

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

\* 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	
	24V Input Models	21.6	24	26.4	
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	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter		Pi 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.			

### 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	---	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

## 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
4	-Vout	-Vout
5	No Pin	Common
6	+Vout	+Vout

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

## 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						
P	C	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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