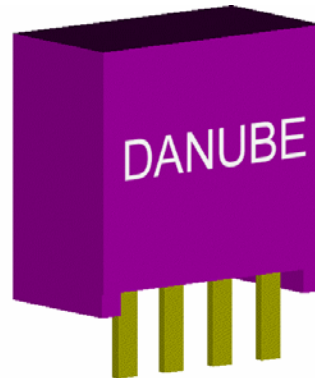


# DC-DC Converter UNIT

MU Series ( 1 W UNREGULATED DC-DC CONVERTER )

## FEATURES

- 1000VDC ISOLATION
- EFFICIENCY UP TO 82%
- INTERNAL SMD TECHNOLOGY
- LOW COST
- NO HEATSINK REQUIRED
- UP TO 1W UNREGULATED OUTPUT POWER
- SINGLE IN LINE PACKAGE
- 100% BURNED IN
- MTBF > 2,000,000 HOURS



### ● OUTPUT SPECIFICATIONS

|                              |              |
|------------------------------|--------------|
| Voltage Setpoint Accuracy    | +/-2% max    |
| Temperature Coefficient      | +/-0.03%/°C  |
| Ripple & Noise (20MHz BW)    | 100mVp-p max |
| Line Regulation <sup>1</sup> | +/-1.2% max  |
| Load Regulation <sup>2</sup> | +/-8% max    |
| Short Circuit Protection     | Momentary    |

### ● ENVIRONMENTAL SPECIFICATIONS

|                       |                     |
|-----------------------|---------------------|
| Operating Temperature | -25°C to +71°C      |
| Storage Temperature   | -55°C to +125°C     |
| Cooling               | Free-Air Convection |

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

### ● INPUT SPECIFICATIONS

|                     |                |
|---------------------|----------------|
| Input Voltage Range | +/-10% max     |
| Input Filter        | Capacitor Type |

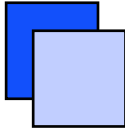
### ● GENERAL SPECIFICATIONS

|                                |  |
|--------------------------------|--|
| Efficiency                     | 70%-82%                                    |
| Isolation Voltage <sup>3</sup> | 1000 VDC min                               |
| Isolation Resistance           | 10 <sup>9</sup> ohms min                   |
| Switching Frequency            | 100 KHz min                                |
| Isolation Capacitance          | 80pF max                                   |
| MTBF                           | 2,000,000 Hours                            |
| Weight                         | 1.3g Typ                                   |
| Case Material                  | Non-Conductive Plastic                     |
| Case Size                      | 11.6mm*6.1mm*10.2mm<br>11.6mm*7.6mm*10.2mm |

<sup>1</sup> Line Regulation is for a 1.0% change in input Voltage.

<sup>2</sup> Load Regulation is for output load current change from 20% to 100%.

<sup>3</sup> For 60 seconds



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## ● SELECTION GUIDE 1W OUTPUT

