

MU SERIES

1W UNREGULATED

DANUBE

FEATURES

- SINGLE IN LINE PACKAGE
- UP TO 1W UNREGULATED OUTPUT POWER
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- LOW COST
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS	
Voltage Set-point Accuracy	+/-2% max	Input Voltage Range	+/-10% max
Temperature Coefficient	+/-0.05%/°C	Input Filter	Capacitor Typ
Ripple & Noise(20MHz BW) ¹	100mVp-p max	Input Reflected Ripple Current	50mA _{p-p} max
Line Regulation ²	+/-1.2% max	Protection	Fuse Recommended
Load Regulation ³	+/-8% max		
Load Regulation ⁴	+/-12% max		
Minimum Load	10% of Full Load		
Short Circuit Protection	Momentary		
ENVIRONMENTAL SPECIFICATIONS		GENERAL SPECIFICATIONS	
Operating Temperature	-25 °C to +71 °C	Efficiency	70%-82%
Case Temperature	+90 °C max	Isolation Voltage ⁵	1500-3000 VDC
Storage Temperature	-55 °C to +125 °C	Isolation Resistance	10 ⁹ ohms min
Humidity	95% max	Isolation Capacitance	80pF max
Cooling	Free-Air Convection	Switching Frequency	100KHz Typ
		MTBF ⁶	>2,000,000 Hours
		Weight	1.3g Typ
		Case Material	Non-Conductive Plastic
		Case Size	11.7mm*6.0mm*10.2mm
			11.7mm*7.5mm*10.1mm
		Conducted Emissions	EN55022 Class A
		Radiated Emissions	EN55022 Class B

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD AND 25 °C UNLESS OTHERWISE NOTED.

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² Line Regulation is for a 1.0% change in input Voltage.

³ Load Regulation is for output load current change from 20% to 100%.

⁴ Load Regulation is for output load current change from 20% to 100% when input voltage is 3V and 3.3V.

⁵ 1500VDC for 10 seconds, 3000VDC for 3 seconds.

⁶ MIL-HDBK-217F @25 °C , Ground Benign.

● **SELECTION GUIDE(1)**
1W 1500VDC ISOLATION

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁷		EFF (%) ⁸	ISOLATION (VDC)	PACKAGE
				CURRENT(mA)				
				FULL LOAD	NO LOAD			
MUS-0303	3	3	333	475	35	70	1500	B
MUS-03.303	3.3	3	333	425	43	71	1500	B
MUS-03.303.3	3.3	3.3	303	403	43	75	1500	B
MUS-0305	3	5	200	475	50	70	1500	B
MUS-03.305	3.3	5	200	404	46	75	1500	B
MUS-0503.3	5	3.3	303	282	32	71	1500	B
MUS-0505	5	5	200	274	30	73	1500	A
MUS-0509	5	9	110	260	27	77	1500	A
MUS-0512	5	12	84	253	26	79	1500	A
MUS-0515	5	15	67	253	28	79	1500	A
MUS-0524	5	24	42	253	28	79	1500	B
MUS-1203.3	12	3.3	300	112	11	74	1500	A
MUS-1205	12	5	200	112	11	74	1500	A
MUS-1209	12	9	110	105	11	79	1500	A
MUS-1212	12	12	84	102	11	82	1500	A
MUS-1215	12	15	67	102	12	82	1500	A
MUS-2403.3	24	3.3	300	57	8	73	1500	B
MUS-2405	24	5	200	57	8	73	1500	B
MUS-2409	24	9	110	54	8	77	1500	B
MUS-2412	24	12	84	54	8	77	1500	B
MUS-2415	24	15	67	54	10	77	1500	B
MUS-2424	24	24	42	54	10	77	1500	B
MUS-4805	48	5	200	29	10	72	1500	B

Note: Other input to output voltages may be available. Please contact factory.

⁷ NOMINAL INPUT VOLTAGE.

⁸ NOMINAL INPUT VOLTAGE, FULL LOAD.

