NU-C1N SERIES

1W DC-DC Unregulated Converter

FEATURES

- SMD technology
- Operating temperature range -40°C ~ +100°C
- Low no load input current
- Continuous short circuit protection
- Isolation voltage 1500VDC or 3000VDC
- Efficiency up to 88%
- 3 years warranty

APPLICATIONS

- Automation equipment
- Power supplies
- Industrial PC
- Data communications
- Distributed power system

DESCRIPTION

NU-N series is specially designed for isolating voltage application in a distributed power supply system such as low frequency analog circuits, pure digital circuits, data and relay circuits. It features high efficiency, isolated voltage of 3000VDC, extremely low no load current, continuous short circuit protection and wide working temperature range from -40~ +100°C.

MODEL ENCODING

NU	S	-	05	05	C	1	K	N
Series Name	Output Quantity		Input Voltage	Output Voltage	Package	Wattage	Function	New Series
	S : Single	3.3	: 2.97~3.63V	03.3 : 3.3V			Blank : 1500VDC Isolation	
		05	: 4.5~5.5V	05 : 5V			K : 3000VDC Isolation	
		12	: 10.8~13.2V	09 : 9V				
		15	: 13.5~16.5V	12 : 12V				
		24	: 21.6~26.4V	15 : 15V				
				24 : 24V				

■ MODEL SELECTION TABLE(1W OUTPUT POWER)

MODEL NUMBER	INPUT				OUTPUT		EFF. (%)	CAPACITOR LOAD (Max.)
	VOLTAGE (VDC)		CURRENT (mA)		VOLTAGE (VDC)	CURRENT (mA)		
	NOMINAL	RANGE	NO LOAD	FULL LOAD				
NUS-3.303.3C1(K)N	3.3	2.97~3.63	10	379	3.3	300	80	470uF
NUS-3.305C1(K)N	3.3	2.97~3.63	10	379	5	200	80	470uF
NUS-0503.3C1(K)N	5	4.5~5.5	6	250	3.3	300	80	470uF
NUS-0505C1(K)N	5	4.5~5.5	6	235	5	200	85	470uF
NUS-0509C1(K)N	5	4.5~5.5	7	235	9	111	85	220uF
NUS-0512C1(K)N	5	4.5~5.5	9	235	12	84	85	220uF
NUS-0515C1(K)N	5	4.5~5.5	12	233	15	67	86	220uF
NUS-0524C1(K)N	5	4.5~5.5	16	235	24	42	86	100uF
NUS-1203.3C1(K)N	12	10.8-13.2	6	104	3.3	300	80	470uF
NUS-1205C1(K)N	12	10.8-13.2	6	96	5	200	87	470uF
NUS-1209C1(K)N	12	10.8-13.2	6	96	9	111	87	220uF
NUS-1212C1(K)N	12	10.8-13.2	6	96	12	84	87	220uF
NUS-1215C1(K)N	12	10.8-13.2	6	95	15	67	88	220uF
NUS-1224C1(K)N	12	10.8-13.2	7	95	24	42	88	100uF
NUS-1503.3C1(K)N	15	13.5-16.5	6	84	3.3	300	80	470uF
NUS-1505C1(K)N	15	13.5-16.5	6	79	5	200	85	470uF
NUS-1509C1(K)N	15	13.5-16.5	6	79	9	111	85	220uF
NUS-1512C1(K)N	15	13.5-16.5	6	79	12	84	85	220uF
NUS-1515C1(K)N	15	13.5-16.5	6	79	15	67	85	220uF
NUS-1524C1(K)N	15	13.5-16.5	8	79	24	42	85	100uF
NUS-2403.3C1(K)N	24	21.6-26.4	5	52	3.3	300	80	470uF
NUS-2405C1(K)N	24	21.6-26.4	5	49	5	200	85	470uF
NUS-2409C1(K)N	24	21.6-26.4	5	49	9	111	85	220uF
NUS-2412C1(K)N	24	21.6-26.4	5	49	12	84	85	220uF
NUS-2415C1(K)N	24	21.6-26.4	5	49	15	67	85	220uF
NUS-2424C1(K)N	24	21.6-26.4	6	49	24	42	85	100uF

Note: Efficiency and input current are measured at nominal input voltage and full load.

