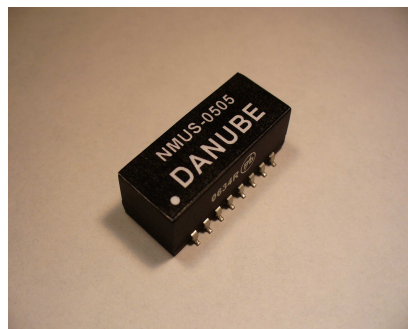


DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

FEATURES

- Up to 1W~2W unregulated output power
- 100% burned in
- High efficiency
- SMD Technology
- Low cost
- UL 94V-0 Package material
- Custom solutions available
- MTBF>2.000.000 hours
- RoHS compliant
- 2 Years warranty



OUTPUT SPECIFICATIONS

| | |
|---------------------------------|------------------|
| Voltage Set point Accuracy | +/-3% max |
| Temperature Coefficient | +/-0.03%/ °C |
| Ripple & Noise (20MHz BW) | 100mVp-p max |
| Line Regulation ¹ | +/-1.2% max |
| Load Regulation ² | +/-8% max |
| Minimum Load | 10% of Full Load |
| Short Circuit Protection | Momentary |
| Transient Response ⁴ | 200uS max |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-----------------------|---------------------|
| Operating Temperature | -40 °C to +71 °C |
| Storage Temperature | -55 °C to +125 °C |
| Humidity | 95% max |
| Cooling | Free-Air Convection |

INPUT SPECIFICATIONS

| | |
|---------------------|------------------|
| Input Voltage Range | +/-10% max |
| Input Filter | Capacitor Typ |
| Protection | Fuse Recommended |

GENERAL SPECIFICATIONS

| | |
|--------------------------------|--|
| Efficiency | 72%-78% |
| Isolation Voltage ³ | 1000 VDC min |
| Isolation Resistance | 10 ⁹ ohms min |
| Isolation Capacitance | 80pF max |
| Switching Frequency | 100 KHz min |
| MTBF ⁵ | 2,000,000 Hours |
| Weight | 3g Typ |
| Case Material | Non-Conductive Plastic |
| Case Size | 13.8mm*12.8mm*9.3mm 25.4mm*12.8mm*9.3mm |
| Conducted Emissions | EN55022 Class A |
| Radiated Emissions | EN55022 Class A |

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

[1] Line Regulation is for a 1.0% change in input Voltage.
 [2] Load Regulation is for output load current change from 20% to 100%.
 [3] For 10 seconds
 [4] 25% Step Load Change.
 [5] MIL-HDBK-217F @25 ° C , Ground Benign

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DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

●SELECTION GUIDE(1) 1W 1000Vdc ISOLATION

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ^[6] CURRENT(mA) | | EFF (%) ^[7] | ISOLATION (VDC) | PACKAGE |
|--------------|---------------------|----------------------|---------------------|----------------------------------|---------|------------------------|-----------------|---------|
| | | | | FULL LOAD | NO LOAD | | | |
| NMUS-0505-1W | 5 | 5 | 200 | 283 | 35 | 71 | 1000 | A |
| NMUS-0509-1W | 5 | 9 | 111 | 257 | 25 | 78 | 1000 | A |
| NMUS-0512-1W | 5 | 12 | 84 | 253 | 26 | 79 | 1000 | A |
| NMUS-0515-1W | 5 | 15 | 67 | 253 | 28 | 79 | 1000 | A |
| NMUS-1205-1W | 12 | 5 | 200 | 112 | 11 | 74 | 1000 | A |
| NMUS-1209-1W | 12 | 9 | 111 | 107 | 11 | 78 | 1000 | A |
| NMUS-1212-1W | 12 | 12 | 84 | 102 | 10 | 82 | 1000 | A |
| NMUS-1215-1W | 12 | 15 | 67 | 102 | 12 | 82 | 1000 | A |

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

[6] NOMINAL INPUT VOLTAGE.

[7] NOMINAL INPUT VOLTAGE, FULL LOAD.

