

NU-E2K SERIES

2W UNREGULATED

DANUBE

FEATURES

- UP TO 2W 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

Voltage Set-point Accuracy	+/-2% max.
Temperature Coefficient	+/-0.03%/°C
Ripple & Noise(20MHz BW) ¹	150mVp-p max.
Line Regulation ²	+/-1.2% max.
Load Regulation ³	+/-8% max.
Minimum Load	10% of Full Load
Short Circuit Protection	Momentary
S-Suffix	Continuous

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 °C to +85 °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	83% max.
Isolation Voltage ⁴	3000 VDC min.
Isolation Resistance	10 ⁹ ohms min.
Isolation Capacitance	80pF max.
Switching Frequency	100KHz max.
MTBF ⁵	>880,000 Hours
Weight	1.2g typ.
Case Material	Non-Conductive Plastic
Case Size	15.24mm*11.1mm*7.1mm
Radiated Emissions	EN55032 Class A

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

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² Line Regulation is for a 1.0% change in input Voltage.

³ Load Regulation is for output load current change from 20% to 100%.

⁴ For 3 seconds.

⁵ MIL-HDBK-217F@25 °C, Ground Benign.

● SELECTION GUIDE

2W 3000VDC 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			
NUS-0505E2K(S)	5	5	400	513	60	78	3000	E
NUS-0512E2K(S)	5	12	167	500	60	80	3000	E
NUS-0515E2K(S)	5	15	133	494	60	81	3000	E
NUD-0505E2K(S)	5	+/-5	+/-200	513	60	78	3000	E
NUD-0512E2K(S)	5	+/-12	+/-84	500	60	80	3000	E
NUD-0515E2K(S)	5	+/-15	+/-67	494	60	81	3000	E
NUS-1205E2K(S)	12	5	400	208	30	80	3000	E
NUS-1212E2K(S)	12	12	167	206	30	81	3000	E
NUS-1215E2K(S)	12	15	133	200	30	83	3000	E
NUD-1205E2K(S)	12	+/-5	+/-200	208	30	80	3000	E
NUD-1212E2K(S)	12	+/-12	+/-84	206	30	81	3000	E
NUD-1215E2K(S)	12	+/-15	+/-67	200	30	83	3000	E
NUS-2405E2K(S)	24	5	400	107	15	78	3000	E
NUS-2412E2K(S)	24	12	167	105	15	79	3000	E
NUS-2415E2K(S)	24	15	133	104	15	80	3000	E
NUD-2405E2K(S)	24	+/-5	+/-200	107	15	78	3000	E
NUD-2412E2K(S)	24	+/-12	+/-84	105	15	79	3000	E
NUD-2415E2K(S)	24	+/-15	+/-67	104	15	80	3000	E

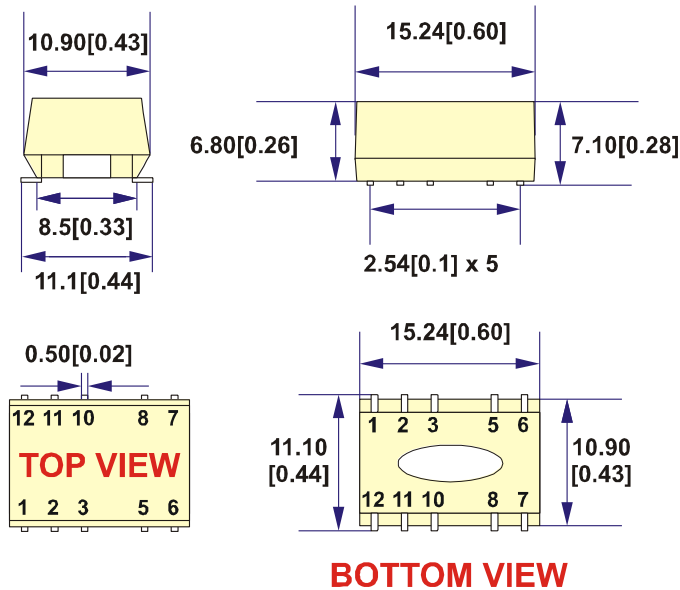
Note: Other input to output voltages may be available. Please contact factory.