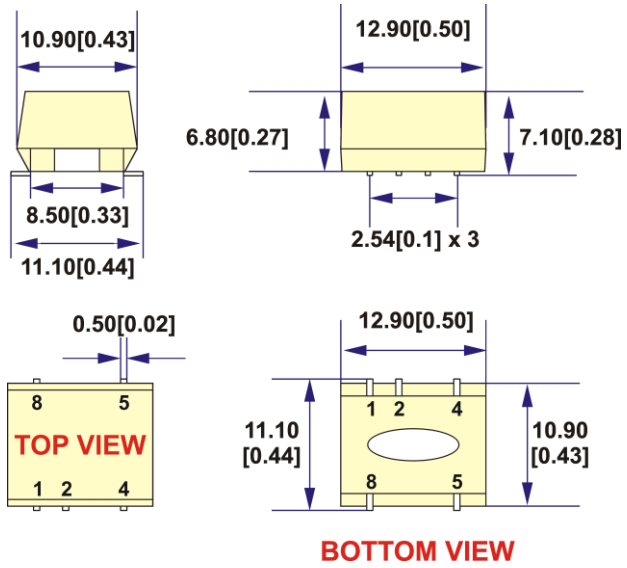
Other input to output voltages may be available. Please contact factory.

■ SPECIFICATION

INPUT	Voltage Range	3.3 : 2.97~3.63V ; 5 : 4.5~5.5V ; 12 : 10.8~13.2V ; 15 : 13.5~16.5V 24 : 21.6~26.4V		
	Surge Voltage(100ms max.)	3.3Vin models : 9Vdc ; 5Vin models : 9Vdc ; 12Vin models : 18Vdc ; 15Vin models : 20Vdc ; 24Vin models : 30Vdc		
	Filter	Internal capacitor		
	Protection	Fuse recommended (see page 6)		
OUTPUT	Voltage Accuracy	±3% max.		
	Rated Power	1W		
	Ripple & Noise[1]	75mVp-p max.		
	Line Regulation[2]	±1.2% (other output) , (for 1% input variation) ±1.5% (3.3Vdc output) , (for 1% input variation)		
	Load Regulation[3]	8% (other output) 12% (3.3Vdc output)		
	Switching Frequency	200KHz min.		
	Minimum Load	10% of full load		
PROTECTION	Short Circuit	Continuous , automatic recovery		
ENVIRONMENT	Cooling	Free-air convection		
	Working Temperature	-40~ +100°C (refer to “Derating Curve”)		
	Case Temperature	+115°C max.		
	Working Humidity	5% ~ 95% RH non-condensing		
	Storage Temp., Humidity	-55 ~ +125°C, 10 ~ 95% RH non-condensing		
	Temperature Coefficient	±0.05% / °C		
	Soldering Temperature	1.5mm from case of 3~5 sec./265°C(max.)		
	Vibration	10~500Hz, 2G 10min./1cycle, period for 60 min. each along X, Y, Z axes		
SAFETY & EMC	Isolation Voltage[4]	I/P-O/P : 1500VDC or 3000VDC		
	Isolation Resistance	I/P-O/P : 1000M Ohms / 500VDC / 25°C / 70% RH		
	Isolation Capacitance	50pF typ.		
	EMC Emission	**Parameter**	**Standard**	**Test Level / Note**
		Conducted	EN55032(CISPR32)	N/A
		Radiated	EN55032(CISPR32)	Class B
	EMC Immunity	**Parameter**	**Standard**	**Test Level / Note**
		ESD	BS IEC 61000-4-2	Air 8KV
		Radiated Susceptibility	BS IEC 61000-4-3	3V/m
		EFT/Burst	BS IEC 61000-4-4	0.5KV/5KHz
		Surge	BS IEC 61000-4-5	0.5KV/Line-Line
		Conducted	BS IEC 61000-4-6	3Vrms
		Magnetic field immunity	BS IEC 61000-4-8	1A/m
OTHERS	MTBF[5]	>4,000,000Hours		
	Weight	1.1g typ.		
	Dimension(L*W*H)	12.9mm*10.9mm*7.1mm		
	Case Material	Non-conductive plastic		
NOTE	**[1] Ripple & noise are measured at 20MHz with 1uF ceramic capacitor connect to the output pins.** **[2] High line to low line at rated load.** **[3] Load regulation is for output load current change from 10% to 100%.** **[4] 1500VDC for 60 seconds, 3000VDC for 10 seconds.** **[5] MIL-HDBK-217F @25 °C, Ground Benign.** ***All specifications are measured at Ta=25°C, humidity < 75%, nominal input voltage, and rated output load unless otherwise specified.**			

MECHANICAL SPECIFICATION

PACKAGE "C"



