

# NU-E1K 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>888,000 HOURS
- RoHS COMPLIANT
- 3 YEARS WARRANTY



## OUTPUT SPECIFICATIONS

Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.03%/°C
Ripple & Noise(20MHz BW) <sup>1</sup>	100mVp-p max.
Line Regulation <sup>2</sup>	+/-1.2% max.
Load Regulation <sup>3</sup>	+/-8% max.
Minimum Load	10% of Full Load
Short Circuit Protection	Momentary
S-Suffix	Continuous

## ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 °C to +85 °C
S-Suffix	-40 °C to +100 °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 Type
Protection	Fuse Recommended

## GENERAL SPECIFICATIONS

Efficiency	72%-82%
Isolation Voltage <sup>4</sup>	3000 VDC min.
Isolation Resistance	10 <sup>9</sup> ohms min.
Isolation Capacitance	80pF max.
Switching Frequency	100KHz max.
MTBF <sup>5</sup>	>880,000 Hours
Weight	1.2g typ.
Case Material	Non-Conductive Plastic
Case Size	15.24mm*11.1mm*7.1mm
Radiated Emissions	EN55032 Class B

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> For 3 seconds.

<sup>5</sup> MIL-HDBK-217F@25 °C, Ground Benign.

● **SELECTION GUIDE**  
**1W 3000VDC ISOLATION**

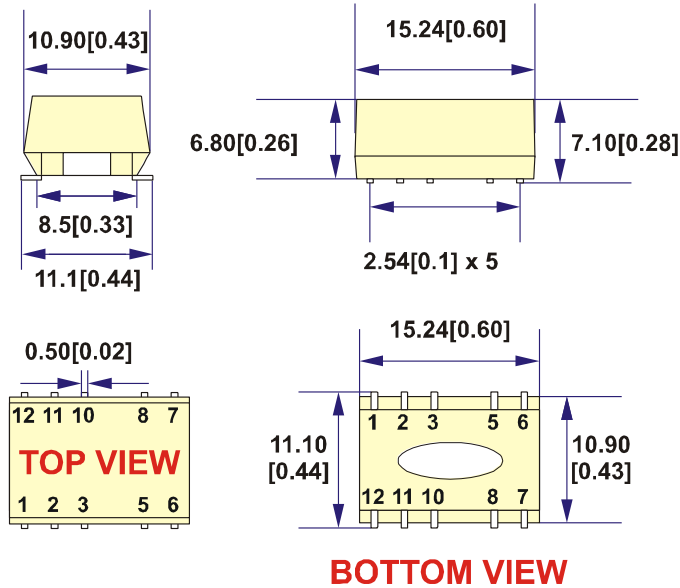
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>6</sup> CURRENT(mA)		EFF (%) <sup>7</sup>	ISOLATION (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
				NUS-03.303.3E1K(S)	3.3			
NUS-0503.3E1K(S)	5	3.3	300	267	30	75	3000	E
NUS-0505E1K(S)	5	5	200	260	30	77	3000	E
NUS-0512E1K(S)	5	12	84	257	30	78	3000	E
NUS-0515E1K(S)	5	15	67	253	30	79	3000	E
NUD-0505E1K(S)	5	+/-5	+/-100	260	30	77	3000	E
NUD-0512E1K(S)	5	+/-12	+/-42	257	30	78	3000	E
NUD-0515E1K(S)	5	+/-15	+/-34	253	30	79	3000	E
NUS-1205E1K(S)	12	5	200	104	12	80	3000	E
NUS-1212E1K(S)	12	12	84	103	12	81	3000	E
NUS-1215E1K(S)	12	15	67	102	12	82	3000	E
NUD-1205E1K(S)	12	+/-5	+/-100	104	12	80	3000	E
NUD-1212E1K(S)	12	+/-12	+/-42	103	12	81	3000	E
NUD-1215E1K(S)	12	+/-15	+/-34	102	12	82	3000	E
NUS-2405E1K(S)	24	5	200	55	10	76	3000	E
NUS-2412E1K(S)	24	12	84	55	10	76	3000	E
NUS-2415E1K(S)	24	15	67	55	10	76	3000	E
NUD-2405E1K(S)	24	+/-5	+/-100	55	10	76	3000	E
NUD-2412E1K(S)	24	+/-12	+/-42	55	10	76	3000	E
NUD-2415E1K(S)	24	+/-15	+/-34	55	10	76	3000	E

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

<sup>6</sup> NOMINAL INPUT VOLTAGE.

<sup>7</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS**  
**PACKAGE "E"**



PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	NC	NC
5	-Vout	Com
6	NC	-Vout
7	NC	NC
8	+Vout	+Vout
10	NC	NC
11	NC	NC
12	NC	NC

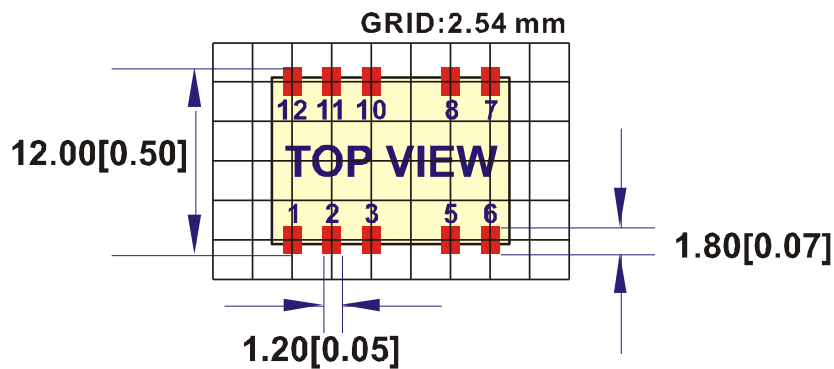
NOTE : All Dimensions are in mm [inches]

