-Vout
DUAL	+Vin	-Vin	+Vout	Common	-Vout

FAW SERIES *10W WIDE INPUT RANGE*

DANUBE

FEATURES

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

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1-4:1 Input Range	Efficiency	70% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000-3000VDC 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	1200pF max
Load Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Switching Frequency	200KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	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		

- 2:1 7W-10W OUTPUT

MODEL[1] NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	ISOLATION (VDC)
FAWD-0505	4.7-7.25	+/-5	+/-700	79	1000 or 3000
FAWD-0515	4.7-7.25	+/-15	+/-275	79	1000 or 3000
FAWS-1203.3	9-18	3.3	2400	74	1000 or 3000
FAWS-1205	9-18	5	2000	78	1000 or 3000
FAWS-1209	9-18	9	1111	79	1000 or 3000
FAWS-1212	9-18	12	830	80	1000 or 3000
FAWS-1215	9-18	15	670	81	1000 or 3000
FAWS-1224	9-18	24	416	82	1000 or 3000
FAWD-1205	9-18	+/-5	+/-1000	78	1000 or 3000
FAWD-1209	9-18	+/-9	+/-556	80	1000 or 3000
FAWD-1212	9-18	+/-12	+/-416	81	1000 or 3000
FAWD-1215	9-18	+/-15	+/-333	82	1000 or 3000
FAWD-1224	9-18	+/-24	+/-208	79	1000 or 3000
FAWS-2403.3	18-36	3.3	2400	76	1000 or 3000
FAWS-2405	18-36	5	2000	79	1000 or 3000
FAWS-2409	18-36	9	1111	80	1000 or 3000
FAWS-2412	18-36	12	830	82	1000 or 3000
FAWS-2415	18-36	15	670	83	1000 or 3000
FAWS-2424	18-36	24	416	81	1000 or 3000
FAWS-2442	18-36	42	238	79	1000 or 3000
FAWD-2405	18-36	+/-5	+/-1000	79	1000 or 3000
FAWD-2409	18-36	+/-9	+/-556	80	1000 or 3000
FAWD-2412	18-36	+/-12	+/-416	82	1000 or 3000
FAWD-2415	18-36	+/-15	+/-333	82	1000 or 3000
FAWD-2424	18-36	+/-24	+/-208	80	1000 or 3000
FAWS-4803.3	36-72	3.3	2400	76	1000 or 3000
FAWS-4805	36-72	5	2000	79	1000 or 3000
FAWS-4809	36-72	9	1111	80	1000 or 3000
FAWS-4812	36-72	12	830	82	1000 or 3000
FAWS-4815	36-72	15	670	82	1000 or 3000
FAWS-4824	36-72	24	416	82	1000 or 3000

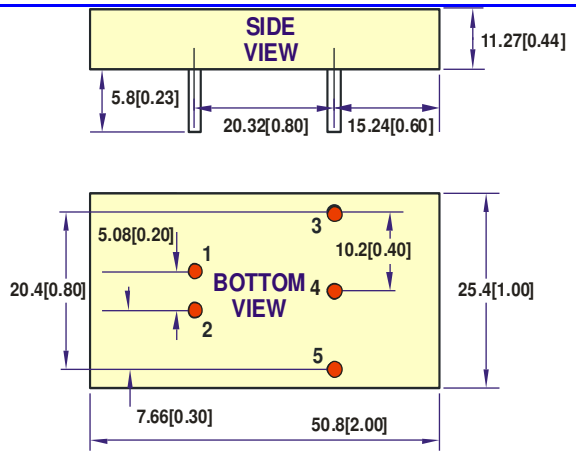
[1] *FAW*-****-3K* *FOR 3000VDC ISOLATION*

FAWD-4805	36-72	+/-5	+/-1000	79	1000 or 3000
FAWD-4809	36-72	+/-9	+/-556	80	1000 or 3000
FAWD-4812	36-72	+/-12	+/-416	82	1000 or 3000
FAWD-4815	36-72	+/-15	+/-333	82	1000 or 3000
FAWD-4824	36-72	+/-24	+/-208	82	1000 or 3000

