

# NU-C1 SERIES

**1W UNREGULATED**

**DANUBE**

## FEATURES

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



## OUTPUT SPECIFICATIONS

## INPUT SPECIFICATIONS

|                                       |                  |                                |                           |
|---------------------------------------|------------------|--------------------------------|---------------------------|
| Voltage Set-point Accuracy            | +/-2% max.       | Input Voltage Range            | +/-10% max.               |
| Temperature Coefficient               | +/-0.03%/°C      | Input Filter                   | Capacitor Type            |
| Ripple & Noise(20MHz BW) <sup>1</sup> | 100mVp-p max.    | Protection                     | Fuse Recommended          |
| Line Regulation <sup>2</sup>          | +/-1.2% max.     |                                |                           |
| Load Regulation <sup>3</sup>          | +/-8% max.       |                                |                           |
| Load Regulation <sup>4</sup>          | +/-12% max.      | Efficiency                     | 82% typ.                  |
| Minimum Load                          | 10% of Full Load | Isolation Voltage <sup>5</sup> | 1500 VDC min.             |
| Short Circuit Protection              | Momentary        | Isolation Resistance           | 10 <sup>9</sup> ohms min. |
|                                       |                  | Isolation Capacitance          | 80pF max.                 |
|                                       |                  | Switching Frequency            | 100KHz typ.               |
|                                       |                  | MTBF <sup>6</sup>              | >880,000 Hours            |
|                                       |                  | Weight                         | 1.1g typ.                 |

## GENERAL SPECIFICATIONS

## ENVIRONMENTAL SPECIFICATIONS

|                       |                     |                    |                        |
|-----------------------|---------------------|--------------------|------------------------|
| Operating Temperature | -40 °C to +85 °C    | Case Material      | Non-Conductive Plastic |
| Storage Temperature   | -55 °C to +125 °C   | Case Size          | 12.9mm*10.9mm*7.1mm    |
| Humidity              | 95% max.            | Radiated Emissions | EN55032 Class B        |
| Cooling               | Free-Air Convection |                    |                        |

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

<sup>1</sup> Measured with 1uF ceramic capacitor connect to the output pins.

<sup>2</sup> Line Regulation is for a 1.0% change in input Voltage.

<sup>3</sup> Load Regulation is for output load current change from 20% to 100%.

<sup>4</sup> Load Regulation is for output load current change from 20% to 100% when output voltage is 3.3V.

<sup>5</sup> For 10 seconds.

<sup>6</sup> MIL-HDBK-217F@25 °C, Ground Benign.

## ● SELECTION GUIDE

### 1W 1500VDC ISOLATION

| MODEL<br>NUMBER | INPUT   | OUTPUT  | OUTPUT  | INPUT <sup>7</sup> |            | EFF<br>(%) <sup>8</sup> | ISOLATION<br>(VDC) | PACKAGE |
|-----------------|---------|---------|---------|--------------------|------------|-------------------------|--------------------|---------|
|                 | VOLTAGE | VOLTAGE | CURRENT | CURRENT(mA)        |            |                         |                    |         |
|                 | (VDC)   | (VDC)   | (mA)    | FULL<br>LOAD       | NO<br>LOAD |                         |                    |         |
| NUS-03.303.3C1  | 3.3     | 3.3     | 300     | 406                | 40         | 74                      | 1500               | C       |
| NUS-03.305C1    | 3.3     | 5       | 200     | 404                | 40         | 75                      | 1500               | C       |
| NUS-0503.3C1    | 5       | 3.3     | 300     | 267                | 35         | 75                      | 1500               | C       |
| NUS-0505C1      | 5       | 5       | 200     | 260                | 35         | 77                      | 1500               | C       |
| NUS-0509C1      | 5       | 9       | 111     | 260                | 35         | 77                      | 1500               | C       |
| NUS-0512C1      | 5       | 12      | 84      | 257                | 25         | 78                      | 1500               | C       |
| NUS-0515C1      | 5       | 15      | 67      | 253                | 28         | 79                      | 1500               | C       |
| NUS-0905C1      | 9       | 5       | 200     | 149                | 22         | 75                      | 1500               | C       |
| NUS-1203.3C1    | 12      | 3.3     | 300     | 111                | 14         | 75                      | 1500               | C       |
| NUS-1205C1      | 12      | 5       | 200     | 107                | 14         | 78                      | 1500               | C       |
| NUS-1209C1      | 12      | 9       | 111     | 107                | 14         | 78                      | 1500               | C       |
| NUS-1212C1      | 12      | 12      | 84      | 103                | 10         | 81                      | 1500               | C       |
| NUS-1215C1      | 12      | 15      | 67      | 102                | 12         | 82                      | 1500               | C       |
| NUS-2405C1      | 24      | 5       | 200     | 55                 | 11         | 76                      | 1500               | C       |
| NUS-2409C1      | 24      | 9       | 111     | 55                 | 11         | 76                      | 1500               | C       |
| NUS-2412C1      | 24      | 12      | 84      | 55                 | 11         | 76                      | 1500               | C       |
| NUS-2415C1      | 24      | 15      | 67      | 55                 | 11         | 76                      | 1500               | C       |