⁶ NOMINAL INPUT VOLTAGE.

⁷ 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

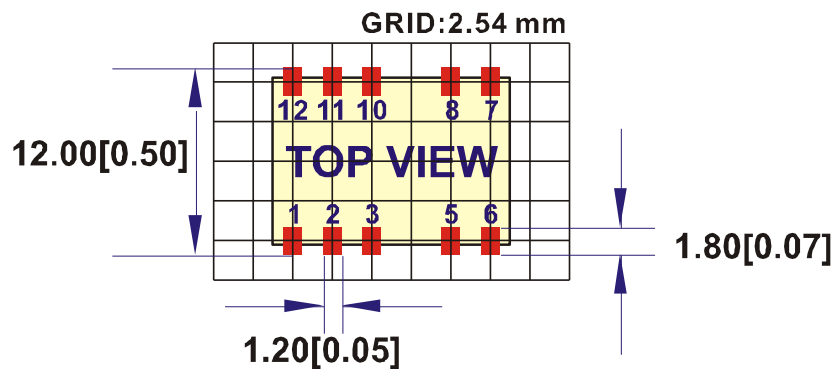
NOTE : All Dimensions are in mm [inches]

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

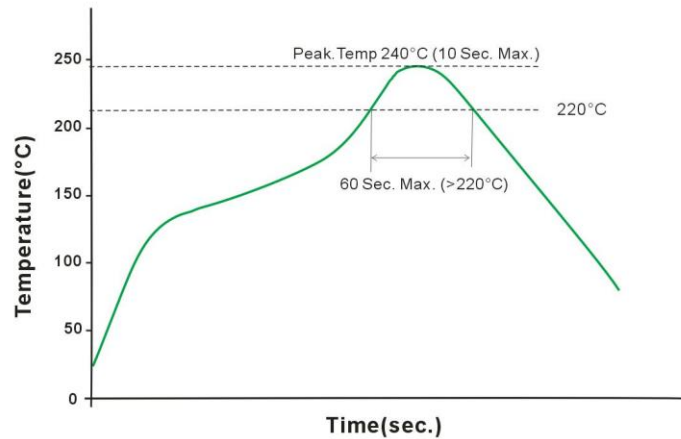
2. Pin is Tolerance .XX= ±0.07mm

3. Tolerance .X or .XX= ±0.5mm

All dimensions are in mm[inches]



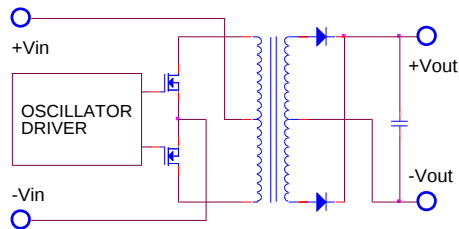
● REFLOW SOLDERING CURVE



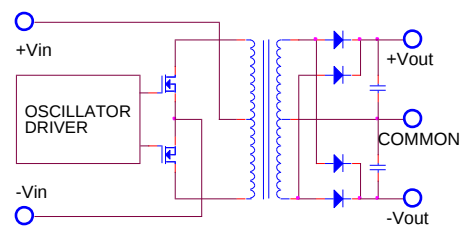
Remark: The curve applies only to the hot air reflow soldering.

