



■ FEATURES

- Industrial standard SIP-7 package
- Operating temperature range -40°C ~ +105°C
- Low no load input current
- Continuous short circuit protection
- Isolation voltage 1500VDC or 3000VDC
- Efficiency up to 88%

■ APPLICATIONS

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

■ DESCRIPTION

PU-N series is a unregulated 1 Watt DC/DC converter in standard SIP-7 plastic package, with $\pm 10\%$ input voltage range. It features isolated voltage of 3000VDC, extremely low no load current, wide working temperature range from -40~ +105°C, and suits all kinds of systems like industrial control, automation field, and so on.

■ MODEL ENCODING

PU	S	-	05	05	A	K	N
Series Name	Output Quantity		Input Voltage	Output Voltage	Package	Function	New Series
	S : Single		05 : 4.5~5.5V	03.3 : 3.3V	A	Blank : 1500VDC Isolation	
	D : Dual		12 : 10.8~13.2V	05 : 5V ; $\pm 5V$	B	K : 3000VDC Isolation	
			24 : 21.6~26.4V	09 : 9V ; $\pm 9V$			
				12 : 12V ; $\pm 12V$			
				15 : 15V ; $\pm 15V$			
				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				
PUS-0503.3AN	5	4.5~5.5	5	250	3.3	300	80	470uF
PUS-0505AN	5	4.5~5.5	5	235	5	200	85	470uF
PUS-0509AN	5	4.5~5.5	6	235	9	111	85	220uF
PUS-0512AN	5	4.5~5.5	7	235	12	84	85	220uF
PUS-0515AN	5	4.5~5.5	8	233	15	67	86	220uF
PUS-0524AN	5	4.5~5.5	9	235	24	42	86	100uF
PUD-0505AN	5	4.5~5.5	5	235	±5	±100	85	220uF
PUD-0509AN	5	4.5~5.5	6	235	±9	±56	85	100uF
PUD-0512AN	5	4.5~5.5	7	235	±12	±42	85	100uF
PUD-0515AN	5	4.5~5.5	8	233	±15	±34	86	100uF
PUS-1203.3AN	12	10.8-13.2	5	104	3.3	300	80	470uF
PUS-1205AN	12	10.8-13.2	5	96	5	200	87	470uF
PUS-1209AN	12	10.8-13.2	5	96	9	111	87	220uF
PUS-1212AN	12	10.8-13.2	5	96	12	84	87	220uF
PUS-1215AN	12	10.8-13.2	5	95	15	67	88	220uF
PUS-1224AN	12	10.8-13.2	5	95	24	42	88	100uF
PUD-1205AN	12	10.8-13.2	5	96	±5	±100	87	220uF
PUD-1209AN	12	10.8-13.2	5	96	±9	±56	87	100uF
PUD-1212AN	12	10.8-13.2	5	96	±12	±42	87	100uF
PUD-1215AN	12	10.8-13.2	5	95	±15	±34	88	100uF
PUS-2403.3AN	24	21.6-26.4	5	52	3.3	300	80	470uF
PUS-2405AN	24	21.6-26.4	5	49	5	200	85	470uF
PUS-2409AN	24	21.6-26.4	5	49	9	111	85	220uF
PUS-2412AN	24	21.6-26.4	5	49	12	84	85	220uF
PUS-2415AN	24	21.6-26.4	5	49	15	67	85	220uF
PUS-2424AN	24	21.6-26.4	5	49	24	42	85	100uF
PUD-2405AN	24	21.6-26.4	5	49	±5	±100	85	220uF
PUD-2409AN	24	21.6-26.4	5	49	±9	±56	85	100uF
PUD-2412AN	24	21.6-26.4	5	49	±12	±42	85	100uF
PUD-2415AN	24	21.6-26.4	5	49	±15	±34	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.

