

FEATURES

- Efficiency up to 88.5%
- SIP Package with Industry Standard Pinout
- Semi-regulated Output Voltage
- Isolation Voltage 1000VDC
- Operating Temperature Range -40°C to +85°C
- UL/IEC/EN 60950-1 Safety
- Single and Dual Outputs
- Lead free, RoHs Compliant
- >2 MHours MTBF
- CSA / NRTL60950-1 safety approval
- 3 Years Product Warranty



Security



Lab



Medical



Metro



Data Center



Telecom



Industrial



Network

The PE01S/D series are miniature, SIP Package, isolated 1W DC/DC converters with 1,000VDC isolation and very high efficiency. It offers short circuit protection and allows a wide operating temperature range of -40°C to +85°C. These products provide a typical load regulation of 2.5% to 5.0% depending on each model. The PE01S/D DC/DC converters are a compromise between a fully regulated converter and a non-regulated converter. These 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)	Output Voltage	Output Current		Input Current		Load Regulation	Reflected Ripple	Max. capacitive Load	Efficiency (typ.)
			Max.	Min.	@Max.Load	@No Load				
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	mA(typ.)	uF	@Max.oad %
PE01S0505A	5 (4.5 ~ 5.5)	5	200	4	238	30	6.5	7	220	84
PE01S0509A		9	110	2	228		5			87
PE01S0512A		12	84	1.5	232		5.2			87
PE01S0515A		15	67	1	230		5			87.5
PE01D0505A		±5	±100	±2	237		5.2		100*	84.5
PE01D0509A		±9	±56	±1	234		4.2			86
PE01D0512A		±12	±42	±0.8	233		4.6			86.5
PE01D0515A		±15	±34	±0.7	236		4.5			86.5
PE01S1205A	12 (10.8 ~ 13.2)	5	200	4	99	12	5	4	220	84
PE01S1209A		9	110	2	95		3.4			86.5
PE01S1212A		12	84	1.5	95		3.4			88.5
PE01S1215A		15	67	1	95		2.7			88
PE01D1205A		±5	±100	±2	99		3.9		100*	84.5
PE01D1209A		±9	±56	±1	98		2.8			86
PE01D1212A		±12	±42	±0.8	95		2.9			88.5
PE01D1215A		±15	±34	±0.7	94		2.6			87.5
PE01S2405A	24 (21.6 ~ 26.4)	5	200	4	50	11	3.7	8	220	84
PE01S2409A		9	110	2	48		2.5			86.5
PE01S2412A		12	84	1.5	48		2.4			87.5
PE01S2415A		15	67	1	48		2.3			87.5
PE01D2405A		±5	±100	±2	50		3.7		100*	83.5
PE01D2409A		±9	±56	±1	49		2.5			86
PE01D2412A		±12	±42	±0.8	48		2.4			87
PE01D2415A		±15	±34	±0.7	49		2.3			87

* For each output

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	9	VDC
	12V Input Models	-0.7	---	18	
	24V Input Models	-0.7	---	30	
Input Voltage Range	5V Input Models	4.5	5	5.5	
	12V Input Models	10.8	12	13.2	
	24V Input Models	21.6	24	26.4	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter	Internal Capacitor				
Internal Power Dissipation		---	---	450	mW

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.1	±1.0	%
Line Regulation	For Vin Change of 1%	---	±1.05	±1.2	%
Load Regulation	Io=20% to 100%	See Model Selection Guide			
Ripple & Noise (20MHz)		---	30	60	mV _{P-P}
Temperature Coefficient		---	±0.01	±0.02	%/°C
Short Circuit Protection	0.5 Second Max.				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1000	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	40	60	120	pF
Switching Frequency		50	100	120	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	2,000,000	---	---	Hours
Safety Approvals	CSA 60950-1 recognition, IEC/EN 60950-1(CB-scheme)				

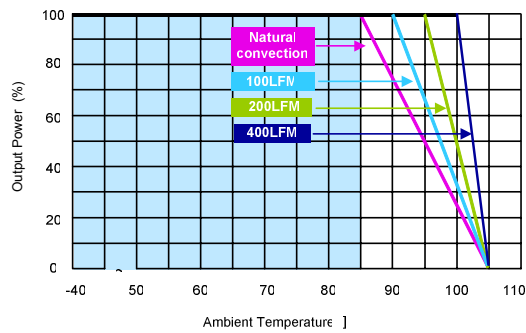
Recommended Outside Input Fuse

5V Input Models	12V Input Models	24V Input Models
500mA Slow-Blow Type	200mA Slow-Blow Type	100mA Slow-Blow Type

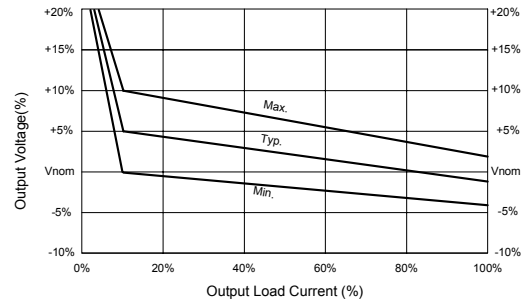
Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (without Derating)	Ambient	-40	+85	°C
Case Temperature		---	+95	°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



Output Voltage Tolerance



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

Top View Dimensions:

- Overall Width: 19.5 [0.77]
- Overall Height: 10.2 [0.40]
- Pin 1 to Pin 2: 2.35 [0.09]
- Pin 2 to Pin 4: 2.54 [0.10]
- Pin 4 to Pin 5: 5.08 [0.20]
- Pin 5 to Pin 6: 2X2.54 [2X0.10]
- Pin 1 to Case Edge: 0.5 [0.02]
- Case Thickness: 0.5 [0.02]
- Pin 6 to Case Edge: 3.2 [0.13]

Bottom View Dimensions:

- Overall Width: 18.5 [0.73]
- Overall Height: 1.3 [0.05]
- Pin 1 to Pin 2: 0.50 [0.02]
- Pin 2 to Case Edge: 0.25 [0.01]
- Case Thickness: 0.25 [0.01]

Pin Connections

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

5V & 12V Input :

T=6.1[0.24]

24V Input :

T=7.1[0.28] r

► 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	:	19.5x6.1x10.2mm (0.77x0.24x0.40 Inches)
(5&12V Input)	:	
Case Size (24V Input)	:	19.5x7.1x10.2mm (0.77x0.28x0.40 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight (5&12V Input)	:	2.2g
Weight (24V Input)	:	2.6g



Part Numbering System

P	E	01	S	05	05	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.

Information furnished by Delta is believed to be accurate and reliable. However, no responsibility is assumed by Delta for its use, nor for any infringements of patents or other rights of third parties, which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Delta. Delta reserves the right to revise these specifications at any time, without notice.