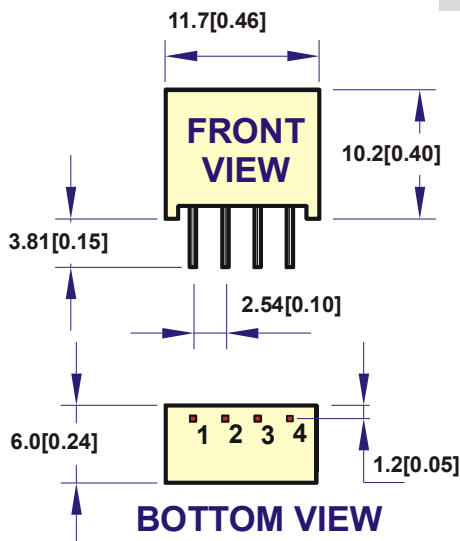
● SELECTION GUIDE(2) 1W 3000VDC ISOLATION

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁹ CURRENT(mA)		EFF (%) ¹⁰	ISOLATION (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
				MUS-03.303.3-3K	3.3			
MUS-0505-3K	5	5	200	274	26	73	3000	B
MUS-0509-3K	5	9	110	260	27	77	3000	B
MUS-0512-3K	5	12	84	253	26	79	3000	B
MUS-0515-3K	5	15	67	253	28	79	3000	B
MUS-1203.3-3K	12	3.3	300	112	11	74	3000	B
MUS-1205-3K	12	5	200	112	11	74	3000	B
MUS-1209-3K	12	9	110	105	11	79	3000	B
MUS-1212-3K	12	12	84	102	11	82	3000	B
MUS-1215-3K	12	15	67	102	12	82	3000	B
MUS-2403.3-3K	24	3.3	300	57	8	73	3000	B
MUS-2405-3K	24	5	200	57	8	73	3000	B
MUS-2409-3K	24	9	110	54	8	77	3000	B
MUS-2412-3K	24	12	84	54	8	77	3000	B
MUS-2415-3K	24	15	67	54	10	77	3000	B

Note: Other input to output voltages may be available. Please contact factory.

● MECHANICAL DIMENSIONS

PACKAGE "A"



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

NOTE: Pin Size is Tolerance 0.50Φ ±0.05mm

All Dimensions In mm(Inches)

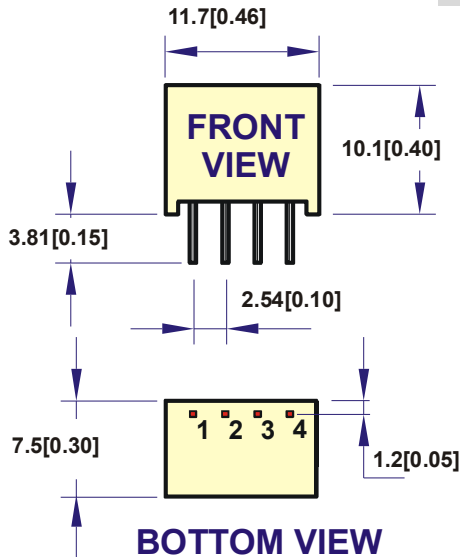
Tolerance .X or .XX= ±0.5mm

All dimensions are in mm[inches]

⁹ NOMINAL INPUT VOLTAGE.

¹⁰ NOMINAL INPUT VOLTAGE, FULL LOAD.

PACKAGE "B"



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

NOTE: Pin Size is Tolerance $0.50\Phi \pm 0.05\text{mm}$

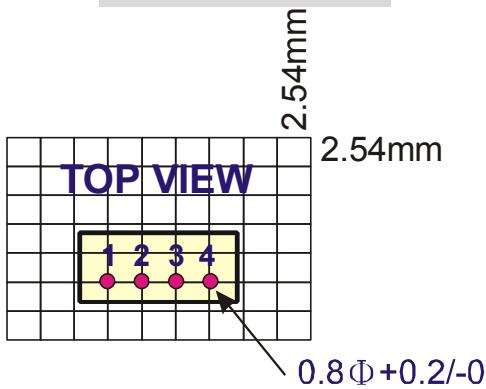
All Dimensions In mm(Inches)