■ 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				
PUS-0503.3BKN	5	4.5~5.5	5	250	3.3	300	80	470uF
PUS-0505BKN	5	4.5~5.5	5	235	5	200	85	470uF
PUS-0509BKN	5	4.5~5.5	6	235	9	111	85	220uF
PUS-0512BKN	5	4.5~5.5	7	235	12	84	85	220uF
PUS-0515BKN	5	4.5~5.5	8	233	15	67	86	220uF
PUS-0524BKN	5	4.5~5.5	9	235	24	42	86	100uF
PUD-0505BKN	5	4.5~5.5	5	235	±5	±100	85	220uF
PUD-0509BKN	5	4.5~5.5	6	235	±9	±56	85	100uF
PUD-0512BKN	5	4.5~5.5	7	235	±12	±42	85	100uF
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PUS-1203.3BKN	12	10.8-13.2	5	104	3.3	300	80	470uF
PUS-1205BKN	12	10.8-13.2	5	96	5	200	87	470uF
PUS-1209BKN	12	10.8-13.2	5	96	9	111	87	220uF
PUS-1212BKN	12	10.8-13.2	5	96	12	84	87	220uF
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PUS-2403.3BKN	24	21.6-26.4	5	52	3.3	300	80	470uF
PUS-2405BKN	24	21.6-26.4	5	49	5	200	85	470uF
PUS-2409BKN	24	21.6-26.4	5	49	9	111	85	220uF
PUS-2412BKN	24	21.6-26.4	5	49	12	84	85	220uF
PUS-2415BKN	24	21.6-26.4	5	49	15	67	85	220uF
PUS-2424BKN	24	21.6-26.4	5	49	24	42	85	100uF
PUD-2405BKN	24	21.6-26.4	5	49	±5	±100	85	220uF
PUD-2409BKN	24	21.6-26.4	5	49	±9	±56	85	100uF
PUD-2412BKN	24	21.6-26.4	5	49	±12	±42	85	100uF
PUD-2415BKN	24	21.6-26.4	5	49	±15	±34	85	100uF

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

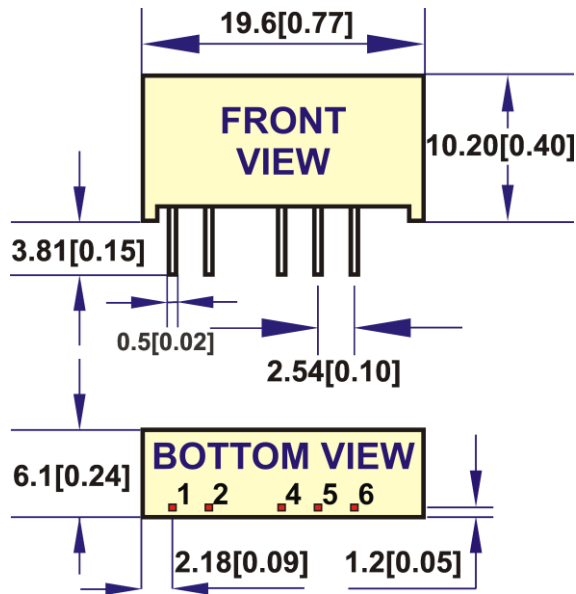
Other input to output voltages may be available. Please contact factory.

