



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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### 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 rms
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

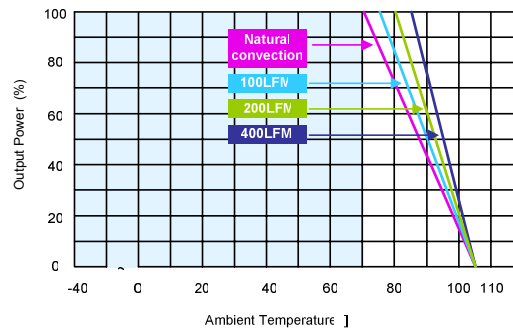
### Recommended Outside Input Fuse

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

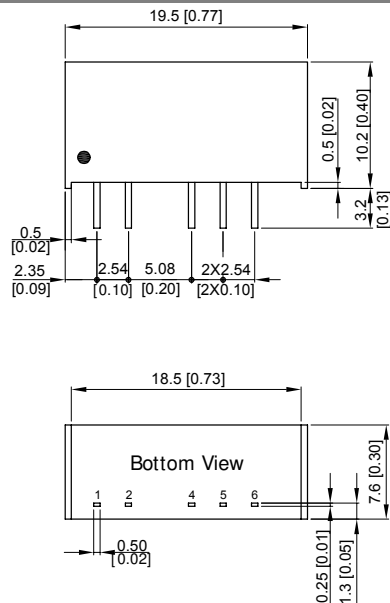


## Notes

- 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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