● SIMPLIFIED SCHEMATIC

SINGLE OUTPUT

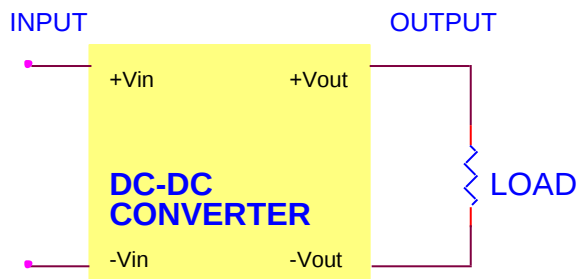


DUAL OUTPUT

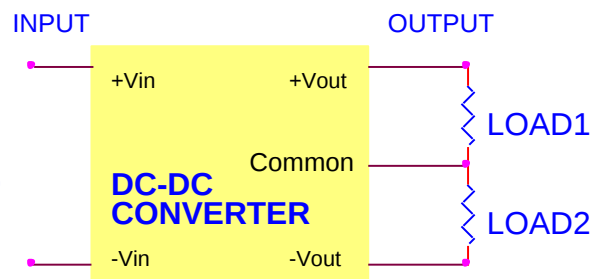


● TYPICAL APPLICATIONS

SINGLE OUTPUT



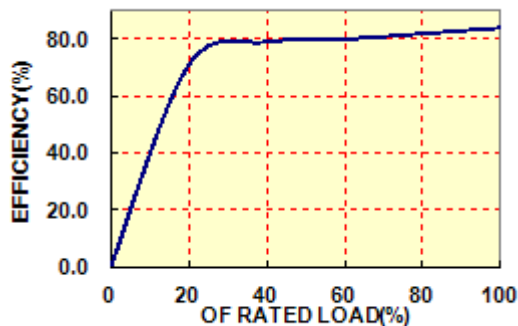
DUAL OUTPUT



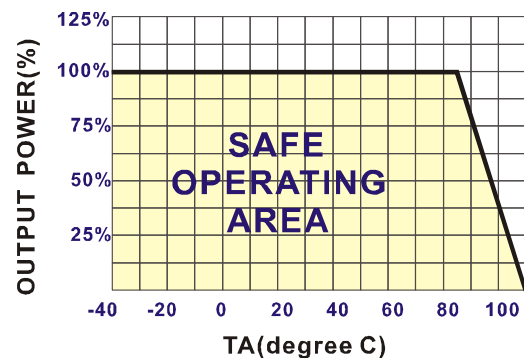
● TYPICAL PERFORMANCE CURVES

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

OUTPUT LOAD VS EFFICIENCY



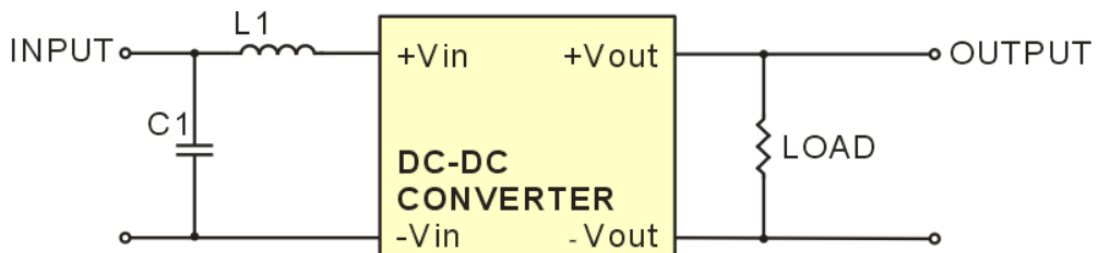
TEMPERATURE DERATING



● RECOMMENDED FILTER FOR EN55032 CLASS B

The components used in the above figure, together with the manufacturer's part numbers for these components, are as follows:

	C1 (MLCC)	L1 (SMD Inductor)
NU*-05****	10uF	10uH
NU*-12****	10uF	22uH
NU*-24****	10uF	47uH



● INPUT FUSE SELECTION GUIDE 2W 3000VDC ISOLATION

4.5-5.5V INPUT VOLTAGE(VDC)	10.8-13.2V INPUT VOLTAGE(VDC)	21.6-26.4V INPUT VOLTAGE(VDC)
800mA Slow-Blow Type	300mA Slow-Blow Type	170mA Slow-Blow Type

The diagram shows a DC-DC converter block with terminals +Vin, -Vin, +Vout, and -Vout. A fuse is connected in series with the +Vin terminal. The input is labeled 'INPUT' and the output is labeled 'OUTPUT'.

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

NU-E2K 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.

FOR MORE INFORMATION CALL:

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