■ SPECIFICATION

INPUT	Voltage Range	4.5-5.5V ; 10.8~13.2V ; 21.6~26.4V		
	Surge Voltage(100ms max.)	5Vin models : 9Vdc ; 12Vin models : 18Vdc ; 24Vin models : 30Vdc		
	Filter	Internal capacitor		
	Protection	Fuse recommended (see page 8)		
OUTPUT	Voltage Accuracy	±3% max.		
	Rated Power	1W		
	Ripple & Noise ¹	75mVp-p max.		
	Line Regulation ²	±1.2% (for 1% input variation)		
	Load Regulation ³	15%		
	Switching Frequency	200KHz min.		
	Minimum Load	10% of full load		
PROTECTION	Short Circuit	Continuous , automatic recovery		
ENVIRONMENT	Cooling	Free-air convection		
	Working Temperature	-40~ +105°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	Contact ±4KV
		Radiated Susceptibility	BS IEC 61000-4-3	3V/m
		EFT/Burst	BS IEC 61000-4-4	±0.5KV
		Surge	BS IEC 61000-4-5	Line-Line ±0.5KV
Conducted		BS IEC 61000-4-6	3Vrms	
Magnetic field immunity		BS IEC 61000-4-8	1A/m	
OTHERS	MTBF ⁵	>2,000,000Hours		
	Weight	2.1g typ.		
	Dimension(L*W*H)	19.6mm*6.1mm*10.2mm		
	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 10 seconds, 3000VDC for 3 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 "A"



PIN CONNECTION		
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout	-Vout
5	NP	Common
6	+Vout	+Vout

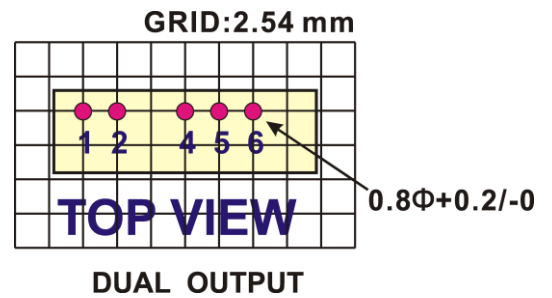
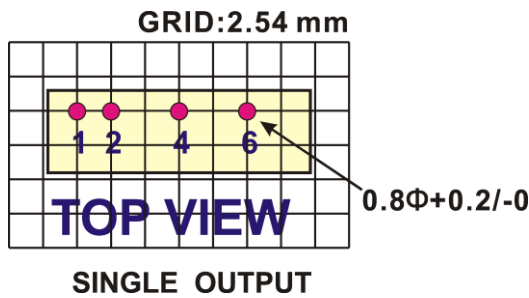
NP : No pin

All dimensions are in mm [Inches]

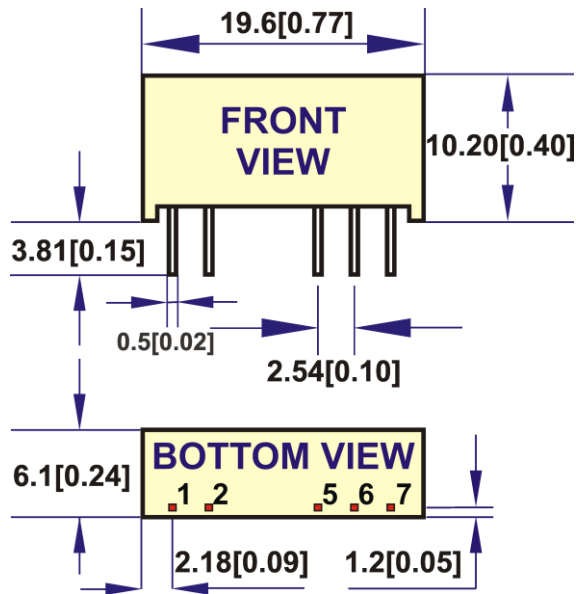
Pin size is 0.50x0.30mm [0.02"x0.01"]

Pin tolerance .XX= ±0.05mm

Tolerance .X or .XX= ±0.5mm



PACKAGE "B"



PIN CONNECTION		
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	NP	Common
7	+Vout	+Vout