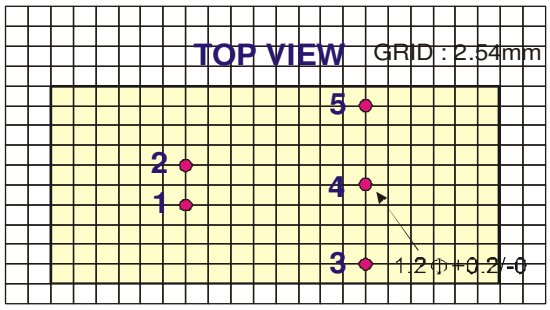
● 4:1 8W-10W OUTPUT

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

● MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS



All dimensions are in millimeters[inches]



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

FCW SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

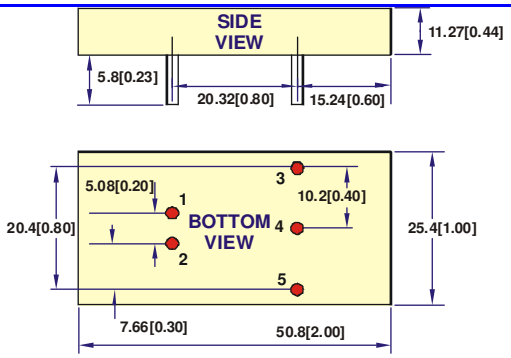
- 15W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- REGULATED OUTPUT
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	76% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000 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	1200pF max
Load Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Switching Frequency	150KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	200uS max	Humidity	95% max		

● 2:1 10W-15W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
FCWS-1203.3	9-18	3.3	3000	76	1000
FCWS-1205	9-18	5	3000	78	1000
FCWS-1212	9-18	12	1250	82	1000
FCWS-1215	9-18	15	1000	82	1000
FCWD-1205	9-18	+/-5	+/-1500	80	1000
FCWD-1212	9-18	+/-12	+/-625	83	1000
FCWD-1215	9-18	+/-15	+/-500	83	1000
FCWS-2403.3	18-36	3.3	3000	76	1000
FCWS-2405	18-36	5	3000	78	1000
FCWS-2412	18-36	12	1250	80	1000
FCWS-2415	18-36	15	1000	80	1000
FCWD-2405	18-36	+/-5	+/-1500	80	1000
FCWD-2412	18-36	+/-12	+/-625	80	1000
FCWD-2415	18-36	+/-15	+/-500	80	1000
FCWS-4803.3	36-72	3.3	3000	76	1000
FCWS-4805	36-72	5	3000	80	1000
FCWS-4812	36-72	12	1250	82	1000
FCWS-4815	36-72	15	1000	82	1000
FCWD-4805	36-72	+/-5	+/-1500	82	1000
FCWD-4812	36-72	+/-12	+/-625	82	1000
FCWD-4815	36-72	+/-15	+/-500	82	1000

● MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

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

KW SERIES *15W WIDE INPUT RANGE*

DANUBE

FEATURES

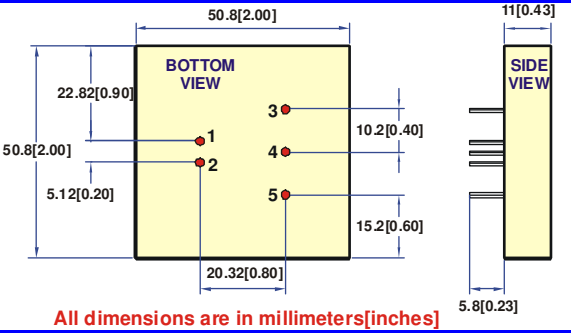
- INDUSTRY STANDARD PACKAGE
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1-4:1 Input Range	Efficiency	70% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000VDC 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	1200pF max
Load Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Switching Frequency	150KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>504,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	200uS max	Humidity	95% max		