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

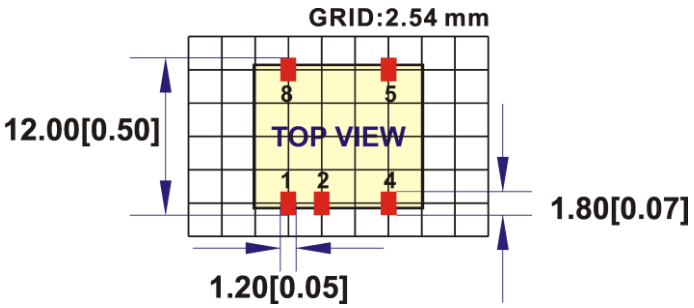
NC : No connection

All dimensions are in mm[Inches]

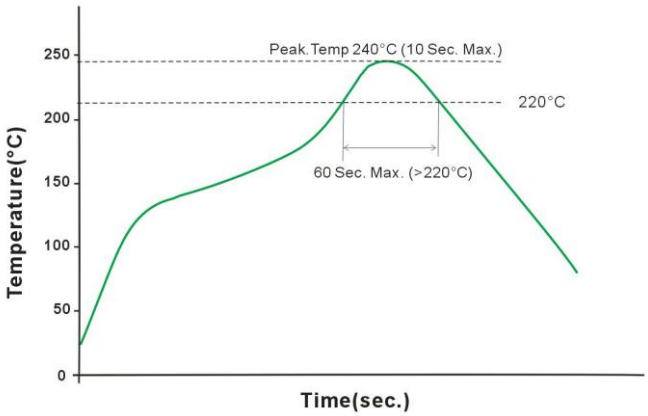
Pin size is 0.50x0.30mm[0.02"x0.01"]

Pin tolerance .XX= ±0.07mm

Tolerance .X or .XX= ±0.5mm

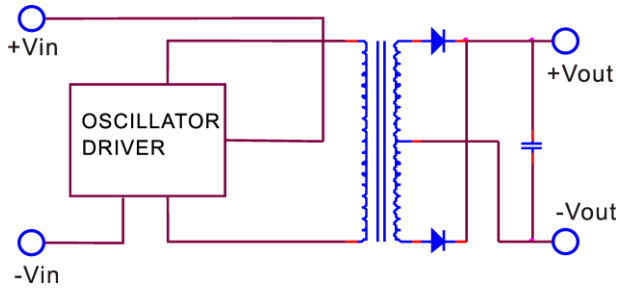


REFLOW SOLDERING CURVE

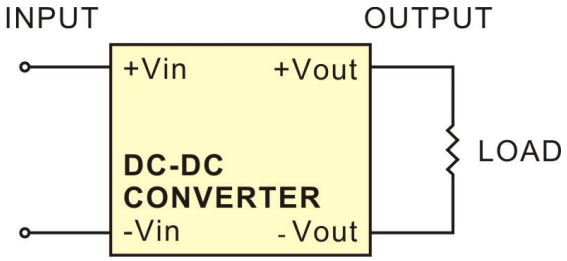


Remark:The curve applies only to the hot air reflow soldering,Single-sided SMT process only. This product is limited to one reflow cycle on the TOP side.