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

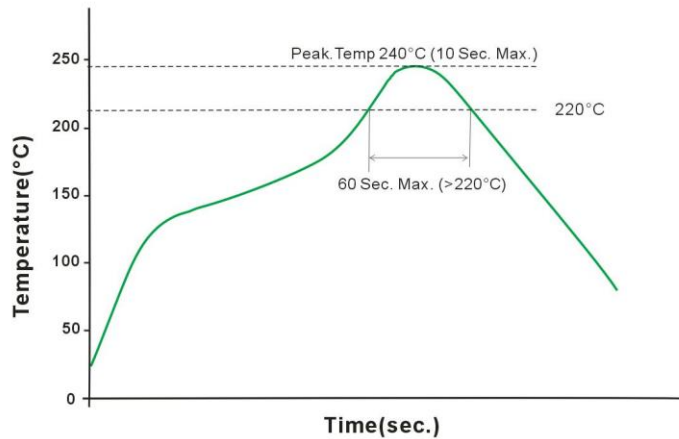
2. Pin is Tolerance .XX= ±0.07mm

3. Tolerance .X or .XX= ±0.5mm

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



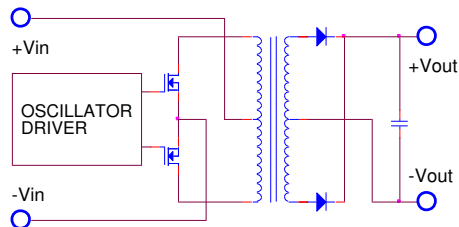
## ● REFLOW SOLDERING CURVE



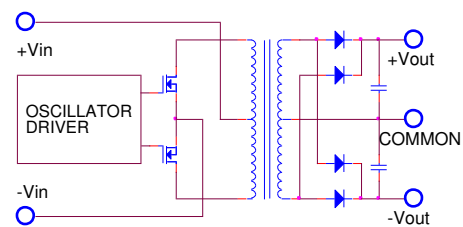
Remark: The curve applies only to the hot air reflow soldering.

## ● SIMPLIFIED SCHEMATIC

### SINGLE OUTPUT

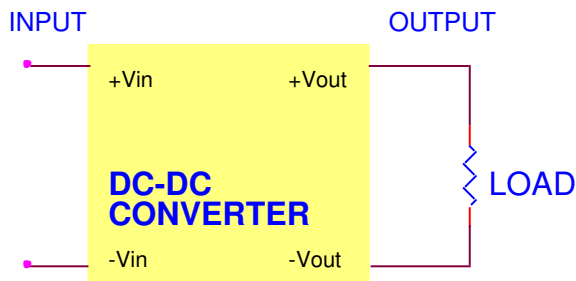


### DUAL OUTPUT

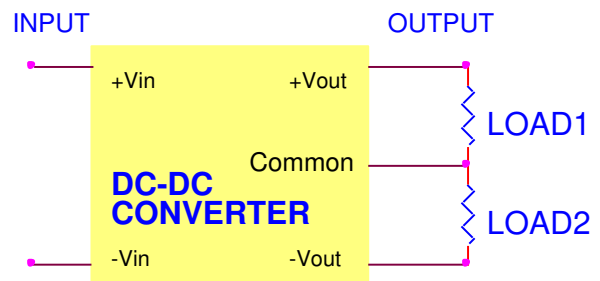


## ● TYPICAL APPLICATIONS

### SINGLE OUTPUT



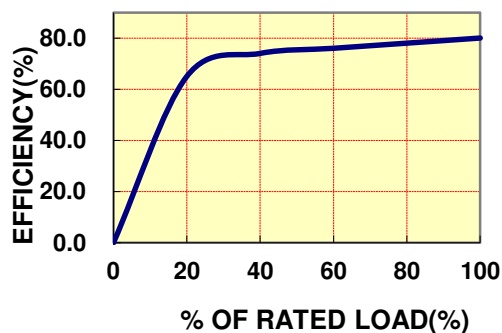
### DUAL OUTPUT



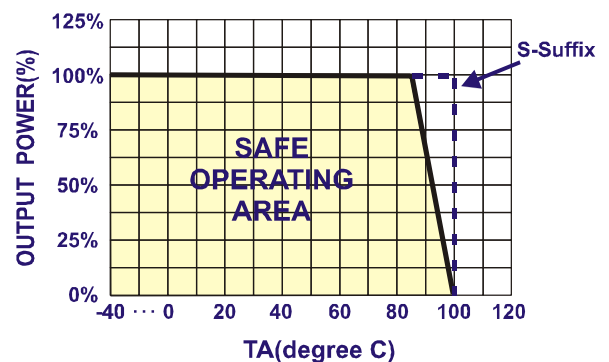
## ● TYPICAL PERFORMANCE CURVES

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 3000VDC ISOLATION

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

The diagram shows a yellow rectangular block labeled 'DC-DC CONVERTER'. On the left side, there are two terminals: '+Vin' (top) and '-Vin' (bottom). On the right side, there are two terminals: '+Vout' (top) and '-Vout' (bottom). A purple line representing the input wire enters from the left, passes through a component labeled 'Fuse', and then connects to the '+Vin' terminal. Another purple line representing the output wire exits from the '+Vout' terminal and is labeled 'OUTPUT'. The '-Vin' and '-Vout' terminals are also connected to purple lines.

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

### NU-E1K SERIES APPLICATION NOTES:

#### EXTERNAL CAPACITANCE REQUIREMENTS:

Output filtering is required for operation. A minimum of 10 $\mu$ F is needed. Output capacitance may be increased for additional filtering, not to exceed 220 $\mu$ 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 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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Home Page

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