12W-15W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
KWS-1203.3	9-18	3.3	3600	75	1000
KWS-1205	9-18	5	3000	77	1000
KWS-1212	9-18	12	1250	80	1000
KWS-1215	9-18	15	1000	81	1000
KWS-1224	9-18	24	625	81	1000
KWD-1205	9-18	+/-5	+/-1500	77	1000
KWD-1212	9-18	+/-12	+/-625	80	1000
KWD-1215	9-18	+/-15	+/-500	82	1000
KWS-2403.3	18-36	3.3	3600	77	1000
KWS-2405	18-36	5	3000	80	1000
KWS-2412	18-36	12	1250	82	1000
KWS-2415	18-36	15	1000	82	1000
KWS-2424	18-36	24	625	83	1000
KWD-2405	18-36	+/-5	+/-1500	83	1000
KWD-2412	18-36	+/-12	+/-625	82	1000
KWD-2415	18-36	+/-15	+/-500	83	1000
KWS-4803.3	36-72	3.3	3600	77	1000
KWS-4805	36-72	5	3000	79	1000
KWS-4809	36-72	9	1670	81	1000
KWS-4812	36-72	12	1250	82	1000
KWS-4815	36-72	15	1000	82	1000
KWS-4824	36-72	24	625	83	1000
KWD-4805	36-72	+/-5	+/-1500	83	1000
KWD-4812	36-72	+/-12	+/-625	82	1000
KWD-4815	36-72	+/-15	+/-500	82	1000
KWD-4824	36-72	+/-24	+/-313	85	1000
KWS-1205T	9-36	5	3000	77	1000
KWS-1212T	9-36	12	1250	80	1000
KWS-1215T	9-36	15	1000	80	1000
KWD-1205T	9-36	+/-5	+/-1500	77	1000
KWD-1212T	9-36	+/-12	+/-625	80	1000
KWD-1215T	9-36	+/-15	+/-500	80	1000
KWS-2405T	18-72	5	3000	79	1000
KWS-2412T	18-72	12	1250	81	1000
KWS-2415T	18-72	15	1000	82	1000
KWD-2405T	18-72	+/-5	+/-1500	79	1000
KWD-2412T	18-72	+/-12	+/-625	81	1000
KWD-2415T	18-72	+/-15	+/-500	82	1000

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

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

FDW SERIES *20W WIDE INPUT RANGE*

DANUBE

FEATURES

- 20W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- REGULATED OUTPUT
- 100% BURNED IN
- NO EXTERNAL COMPONENTS REQUIRED
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY

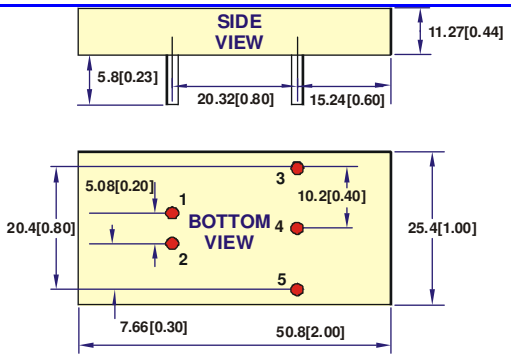
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	76% min
Temperature Coefficient	+/-0.05%/℃	Input Filter	Pi Network	Isolation Voltage	1000 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	-25℃ to +71℃	Switching Frequency	150KHz min
Minimum Load	10% of Full Load	Storage Temperature	-55℃ to +125℃	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Cooling	Free-Air Convection	Case Material	Six-Side Shielded Case
Transient Response	300uS max	Humidity	95% max		