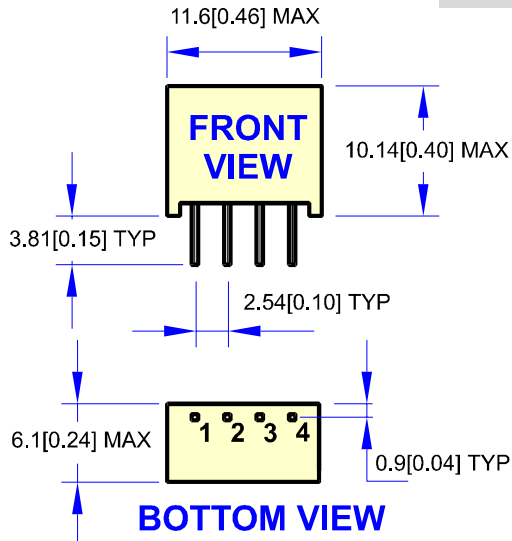
| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT CURRENT(mA) |         | EFF (%) | ISOLATION (VDC) | PACKAGE |
|--------------|---------------------|----------------------|---------------------|-------------------|---------|---------|-----------------|---------|
|              |                     |                      |                     | FULL LOAD         | NO LOAD |         |                 |         |
| MUS-0505     | 5                   | 5                    | 200                 | 274               | 26      | 73      | 1000            | A       |
| MUS-0509     | 5                   | 9                    | 110                 | 260               | 27      | 77      | 1000            | A       |
| MUS-0512     | 5                   | 12                   | 84                  | 253               | 26      | 79      | 1000            | A       |
| MUS-0515     | 5                   | 15                   | 67                  | 253               | 28      | 79      | 1000            | A       |
| MUS-1203.3   | 12                  | 3.3                  | 300                 | 112               | 11      | 74      | 1000            | B       |
| MUS-1205     | 12                  | 5                    | 200                 | 112               | 11      | 74      | 1000            | A       |
| MUS-1209     | 12                  | 9                    | 110                 | 105               | 11      | 79      | 1000            | A       |
| MUS-1212     | 12                  | 12                   | 84                  | 102               | 11      | 82      | 1000            | A       |
| MUS-1215     | 12                  | 15                   | 67                  | 102               | 12      | 82      | 1000            | A       |
| MUS-2403.3   | 24                  | 3.3                  | 300                 | 57                | 8       | 73      | 1000            | B       |
| MUS-2405     | 24                  | 5                    | 200                 | 57                | 8       | 73      | 1000            | B       |
| MUS-2409     | 24                  | 9                    | 110                 | 54                | 8       | 77      | 1000            | B       |
| MUS-2412     | 24                  | 12                   | 84                  | 54                | 8       | 77      | 1000            | B       |
| MUS-2415     | 24                  | 15                   | 67                  | 52                | 7       | 80      | 1000            | B       |

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



## ● MECHANICAL DIMENSIONS

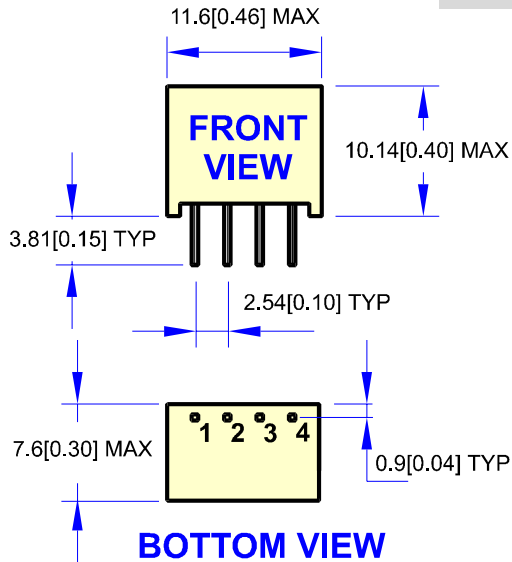
### PACKAGE "A"



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

All dimensions are in mm[inches]

### PACKAGE "B"



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

All dimensions are in mm[inches]