Tolerance .X or .XX= $\pm 0.5\text{mm}$

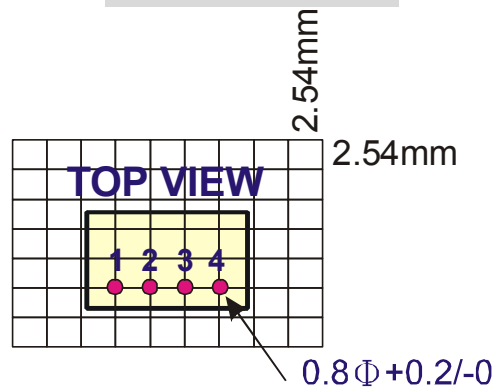
All dimensions are in mm[inches]

RECOMMENDED FOOTPRINT DETAILS

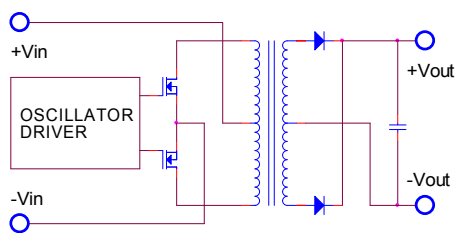
PACKAGE "A"



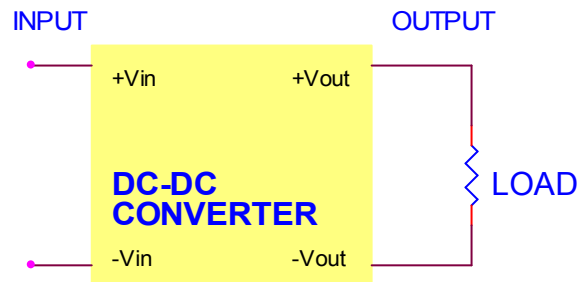
PACKAGE "B"



SIMPLIFIED SCHEMATIC



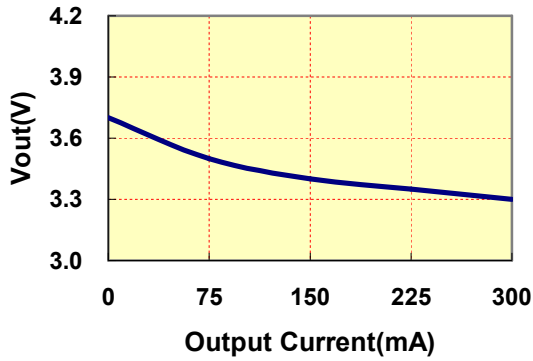
TYPICAL APPLICATIONS



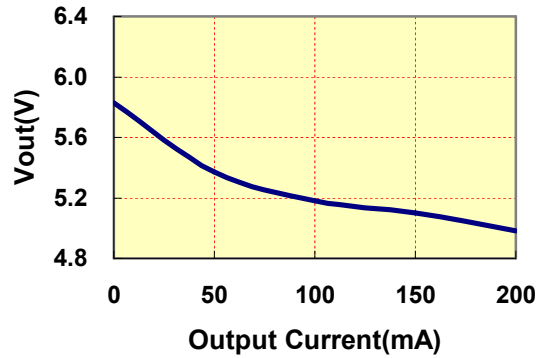
● TYPICAL PERFORMANCE CURVES

Specifications typical at $t_a=25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

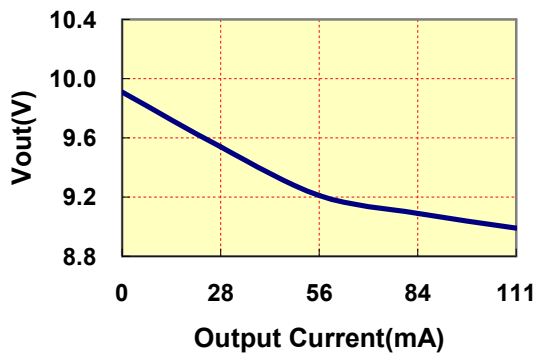
VOUT VS LOAD(3.3Vout Models)