2:1 20W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
FDWS-1203.3	9-18	3.3	5000	78	1000
FDWS-1205	9-18	5	4000	81	1000
FDWS-1212	9-18	12	1660	84	1000
FDWS-1215	9-18	15	1330	84	1000
FDWD-1205	9-18	+/-5	+/-2000	82	1000
FDWD-1212	9-18	+/-12	+/-830	85	1000
FDWD-1215	9-18	+/-15	+/-660	85	1000
FDWS-2403.3	18-36	3.3	5000	79	1000
FDWS-2405	18-36	5	4000	81	1000
FDWS-2412	18-36	12	1660	83	1000
FDWS-2415	18-36	15	1330	83	1000
FDWD-2405	18-36	+/-5	+/-2000	81	1000
FDWD-2412	18-36	+/-12	+/-830	83	1000
FDWD-2415	18-36	+/-15	+/-660	83	1000
FDWS-4803.3	36-72	3.3	5000	79	1000
FDWS-4805	36-72	5	4000	82	1000
FDWS-4812	36-72	12	1660	85	1000
FDWS-4815	36-72	15	1330	85	1000
FDWD-4805	36-72	+/-5	+/-2000	82	1000
FDWD-4812	36-72	+/-12	+/-830	85	1000
FDWD-4815	36-72	+/-15	+/-660	85	1000

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

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

KAW SERIES 30W WIDE INPUT RANGE

DANUBE

FEATURES

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

OUTPUT SPECIFICATIONS		
Voltage Setpoint Accuracy		
Single/Dual		+/-2% max
Triple	5V	+/-2% max
	12V/15V	+/-5% max
Temperature Coefficient		+/-0.05%/℃
Ripple & Noise(20MHz BW)		100mVp-p max
Line Regulation		
Single/Dual		+/-0.5% max
Triple		+/-1% max
Load Regulation		
Single/Dual		+/-0.5% max
Triple		+/-5% max
Transient Response		500uS max

INPUT SPECIFICATIONS	
Input Voltage Range	2:1-4:1 Input Range
Input Filter	Pi Network
Protection	Fuse Recommended

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	-40℃ to +71℃
Storage Temperature	-55℃ to +100℃
Cooling	Free-Air Convection
Humidity	95% max
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic

GENERAL SPECIFICATIONS	
Efficiency	75% min
Isolation Voltage	1000VDC min
Isolation Resistance	10^9 ohms min
Isolation Capacitance	2500pF max
Switching Frequency	100KHz min
MTBF	>700,000 Hours
Case Material	Six-Side Shielded Case
Potting Material	Epoxy(UL94-V0)
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A
Weight	110g Typ

● 2:1 25W-30W OUTPUT PACKAGE "A"

MODEL NUMBER	INPUT (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	EFF (%)	PACKAGE
KAWS-1205	9-18	5	5000	80	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-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 PACKAGE"A"

KAWS-1205T	9-36	5	5000	80	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
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	82	A
KAWT-24/0515T	18-72	+5,+/-15	3500,+/-250	82	A

● 2:1 25W-30W OUTPUT PACKAGE"B"

KAWS-1205L	9-18	5	5000	80	B
KAWS-1212L	9-18	12	2500	84	B
KAWS-1215L	9-18	15	2000	84	B
KAWS-2405L	18-36	5	5000	80	B
KAWS-2412L	18-36	12	2500	85	B
KAWS-2415L	18-36	15	2000	85	B
KAWS-4805L	36-72	5	5000	80	B
KAWS-4812L	36-72	12	2500	82	B
KAWS-4815L	36-72	15	2000	82	B

● 2:1 25W-30W OUTPUT PACKAGE"C"