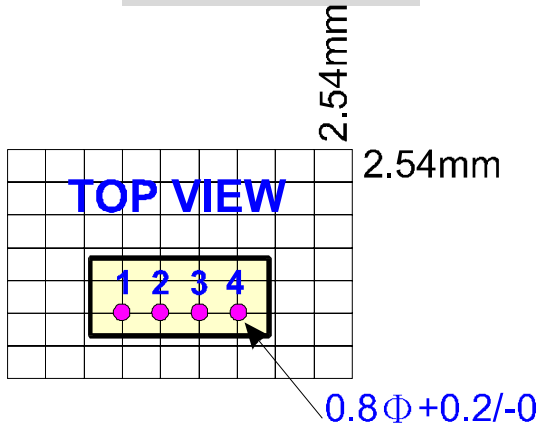


# DC-DC Converter UNIT

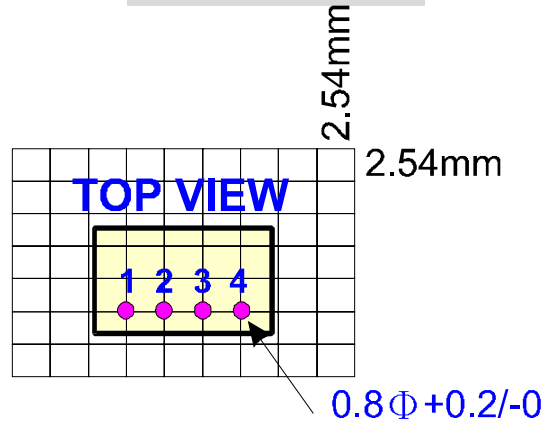
MU Series ( 1 W UNREGULATED DC-DC CONVERTER )

## RECOMMENDED FOOTPRINT DETAILS

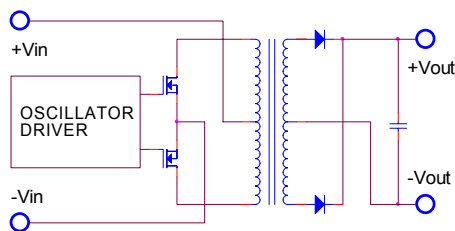
### PACKAGE "A"



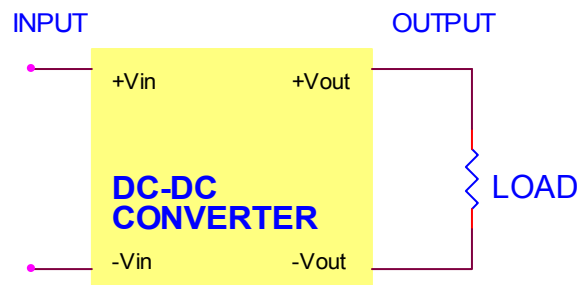
### PACKAGE "B"



## SIMPLIFIED SCHEMATIC



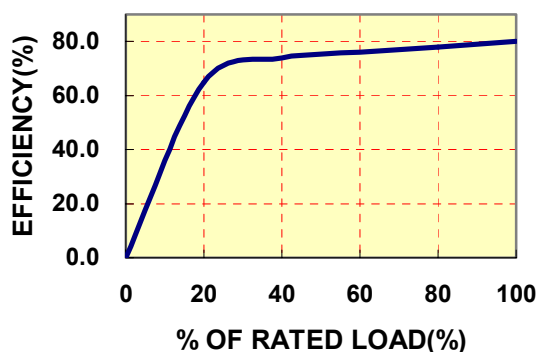
## TYPICAL APPLICATIONS



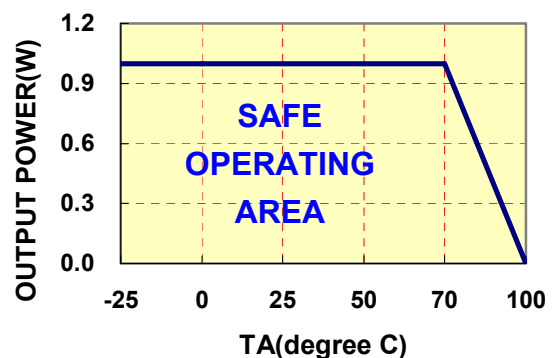
## TYPICAL PERFORMANCE CURVES

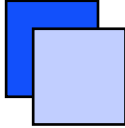
Specifications typical at  $t_a=25^{\circ}\text{C}$ , nominal input voltage, rated output current unless otherwise specified.

EFFICIENCY VS LOAD



DERATING CURVE





# DC-DC Converter UNIT

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MU Series ( 1 W UNREGULATED DC-DC CONVERTER )

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## **MU SERIES APPLICATION NOTES:**

### **EXTERNAL CAPACITANCE REQUIREMENTS:**

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

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

### **Negative Outputs:**

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

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### **FOR MORE INFORMATION CALL:**

#### ***Power Systems – The Power Solution***

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E-mail: [Info@Power-Systems.de](mailto:Info@Power-Systems.de)    Home Page: [www.Power-Systems.de](http://www.Power-Systems.de)

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