

### FEATURES

- Efficiency up to 75%
- SIP Package with Industry Standard Pinout
- High Isolation Voltage 3000VACrms
- Lead free ,RoHs Compliant
- Industrial & Medical Safety Approval
- Operating Temperature range - 25°C to +85°C
- Low isolation Capacitance
- >2 MHours MTBF
- 3 Years Product Warranty



The PI01S/D series are miniature, SIP Package, isolated 1W DC/DC converters with 3,000VAC isolation. It allows a wide operating temperature range of  $-25^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . With high isolation, PI01S/D is suitable for all kinds of medical device application. These high isolated DC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc.

### Model List

Model Number	Input Voltage (Range) VDC	Output Voltage VDC	Output Current		Input Current		Load Regulation % (max.)	Max. capacitive Load uF	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
			mA	mA	mA(typ.)	mA(typ.)			%
PI01S0505A	5 (4.5 ~ 5.5)	5	200	4	303	55	10	680	66
PI01S0512A		12	80	2	291		8		66
PI01S0515A		15	65	1	295		8		66
PI01D0505A		$\pm 5$	$\pm 100$	$\pm 2$	303		10	220*	66
PI01D0512A		$\pm 12$	$\pm 40$	$\pm 1$	267		8		72
PI01D0515A		$\pm 15$	$\pm 35$	$\pm 1$	287		8		73
PI01S1205A		12 (10.8 ~ 13.2)	5	200	4		126	30	10
PI01S1212A	12		80	2	121	8	66		
PI01S1215A	15		65	1	123	8	66		
PI01D1205A	$\pm 5$		$\pm 100$	$\pm 2$	126	10	220*		66
PI01D1212A	$\pm 12$		$\pm 40$	$\pm 1$	108	8			74
PI01D1215A	$\pm 15$		$\pm 35$	$\pm 1$	117	8			75

\* For each output



## Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	5V Input Models	4.5	5	5.5	VDC
	12V Input Models	10.8	12	13.2	
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	9	VDC
	12V Input Models	-0.7	---	29	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter		LC Filter			
Internal Power Dissipation		---	---	650	mW

## Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±3.0	%
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.1	±1.0	%
Line Regulation	For Vin Change of 1%	---	±1.2	±1.5	%
Load Regulation	Io=20% to 100%	See Model Selection Guide			
Ripple & Noise (20MHz)		---	100	150	mV <sub>p-p</sub>
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	200	mV <sub>p-p</sub>
Ripple & Noise (20MHz)		---	---	15	mV <sub>rms</sub>

Temperature Coefficient		---	±0.01	±0.02	%/°C
Short Circuit Protection	0.5 Second Max.				

## Isolation and Safety Standards

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	3000	---	---	VACrms
I/O Isolation Test Voltage	Flash tested for 1 Second	4500	---	---	V <sub>PK</sub>
I/O Isolation Resistance	500 VDC	10	---	---	GΩ
I/O Isolation Capacitance	100KHz, 1V	---	15	20	pF
Safety Standards	cUL/UL60950-1, CSA C22.2 No. 60950-1-03				
	UL60601-1, CSA C22.2 No.601-1				
	IEC/EN 60950-1, IEC/EN 60601-1				
Approvals	IEC60950-1 CB report, cUL/UL 60950-1 certificate UL60601-1 UL certificate				

## General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Switching Frequency		50	80	100	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	2,000,000	---	---	Hours

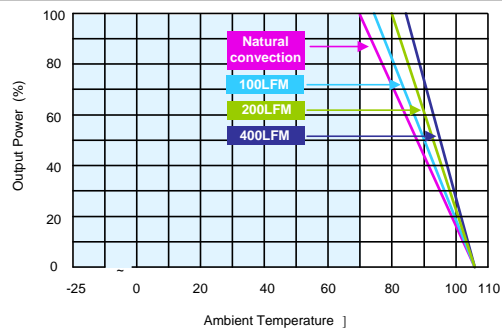
## Recommended Input Fuse

5V Input Models	12V Input Models
500mA Slow-Blow Type	200mA Slow-Blow Type

## Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-25	+85	°C
Case Temperature		---	+90	°C
Storage Temperature Range		-50	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

## Power Derating Curve

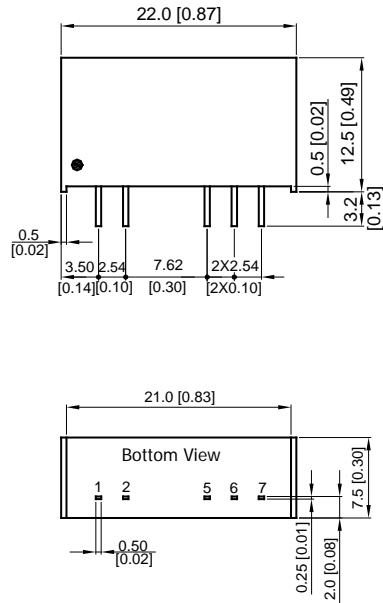


## Notes

- 1 Specifications typical at  $T_a=+25^{\circ}\text{C}$ , resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Ripple & Noise measurement bandwidth is 0-20MHz.
- 3 These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
- 4 All DC/DC converters should be externally fused at the front end for protection.
- 5 Specifications subject to change without notice.

## Mechanical Drawing

### Mechanical Dimensions



### Pin Connections

Pin	Single Output	Dual Output
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: X.X±0.25 (X.XX±0.01)  
X.XX±0.13 ( X.XXX±0.005)
- ▶ Pins ±0.05 (±0.002)

## Physical Outline

Case Size : 22.0x7.5x12.5mm (0.87x0.30x0.49 Inches)

Case Material : Non-Conductive Black Plastic (flammability to UL 94V-0 rated)

Weight : 3.9g



Part Numbering System						
P	I	01	S	05	12	A
Form factor	Family series	Watt	Number of Outputs	Input Voltage	Output Voltage	Option Code
D-DIP	A~Z	01:1W	S - Single	03:3.3V	03:3.3V	A - Std. Functions
P-SIP		02:2W	D- Dual	05: 5V	05: 5V	
S-SMD		03:3W		12:12V	12:12V	
		04:4W		24: 24V	15: 15V	
		06:6W		48:48V	24: 24V	

### WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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