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DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

●SELECTION GUIDE(2) 1.8W 1000Vdc ISOLATION

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ^[8] CURRENT(mA) | | EFF (%) ^[9] | ISOLATION (VDC) | PACKAGE |
|----------------|---------------------|----------------------|---------------------|----------------------------------|---------|------------------------|-----------------|---------|
| | | | | FULL LOAD | NO LOAD | | | |
| NMUS-0505-1.8W | 5 | 5 | 360 | 500 | 70 | 72 | 1000 | B |
| NMUS-0509-1.8W | 5 | 9 | 200 | 480 | 70 | 75 | 1000 | B |
| NMUS-0512-1.8W | 5 | 12 | 150 | 467 | 70 | 77 | 1000 | B |
| NMUS-0515-1.8W | 5 | 15 | 120 | 467 | 70 | 77 | 1000 | B |
| NMUS-1205-1.8W | 12 | 5 | 360 | 206 | 40 | 73 | 1000 | B |
| NMUS-1209-1.8W | 12 | 9 | 200 | 197 | 40 | 76 | 1000 | B |
| NMUS-1212-1.8W | 12 | 12 | 150 | 192 | 40 | 78 | 1000 | B |
| NMUS-1215-1.8W | 12 | 15 | 120 | 192 | 40 | 78 | 1000 | B |

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

[8] NOMINAL INPUT VOLTAGE.

[9] NOMINAL INPUT VOLTAGE, FULL LOAD.

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DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

●SELECTION GUIDE(3) 2W 1000Vdc ISOLATION

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ^[10] CURRENT(mA) | | EFF (%) ^[11] | ISOLATION (VDC) | PACKAGE |
|--------------|---------------------|----------------------|---------------------|-----------------------------------|---------|-------------------------|-----------------|---------|
| | | | | FULL LOAD | NO LOAD | | | |
| NMUS-0505-2W | 5 | 5 | 400 | 520 | 40 | 77 | 1000 | B |
| NMUS-0509-2W | 5 | 9 | 222 | 506 | 40 | 79 | 1000 | B |
| NMUS-0512-2W | 5 | 12 | 167 | 500 | 40 | 80 | 1000 | B |
| NMUS-0515-2W | 5 | 15 | 133 | 488 | 40 | 82 | 1000 | B |
| NMUS-1205-2W | 12 | 5 | 400 | 214 | 15 | 78 | 1000 | B |
| NMUS-1209-2W | 12 | 9 | 222 | 214 | 15 | 78 | 1000 | B |
| NMUS-1212-2W | 12 | 12 | 167 | 200 | 15 | 83 | 1000 | B |
| NMUS-1215-2W | 12 | 15 | 133 | 196 | 15 | 85 | 1000 | B |

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

[10] NOMINAL INPUT VOLTAGE.

[11] NOMINAL INPUT VOLTAGE, FULL LOAD.

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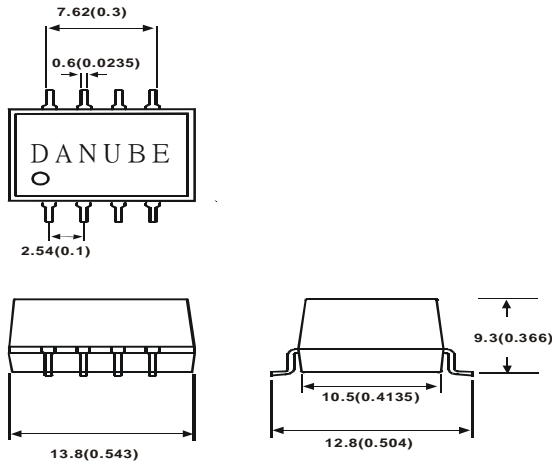
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DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

MECHANICAL DIMENSIONS

PACKAGE "A"

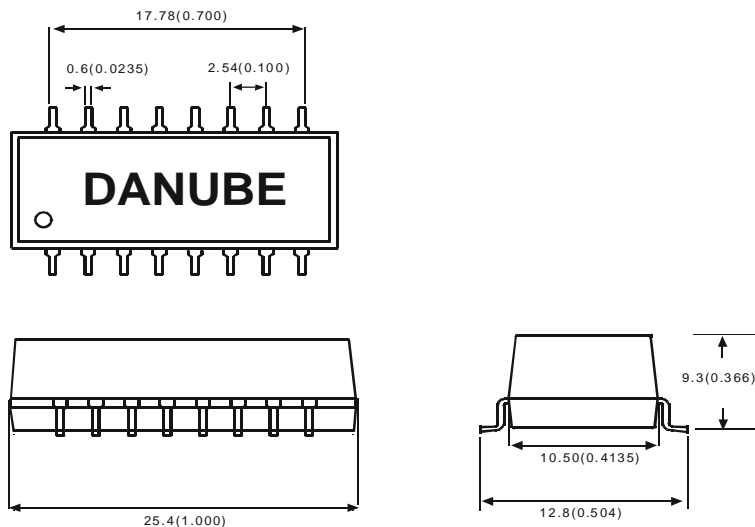


| PIN | SINGLE |
|-----|--------|
| 1 | -Vin |
| 2 | +Vin |
| 4 | -Vout |
| 5 | +Vout |