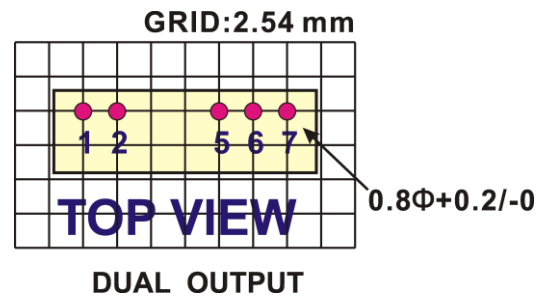
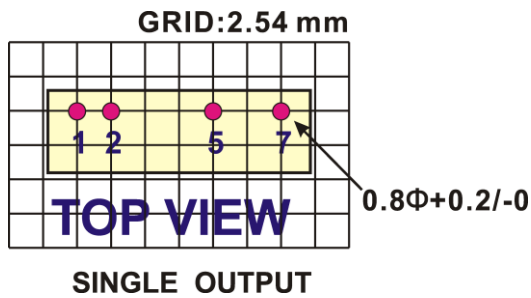
NP : No pin

All dimensions are in mm [Inches]

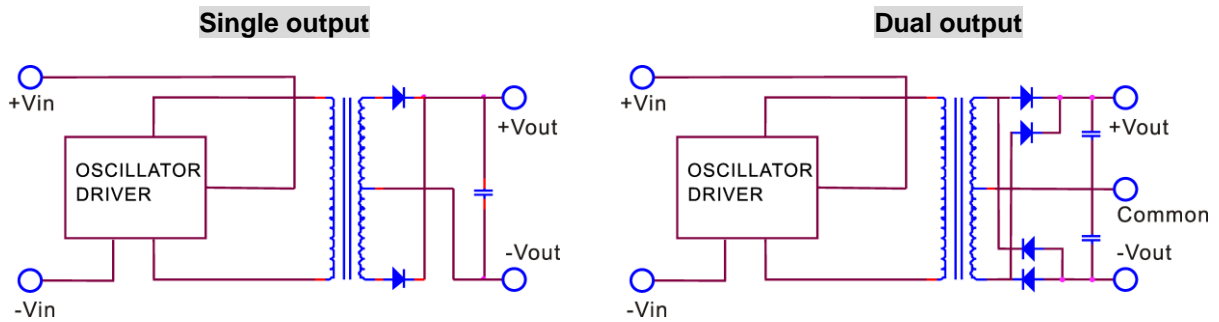
Pin size is 0.50x0.30mm [0.02"x0.01"]