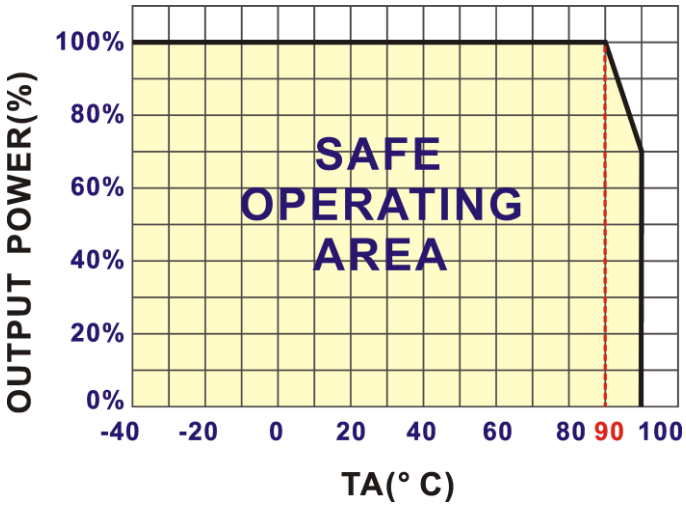
SIMPLIFIED SCHEMATIC



TYPICAL APPLICATIONS



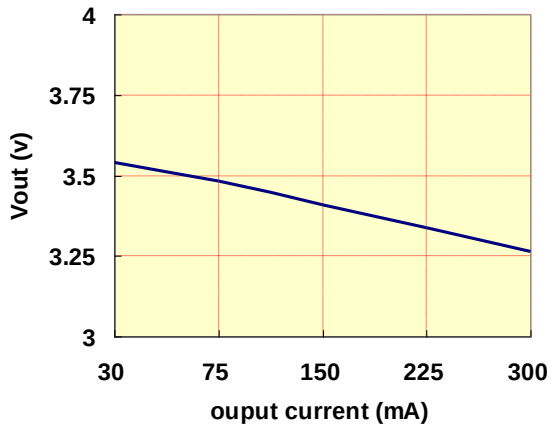
DERATING CURVE



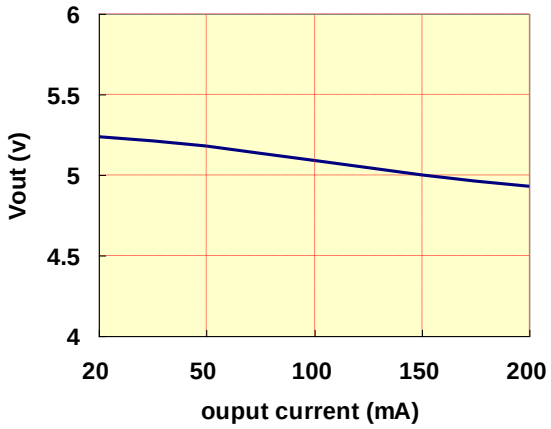
■ TYPICAL PERFORMANCE CURVES

Specifications typical at TA=25 °C,nominal input voltage , rated output current unless otherwise specified.

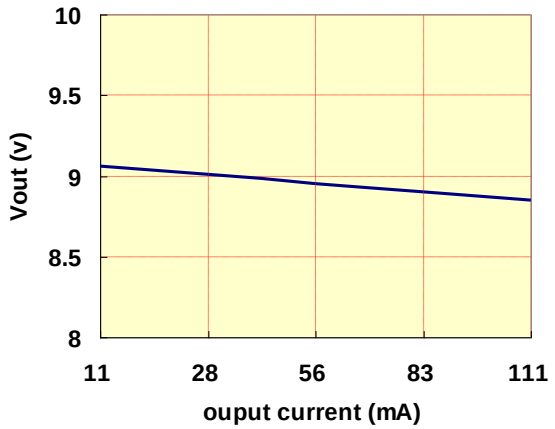
VOUT VS LOAD(3.3Vout Models)



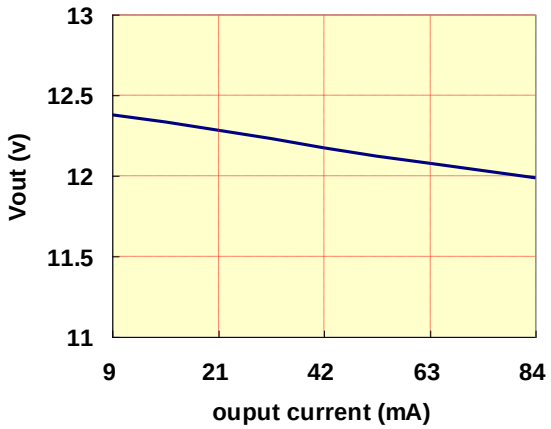
VOUT VS LOAD(5Vout Models)



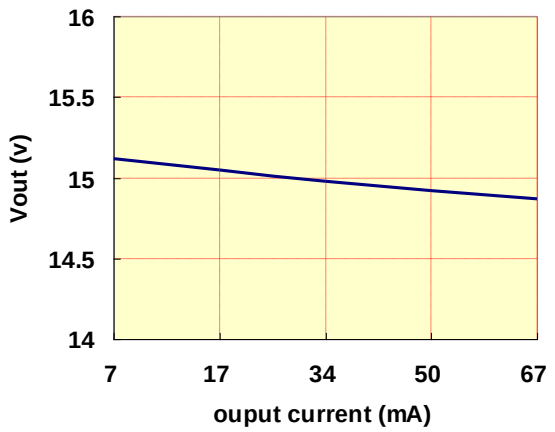
VOUT VS LOAD(9Vout Models)