Unit:mm(inch) \pm 0.25(0.010)

NOTE: Pin Size is Tolerance $0.50\Phi \pm 0.05\text{mm}$. All Dimensions In mm (Inches). Tolerance .X or .XX= $\pm 0.5\text{mm}$

PACKAGE "B"



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

Unit:mm(inch) \pm 0.25(0.010)

NOTE: Pin Size is Tolerance $0.50\Phi \pm 0.05\text{mm}$. All Dimensions In mm (Inches). Tolerance .X or .XX= $\pm 0.5\text{mm}$

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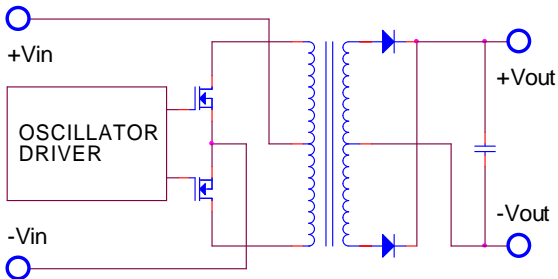
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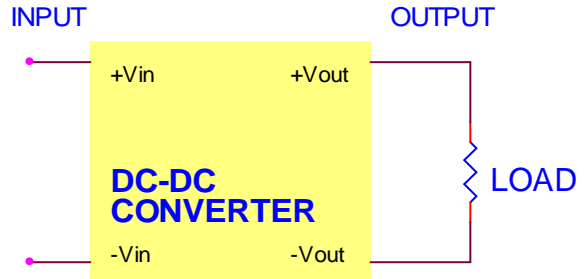
DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

●SIMPLIFIED SCHEMATIC

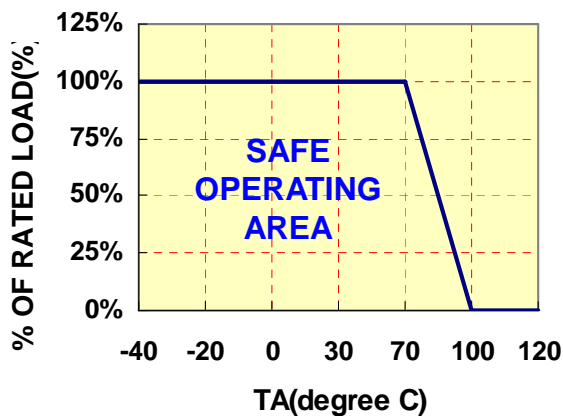


●TYPICAL APPLICATIONS

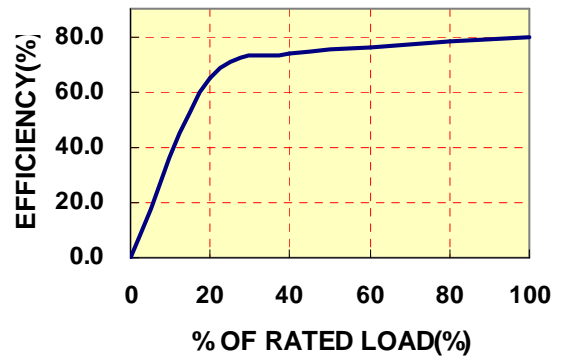


●TYPICAL PERFORMANCE CUREVES

●DERATING CURVE



●EFFICIENCY VS LOAD



●INPUT FUSE SELECTION GUIDE(1) 1W 1000Vdc ISOLATION

| 4.5-5.5V INPUT VOLTAGE(VDC) | 10.8-13.2V INPUT VOLTAGE(VDC) |
|-----------------------------|-------------------------------|
| 400mA Slow-Blow Type | 200mA Slow-Blow Type |

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

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DC-DC Converter UNIT

NMU SERIES (1~2W Unregulated)

●INPUT FUSE SELECTION GUIDE(2)(3) 1.8W~2W 1000Vdc ISOLATION

| 4.5-5.5V INPUT VOLTAGE(VDC) | 10.8-13.2V INPUT VOLTAGE(VDC) |
|-----------------------------|-------------------------------|
| 800mA Slow-Blow Type | 300mA Slow-Blow Type |
| | |

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

NMU 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.

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.

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