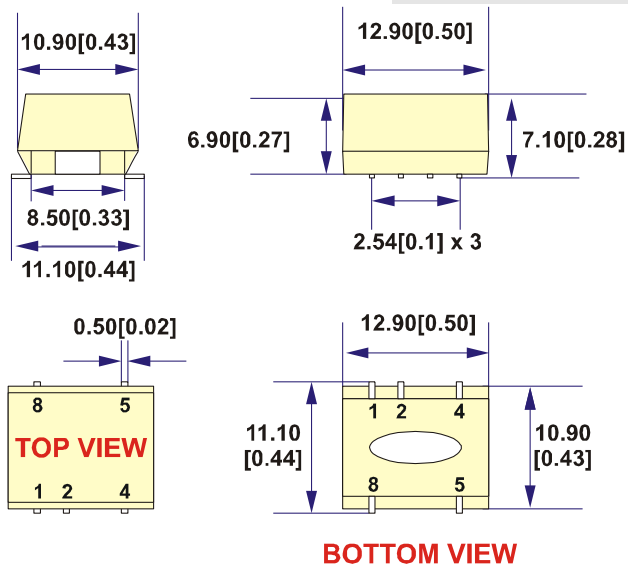
*Note: Other input to output voltages may be available. Please contact factory.*

<sup>7</sup> NOMINAL INPUT VOLTAGE.

<sup>8</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

## ● MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

### PACKAGE "C"



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

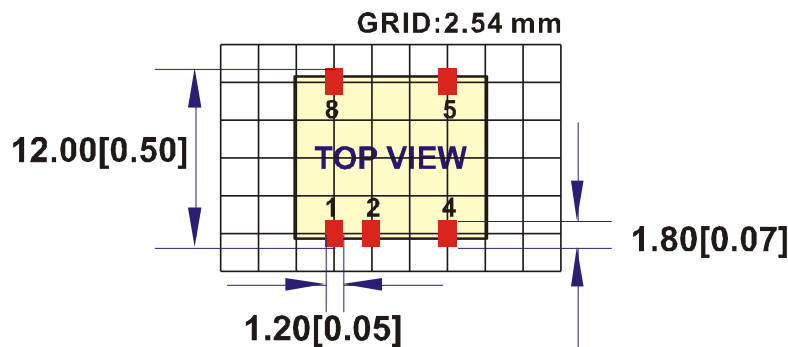
NOTE : All Dimensions are in mm [inches]

