

# 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

## 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 typ.
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

## 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

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**

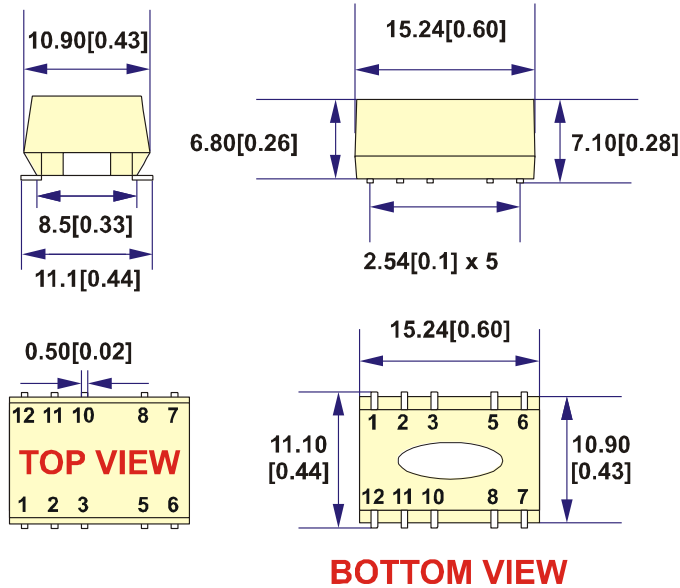
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>6</sup> CURRENT(mA)		EFF (%) <sup>7</sup>	ISOLATION (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
				NUS-0505E1K(S)	5			
NUS-0512E1K(S)	5	12	84	257	28	78	3000	E
NUS-0515E1K(S)	5	15	67	253	28	79	3000	E
NUD-0505E1K(S)	5	+/-5	+/-100	260	35	77	3000	E
NUD-0512E1K(S)	5	+/-12	+/-42	257	28	78	3000	E
NUD-0515E1K(S)	5	+/-15	+/-34	253	28	79	3000	E
NUS-1205E1K(S)	12	5	200	107	14	78	3000	E
NUS-1212E1K(S)	12	12	84	102	12	82	3000	E
NUS-1215E1K(S)	12	15	67	102	12	82	3000	E
NUD-1205E1K(S)	12	+/-5	+/-100	107	14	78	3000	E
NUD-1212E1K(S)	12	+/-12	+/-42	102	12	82	3000	E
NUD-1215E1K(S)	12	+/-15	+/-34	102	12	82	3000	E
NUS-2405E1K(S)	24	5	200	54	11	76	3000	E
NUS-2412E1K(S)	24	12	84	54	11	76	3000	E
NUS-2415E1K(S)	24	15	67	54	11	76	3000	E
NUD-2405E1K(S)	24	+/-5	+/-100	54	11	76	3000	E
NUD-2412E1K(S)	24	+/-12	+/-42	54	11	76	3000	E
NUD-2415E1K(S)	24	+/-15	+/-34	54	11	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

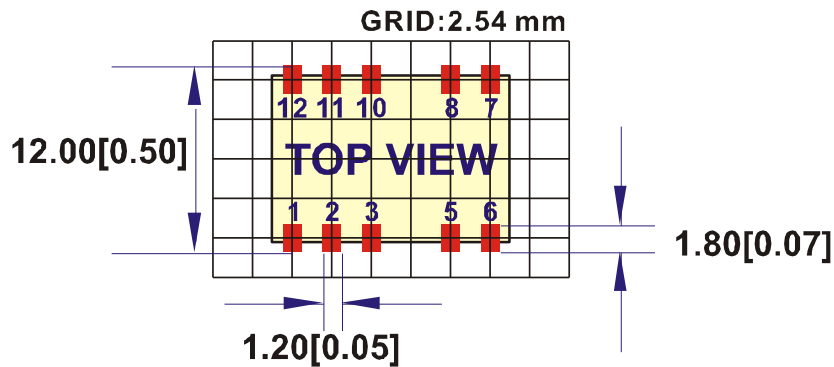
NOTE : All Dimensions are in mm [inches]