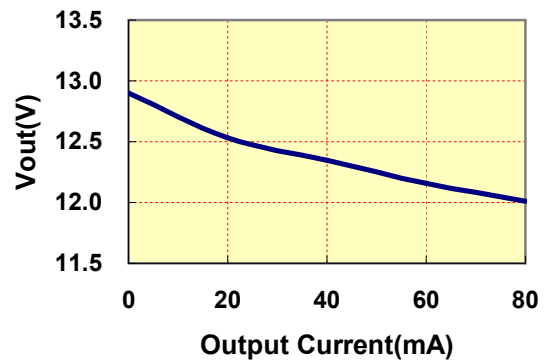
VOUT VS LOAD(5Vout Models)



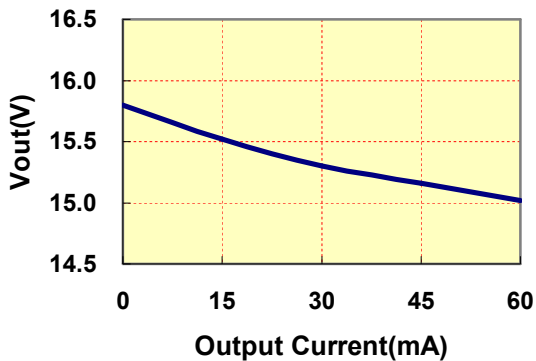
VOUT VS LOAD(9Vout Models)



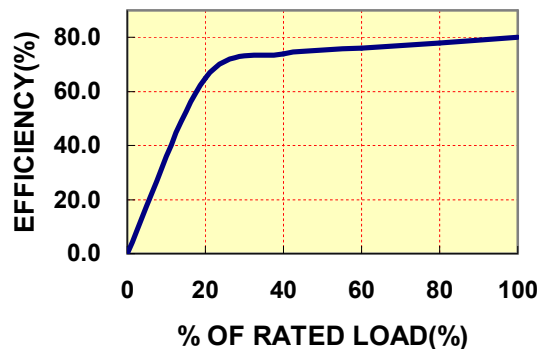
VOUT VS LOAD(12Vout Models)



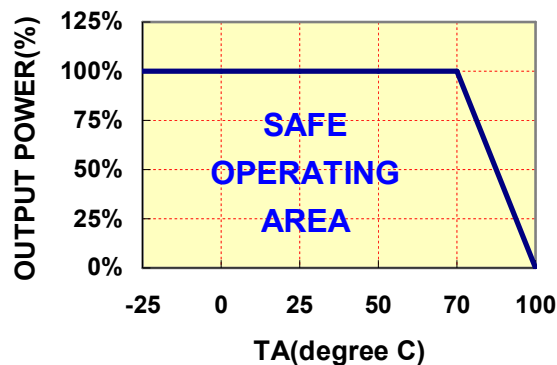
VOUT VS LOAD(15Vout Models)



EFFICIENCY VS LOAD



DERATING CURVES



● INPUT FUSE SELECTION GUIDE

2.7-3.6V	4.5-5.5V	10.8-13.2V	21.6-26.4V	43.2-52.8V
INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)
1200mA Slow-Blow Type	500mA Slow-Blow Type	300mA Slow-Blow Type	150mA Slow-Blow Type	100mA Slow-Blow Type

Note: Certain applications may require the installation of external fuse in front of the input.

MU SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

Output filtering is required for operation. A minimum of 10 μ F is needed. Output capacitance may be increased for additional filtering, not to exceed 220 μ F.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 250KHz is required.

We Can Offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

FOR MORE INFORMATION CALL:

Danube Enterprise Co., Ltd.

Tel: 886-7-3755165

Fax: 886-7-3755330

E-mail: danube@ms10.hinet.net

Home Page

<http://www.danube.com.tw>