1. Pin Size is 0.50x0.30mm[0.02x0.01"]

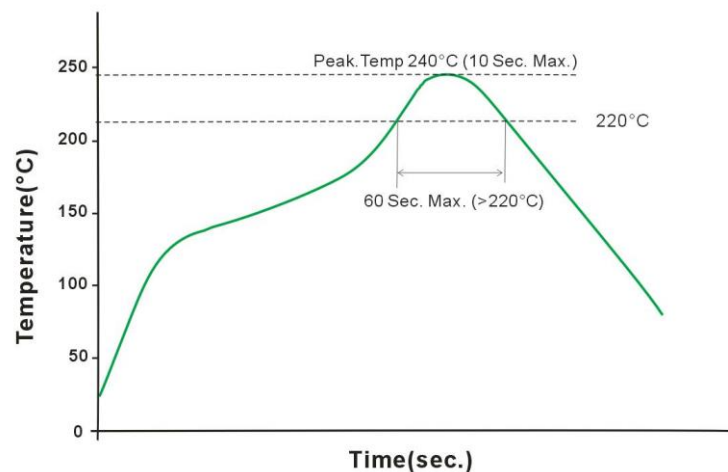
2. Pin is Tolerance .XX= ±0.07mm

3. Tolerance .X or .XX= ±0.5mm

**All dimensions are in mm[inches]**

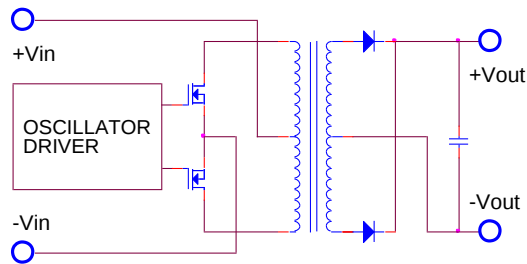


## ● REFLOW SOLDERING CURVE

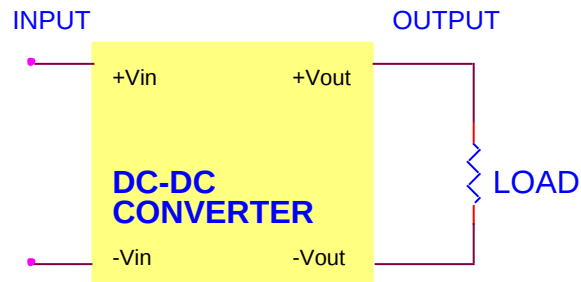


Remark: The curve applies only to the hot air reflow soldering.

## ● SIMPLIFIED SCHEMATIC



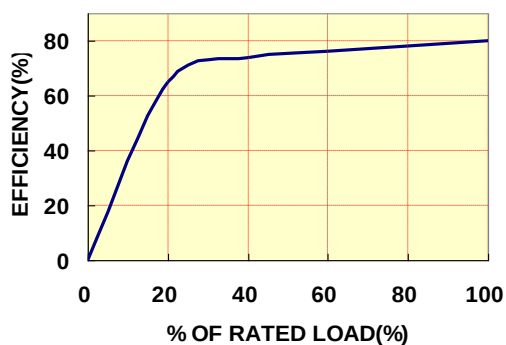
## ● TYPICAL APPLICATIONS



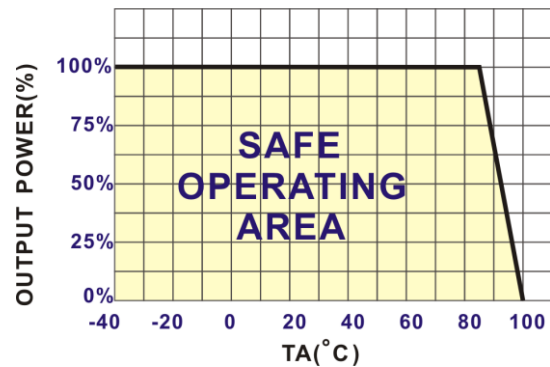
## ● TYPICAL PERFORMANCE CURVES

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

**OUTPUT LOAD VS EFFICIENCY**



**TEMPERATURE DERATING**



## ● INPUT FUSE SELECTION GUIDE 1W 1500VDC ISOLATION

| 4.5-5.5V<br>INPUT VOLTAGE(VDC) | 10.8-13.2V<br>INPUT VOLTAGE(VDC) | 21.6-26.4V<br>INPUT VOLTAGE(VDC) |
|--------------------------------|----------------------------------|----------------------------------|
| 750mA Slow-Blow Type           | 300mA Slow-Blow Type             | 150mA Slow-Blow Type             |

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

### NU-C1 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 EN55032 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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## FOR MORE INFORMATION CALL:

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