PB01S/D series

1W DC/DC CONVERTER, SIP-Package





FEATURES

- Efficiency up to 81%
- SIP Package with Industry Standard Pinout
- Package Dimension:
  5V&12V Models:
  19.5 x 10.2 x 6.1 mm (0.77”x 0.4”x 0.24”)
  15V&24V Models
  19.5 x 10.2 x 7.1 mm (0.77”x 0.4”x 0.28”)
- Isolation Voltage 1000 VDC
- OperatingTemp. Range -40°C to +85°C
- Lead free , RoSH Compliant
- Single and Dual Outputs
- >2 MHours MTBF
- 3 Years Product Warranty

The PB01S/D seriesare miniature, SIP Package, isolated 1W DC/DC converters with 1,000VDC isolation. It offers single and dual output models, short circuit protection ,and allows a wide operating temperature range of –40°C to +85°C. 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	Maxcapacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	uF	%
PB01S0503A	5 (4.5 ~ 5.5)	3.3	260	5	235	30	10	220	73
PB01S0505A		5	200	4	281		10		71
PB01S0509A		9	110	2	260		8		76
PB01S0512A		12	84	1.5	258		7		78
PB01S0515A		15	67	1	258		7		78
PB01D0505A		±5	±100	±2	278		10	100*	72
PB01D0509A		±9	±56	±1	262		8		77
PB01D0512A		±12	±42	±0.8	258		7		78
PB01D0515A		±15	±34	±0.7	258		7		79
PB01S1203A	12 (10.8 ~ 13.2)	3.3	260	5	96	12	8	220	74
PB01S1205A		5	200	4	114		8		73
PB01S1209A		9	110	2	106		5		78
PB01S1212A		12	84	1.5	105		5		80
PB01S1215A		15	67	1	104		5		80
PB01D1205A		±5	±100	±2	113		8	100*	74
PB01D1209A		±9	±56	±1	106		5		79
PB01D1212A		±12	±42	±0.8	104		5		81
PB01D1215A		±15	±34	±0.7	105		5		81
PB01S1505A	15 (13.5 ~ 16.5)	5	200	4	93	11	8	220	72
PB01S1512A		12	84	1.5	85		5		79
PB01S1515A		15	67	1	85		5		79
PB01D1505A		±5	±100	±2	93		8	100*	72
PB01D1512A		±12	±42	±0.8	85		5		80
PB01D1515A		±15	±34	±0.7	85		5		80
PB01S2403A	24 (21.6 ~ 26.4)	3.3	260	5	49	7	8	220	73
PB01S2405A		5	200	4	59		8		71
PB01S2409A		9	110	2	54		5		76

E-mail: DCDC@delta.com.tw
http://www.delta.com.tw/dcdc

Model List

Model Number	Input Voltage (Range)	Output Voltage	Output Current		Input Current		Load Regulation	Maxcapacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	uF	%
PB01S2412A	24 (21.6 ~ 26.4)	12	84	1.5	54	7	5		78
PB01S2415A		15	67	1	53		5		79
PB01D2405A		±5	±100	±2	58		8	100*	72
PB01D2409A		±9	±56	±1	55		5		76
PB01D2412A		±12	±42	±0.8	53		5		79
PB01D2415A		±15	±34	±0.7	53		5		80

* For each output

E-mail: DCDC@delta.com.tw
http://www.delta.com.tw/dcdc

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	
	15V Input Models	13.5	15	16.5	
	24V Input Models	21.6	24	26.4	
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	9	
	12V Input Models	-0.7	---	18	
	15V Input Models	-0.7	---	18	
	24V Input Models	-0.7	---	30	
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 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)		---	50	75	mV_{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	150	mV_{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Temperature Coefficient		---	±0.01	±0.02	%/℃
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	---	60	100	pF
Switching Frequency		70	100	120	KHz
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	2,000,000	---	---	Hours

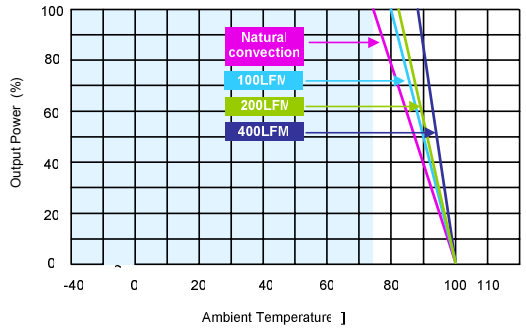
Recommended Input Fuse

5V Input Models	12V Input Models	15V Input Models	24V Input Models
500mA Slow-Blow Type	200mA Slow-Blow Type	150mA Slow-Blow Type	100mA Slow-Blow Type

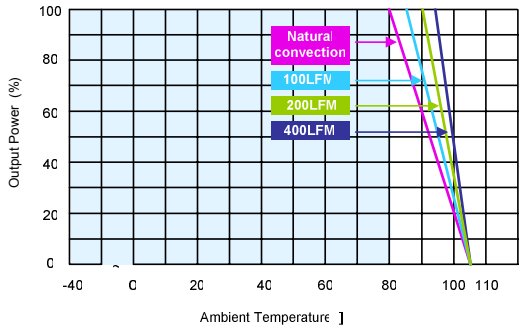
Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	℃
Case Temperature		---	+90	℃
Storage Temperature Range		-50	+125	℃
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	℃

Power Derating Curve



(3.3V, 5V & ±5V)



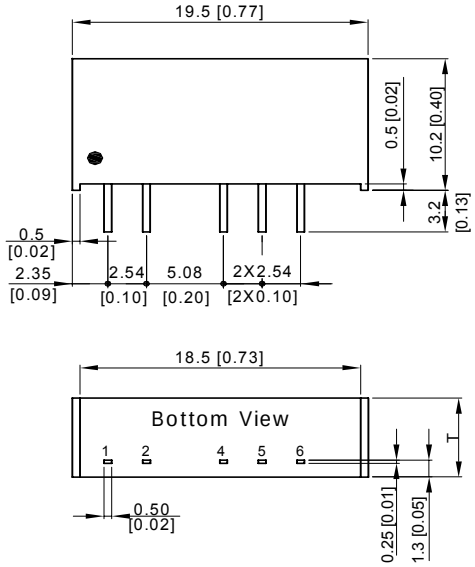
(all other output)

Notes

1	Specifications typical at Ta=+25℃, 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
4	-Vout	-Vout
5	No Pin	Common
6	+Vout	+Vout

5V&12V Input:
T: 6.1mm(0.24 inch)
15V&24V Input:
T: 7.1mm(0.28 inch) for Models

►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 (5V&12V Input)	:	19.5x6.1x10.2mm (0.77x0.24x0.40 Inches)
Case Size (15V&24V Input)	:	19.5x7.1x10.2mm (0.77x0.28x0.40 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight (5V&12V Input)	:	2.2g
Weight (15V&24V Input)	:	2.6g

E-mail: DCDC@delta.com.tw
http://www.delta.com.tw/dcdc

Part Numbering System

P	B	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.