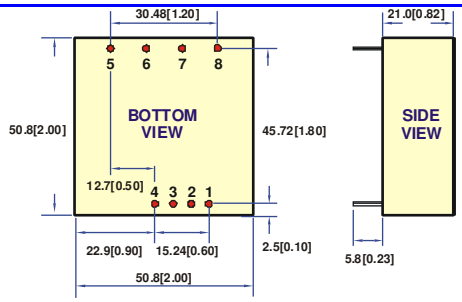
KAWS-1205EL	9-18	5	6000	80	C
KAWS-1209EL	9-18	9	3333	80	C
KAWS-1212EL	9-18	12	2500	80	C
KAWS-1215EL	9-18	15	2000	80	C
KAWS-1224EL	9-18	24	1250	80	C
KAWD-1205EL	9-18	+/-5	+/-2500	80	C
KAWD-1212EL	9-18	+/-12	+/-1250	80	C
KAWD-1215EL	9-18	+/-15	+/-1000	80	C
KAWS-2405EL	18-36	5	6000	80	C
KAWS-2409EL	18-36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

● 4:1 25W-30W OUTPUT PACKAGE"C"

KAWS-1205TEL	9-36	5	6000	80	C
KAWS-2405TEL	18-72	5	6000	80	C

● MECHANICAL DIMENSIONS

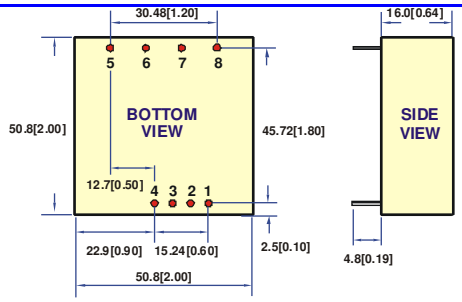
PACKAGE "A"



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	Common	-Vout	Trim
TRIPLE					+Aux.	+5V out	Common	-Aux.

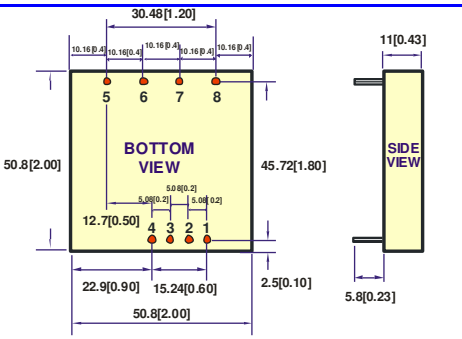
PACKAGE "B"



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

PACKAGE "C"



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	Common		

KDW SERIES *30-40W WIDE INPUT RANGE*

DANUBE

FEATURES

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

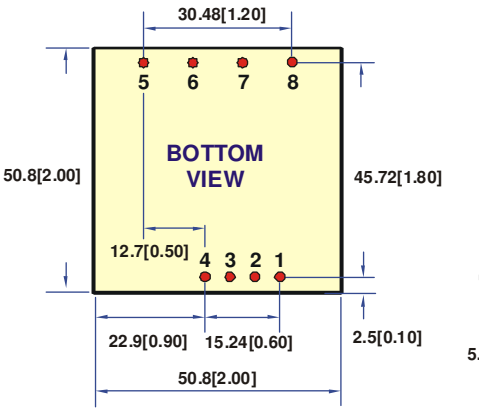
RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 INPUT RANGE	Efficiency	80% min
Temperature Coefficient	+/-0.03%/℃	Input Filter	Pi Network	Isolation Voltage	1000 VDC min
Ripple & Noise(20MHz BW)	100mVp-p max	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min
Line Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	2500pF max
Load Regulation	+/-0.5% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	100KHz min
Minimum Load	10% of Full Load	Cooling	Free-Air Convection	MTBF	>700,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max	Case Material	Six-Side Shielded Case
OverVoltage Protection	Built-in	External Trim Adj. Range	+/-10%	Potting Material	Epoxy(UL94-V0)

