

## PC02S/D series

2W DC/DC CONVERTER, SIP-Package

# **FEATURES**

- Efficiency up to 83%
- SIP Package with Industry Standard Pinout
- Package Dimension: 19.5 x 10.2 x 7.6 mm (0.77"x 0.4"x 0.3")
- Isolation Voltage 1000 VDC
- Operating Temperature Range -40°C to +85°C
- Single and Dual Outputs
- >2 MHours MTBF
- Lead free, RoHs compliant
- 3 Years Product Warranty





















The PC02S/D series are miniature, SIP Package, isolated 2W DC/DC converters with 1,000VDC isolation. It offers 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	Input	Output	Output Current Input Current		Load	Max.	Efficiency		
Number	Voltage	Voltage					Regulation	capacitive	(typ.)
	(Range)		Max.	Min.	@Max. Load	@No Load		Load	@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	uF	%
PC02S0503A		3.3	500	10	452		11	470 390*	73
PC02S0505A		5	400	8	526		11		76
PC02S0512A	5	12	165	3	495		7		80
PC02S0515A	(4.5 ~ 5.5)	15	133	2.5	499	60	7		80
PC02D0505A	(4.5 ~ 5.5)	±5	±200	±4	519		10		77
PC02D0512A		±12	±83	±1.5	504		7		79
PC02D0515A		±15	±66	±1	501		7		79
PC02S1203A	12	3.3	500	10	185		8	470	74
PC02S1205A		5	400	8	212		8		78
PC02S1212A		12	165	3	200		5		82
PC02S1215A		15	133	2.5	200	30	5		83
PC02D1205A	(10.8 ~ 13.2)	±5	±200	±4	210		8		79
PC02D1212A		±12	±83	±1.5	201		5	390*	82
PC02D1215A		±15	±66	±1	200		5		82
PC02S2403A		3.3	500	10	92		8		74
PC02S2405A		5	400	8	108		8	470	77
PC02S2412A	24	12	165	3	101		5	4/0	81
PC02S2415A	(21.6 ~ 26.4)	15	133	2.5	101	15	5		82
PC02D2405A	(21.0 ~ 20.4)	±5	±200	±4	105		8		79
PC02D2412A		±12	±83	±1.5	102		5	3908	81
PC02D2415A		±15	±66	±1	100		5		82

\* For each output



Input Characteristics							
Parameter	Model	Min.	Тур.	Max.	Unit		
	5V Input Models	4.5	5	5.5			
Input Voltage Range	12V Input Models	10.8	12	13.2			
	24V Input Models	21.6	24	26.4			
	5V Input Models	-0.7		9	VDC		
Input Surge Voltage (1 sec. max.)	12V Input Models	-0.7		18			
	24V Input Models	-0.7		30			
Reverse Polarity Input Current				0.3	Α		
Input Filter	All Models	Pi Filter					
Internal Power Dissipation				650	mW		

Output Characteristics							
Parameter	Conditions	Min.	Тур.	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%	ge 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 rms		
Temperature Coefficient			±0.01	±0.02	%/°C		
Short Circuit Protection		0.5 Second Max.					

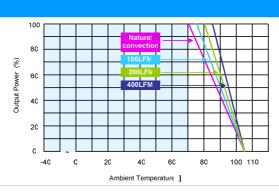
General Characteristics								
Parameter	Conditions	Min.	Тур.	Max.	Unit			
I/O Isolation Voltage (rated)	60 Seconds	1000			VDC			
I/O Isolation Resistance	500 VDC	1000			ΜΩ			
I/O Isolation Capacitance	100KHz, 1V		80	120	pF			
Switching Frequency		50	80	100	KHz			
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	2,000,000			Hours			

Recommended Outside Input Fuse							
5V Input Models	12V Input Models	24V Input Models					
1000mA Slow-Blow Type	500mA Slow-Blow Type	200mA Slow-Blow Type					

Environmental Specifications						
Parameter	Conditions	Min.	Max.	Unit		
Operating Temperature Range (with Derating)	Ambient	-40	+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		



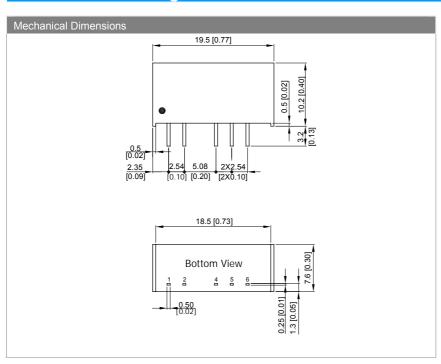




#### **Notes**

- 1 Specifications typical at Ta=+25°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.

## **Mechancial Drawing**



Pin Connections					
Pin	Single Output	Dual Output			
1	+Vin	+Vin			
2	-Vin	-Vin			
4	-Vout	-Vout			
5	No Pin	Common			
6	+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 : 19.5x7.6x10.2mm (0.77x0.30x0.40 Inches)

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

Weight : 2.7g



Part Numbering System							
Р	С	02	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.

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