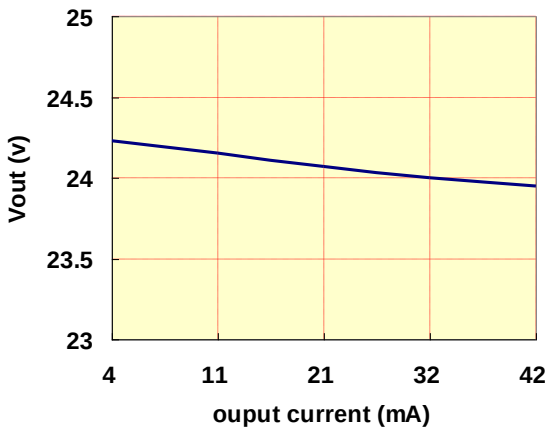
VOUT VS LOAD(12Vout Models)



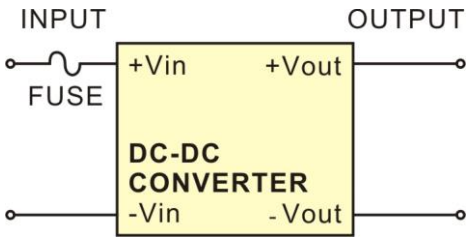
VOUT VS LOAD(15Vout Models)



VOUT VS LOAD(24Vout Models)



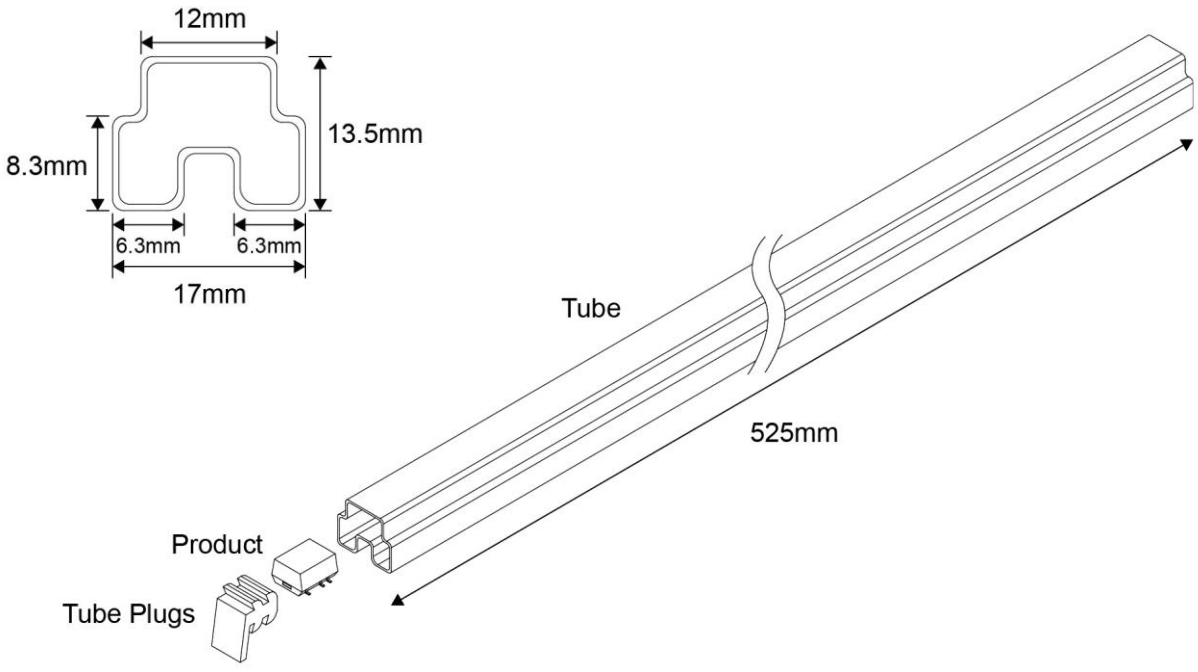
■ INPUT FUSE SELECTION GUIDE



MODEL NUMBER	INPUT VOLTAGE(VDC)	FUSE
NUX-3.3XXC1(K)N	2.97~3.63V	1000mA Slow-Blow Type
NUX-05XXC1(K)N	4.5~5.5V	500mA Slow-Blow Type
NUX-12XXC1(K)N	10.8~13.2V	300mA Slow-Blow Type
NUX-15XXC1(K)N	13.5~16.5V	300mA Slow-Blow Type
NUX-24XXC1(K)N	21.6~26.4V	150mA Slow-Blow Type

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

■ PACKAGING INFORMATION



Packaging Quantity: 38 pcs converter per tube

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