2:1 30W-40W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
KDWS-1212	9-18	12	3000	82	1000
KDWS-1224	9-18	24	1500	82	1000
KDWS-1230	9-18	30	1200	82	1000
KDWS-2412	18-36	12	3000	82	1000
KDWS-2415	18-36	15	2400	83	1000
KDWS-2424	18-36	24	1667	85	1000
KDWD-2412	18-36	+/-12	+/-1650	85	1000
KDWD-2415	18-36	+/-15	+/-1300	83	1000
KDWS-4812	36-72	12	3000	82	1000
KDWS-4815	36-72	15	2400	83	1000
KDWS-4824	36-72	24	1667	85	1000
KDWD-4812	36-72	+/-12	+/-1650	85	1000
KDWD-4815	36-72	+/-15	+/-1300	83	1000

MECHANICAL DIMENSIONS



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			-Vin	+Vin	+Vout	Common	-Vout	Trim

GW SERIES *60W WIDE INPUT RANGE*

DANUBE

FEATURES

- 60W DIL PACKAGE
- 100% BURNED IN
- HIGH EFFICIENCY
- SIX-SIDE SHIELDED CASE
- INDUSTRY STANDARD PACKAGE
- 9-18V,18-36V,36-72V WIDE INPUT RANGE
- 100% BURNED IN
- 3 YEARS WARRANTY

RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	2:1 Input Range	Efficiency	78% min
Temperature Coefficient	+/-0.03%/℃	Input Filter	Pi Network	Isolation Voltage	1000 VDC min
Ripple & Noise(20MHz BW)	150mVp-p max	**ENVIRONMENTAL SPECIFICATIONS**		Isolation Resistance	10^9 ohms min
Line Regulation	+/-0.5% max	Operating Temperature	-25℃ to +71℃	Isolation Capacitance	2500pF max
Load Regulation	+/-0.2% max	Storage Temperature	-55℃ to +125℃	Switching Frequency	50KHz min
Minimum Load	10% of Full Load	Cooling	Free-Air Convection	MTBF	>250,000 Hours
Short Circuit Protection	Continuous	Humidity	95% max	Case Material	Six-Side Shielded Case
OverVoltage Protection	Built-in			Potting Material	Epoxy(UL94-V0)

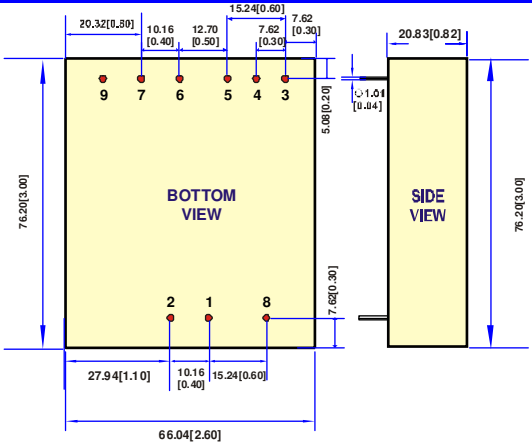
2:1 60W OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		EFF (%)	ISOLATION (VDC)
		VOLTAGE (VDC)	CURRENT (mA)		
GWS-1212	9-18	12	5000	80	1000
GWS-1215	9-18	15	4000	81	1000
GWS-1224	9-18	24	2500	81	1000
GWD-1212	9-18	+/-12	+/-2500	81	1000
GWD-1215	9-18	+/-15	+/-2000	81	1000
GWS-2412	18-36	12	5000	80	1000
GWS-2415	18-36	15	4000	81	1000
GWS-2448	18-36	48	1100	81	1000
GWD-2412	18-36	+/-12	+/-2500	81	1000
GWD-2415	18-36	+/-15	+/-2000	81	1000
GWS-4812	36-72	12	5000	80	1000
GWS-4815	36-72	15	4000	81	1000
GWD-4812	36-72	+/-12	+/-2500	81	1000
GWD-4815	36-72	+/-15	+/-2000	81	1000