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

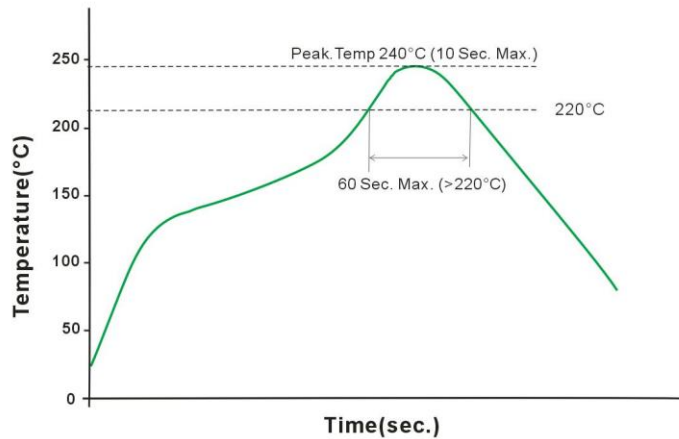
2. Pin is Tolerance .XX= ±0.07mm

3. Tolerance .X or .XX= ±0.5mm

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



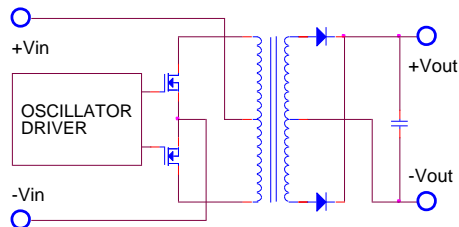
## ● REFLOW SOLDERING CURVE



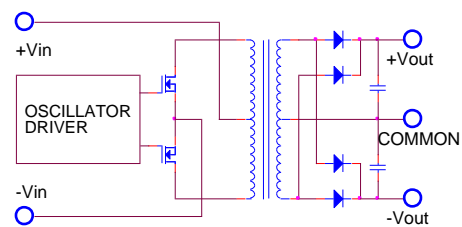
Remark: The curve applies only to the hot air reflow soldering.

## ● SIMPLIFIED SCHEMATIC

### SINGLE OUTPUT

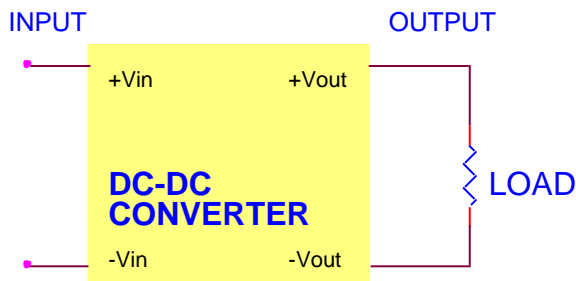


### DUAL OUTPUT

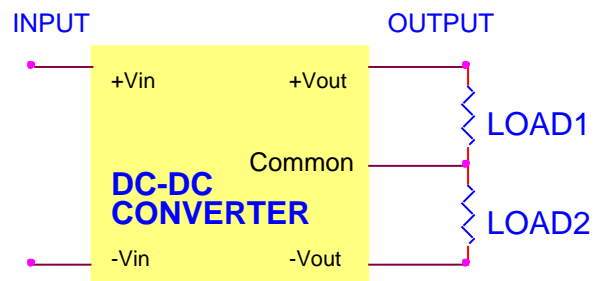


## ● TYPICAL APPLICATIONS

### SINGLE OUTPUT



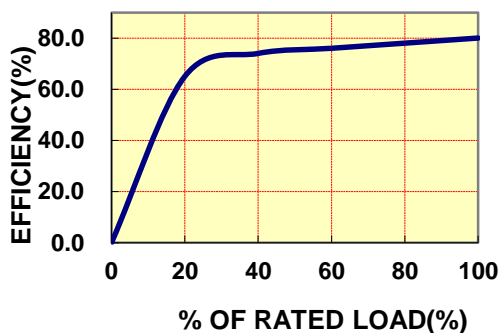
### DUAL OUTPUT



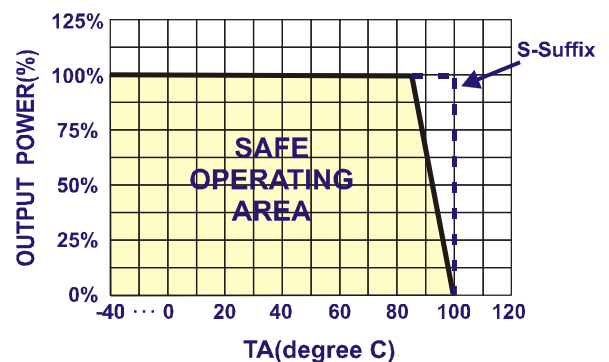
## ● TYPICAL PERFORMANCE CURVES

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 a 'Fuse' is connected between the 'INPUT' and the '+Vin' terminal. Another purple line labeled 'OUTPUT' is connected to the '+Vout' terminal. The ground connections are indicated by purple lines extending from the '-Vin' and '-Vout' terminals.

**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 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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### FOR MORE INFORMATION CALL:

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Home Page

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