Pin tolerance .XX= ±0.05mm

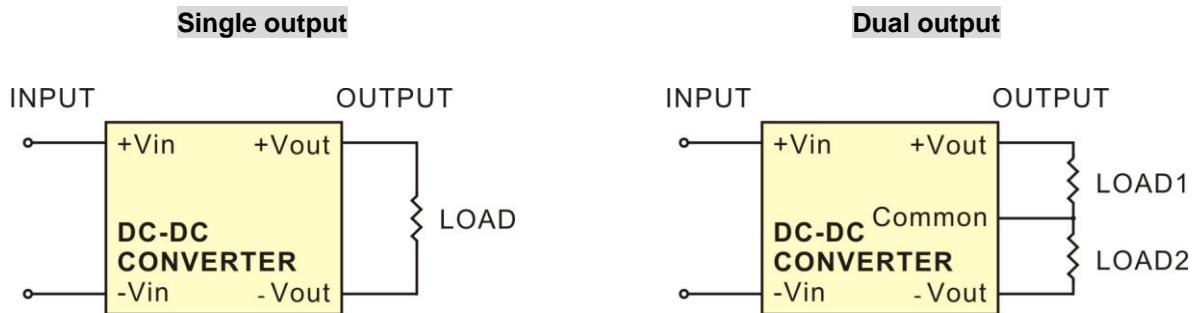
Tolerance .X or .XX= ±0.5mm



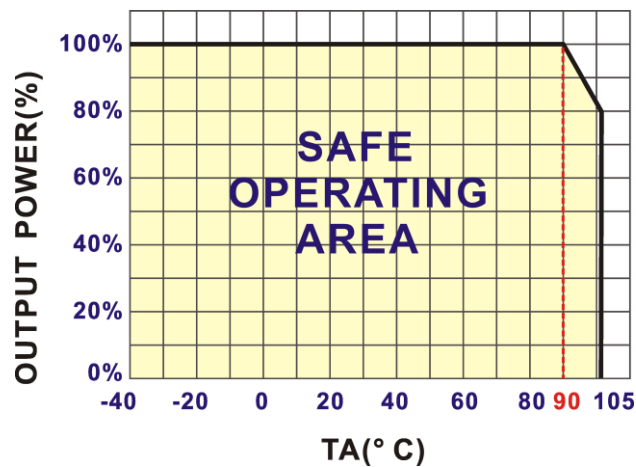
■ SIMPLIFIED SCHEMATIC



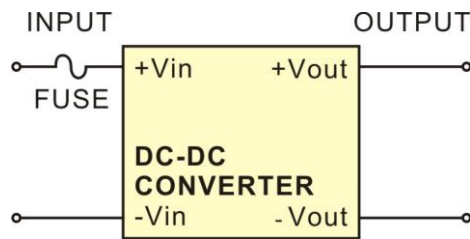
■ TYPICAL APPLICATIONS



■ DERATING CURVE



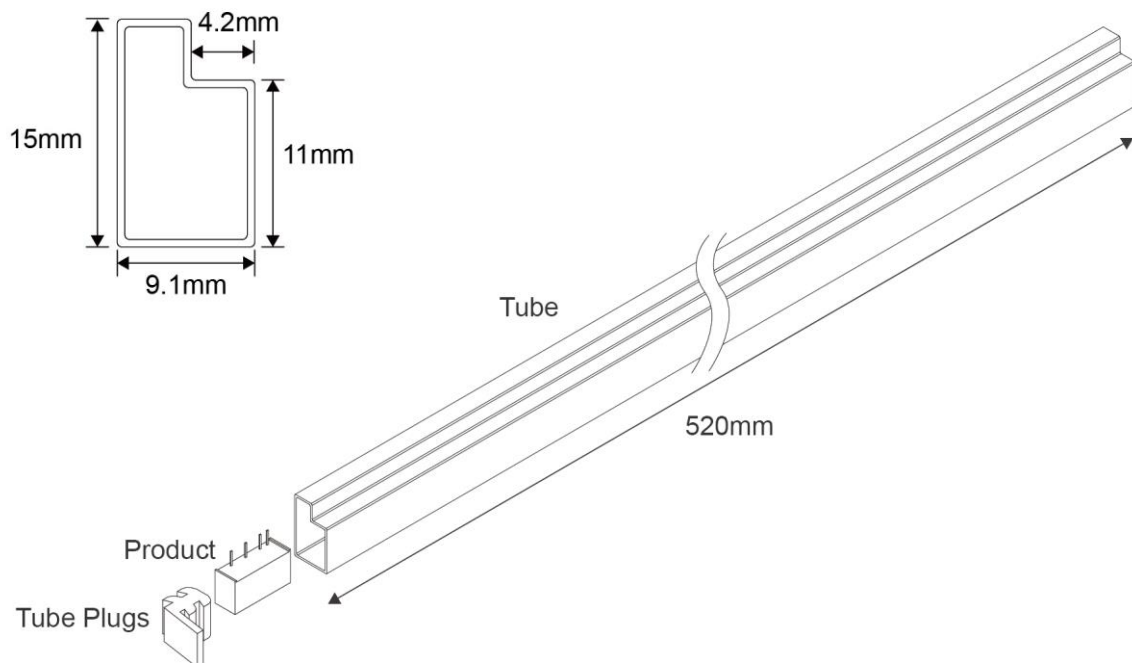
■ INPUT FUSE SELECTION GUIDE



MODEL NUMBER	INPUT VOLTAGE(VDC)	FUSE
PUX-05XXA/B	4.5~5.5V	500mA Slow-Blow Type
PUX-12XXA/B	10.8~13.2V	300mA Slow-Blow Type
PUX-24XXA/B	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: 25 pcs converter per tube