4:1 60W OUTPUT

GWS-1212T	9-36	12	5000	80	1000
GWS-1215T	9-36	15	4000	80	1000
GWD-1212T	9-36	+/-12	+/-2500	80	1000
GWD-1215T	9-36	+/-15	+/-2000	80	1000
GWS-2412T	18-72	12	5000	80	1000
GWS-2415T	18-72	15	4000	80	1000
GWD-2412T	18-72	+/-12	+/-2500	80	1000
GWD-2415T	18-72	+/-15	+/-2000	80	1000

MECHANICAL DIMENSIONS



All dimensions are in millimeters[inches]

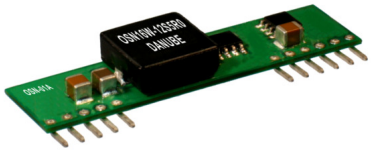
PIN	1	2	3	4	5	6	7	8
SINGLE	+Vin	-Vin	NC	Trim	NC	+Vout	-Vout	Remote On/Off
DUAL			+Vout	Common	-Vout	NC	NC	

OSN16W *16A Non-Isolated Point of load*

DANUBE

FEATURES

- 0.7525V-5.0V 16A Vout
- 8V-14V WIDE INPUT RANGE
- 300KHz SWITCHING FREQUENCY
- OVER TEMPERATURE PROTECTION
- HIGH EFFICIENCY TO 94%
- INDUSTRY STANDARD PINOUT
- CONTINUOUS SHORT CIRCUIT PROTECTION
- 3 YEARS WARRANTY



RoHS COMPLIANT

OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS		GENERAL SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	8V-14V	Efficiency	See Table
Temperature Coefficient	+/-0.05%/℃	Input Filter	Capacitive	Isolation Voltage	None
Ripple & Noise(20MHz BW)	100mVp-p max			Switching Frequency	300KHz typ
Line Regulation	+/-0.2% max	**ENVIRONMENTAL SPECIFICATIONS**		Structure	Open Frame
Load Regulation	+/-0.5% max	Operating Temperature	-40℃ to +85℃	Weight	7.5g typ
Minimum Load	0%	Storage Temperature	-55℃ to +125℃	SIP Package	50.8mm*13.0mm*10.7mm
Short Circuit Protection	Continuous	Over Temperature Protection	130℃ typ		
Transient Response	200uS max				

● 16A OUTPUT

MODEL NUMBER	INPUT (VDC)	OUTPUT		INPUT CURRENT(mA)		EFF (%)
		VOLTAGE (VDC)	CURRENT (A)	FULL LOAD	NO LOAD	
OSN16W	8-14	0.7525	16A	1210	40	80
	8-14	1.2	16A	1882	40	85
	8-14	1.5	16A	2270	49	88
	8-14	1.8	16A	2699	60	89
	8-14	2.0	16A	2965	60	90
	8-14	2.5	16A	2665	65	91
	8-14	3.3	16A	4730	75	93
	8-14	5.0	16A	7095	95	94

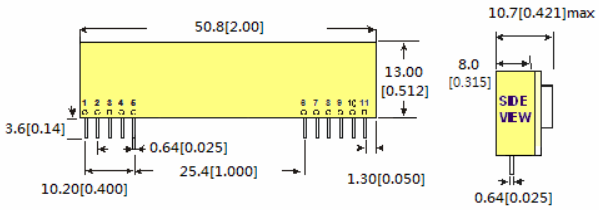
● EXTERNAL RESISTOR VALUES FOR PROGRAMMING OUTPUT VOLTAGE

Vout	Rtrim(K ohm)
0.7525	Open
1.2	22.46
1.5	13.05
1.8	9.024
2.0	7.417
2.5	5.009
3.3	3.122
5.0	1.472

● REMOTE ON/OFF CONTROL VOLTAGE

OUTPUT POWER ON	Vin or Open Circuit
OUTPUT POWER OFF	< 0.4V

● MECHANICAL DIMENSIONS



PIN	1 & 2	3	4	5 & 6	7 & 8	9	10	11
SINGLE	+Vout	+Sense	+Vout	Common	+Vin	NC	Trim	Remote On/Off

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 change.