



### FEATURES

- Efficiency up to 81%
- Overload Protection
- Fully Regulated Output Voltage
- Operating Temperature Range -40°C to +85°C
- Wide 4:1 Input Range
- Isolation Voltage 1600 VDC
- Remote On/Off Control
- Lead free, RoHs compliant
- UL/cUL/IEC/EN 60950-1 Safety Approval(pending)
- 3 Years Product Warranty



The PJ03S/D series are miniature, SIP-8 package, isolated 3W DC/DC converters with 1,600VDC isolation. The PJ03S/D series features fully regulated output and wide 4:1 input voltage ranges. It offers over load 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 Selection Guide

Model Number	Input Voltage (Range) VDC	Output Voltage VDC	Output Current		Input Current		Max. capacitive Load µF	Efficiency (typ.)
			Max. mA	Min. mA	@Max. Load mA(typ.)	@No Load mA(typ.)		@Max. Load %
PJ03S1203A	12 (4.5 ~ 18)	3.3	700	175	260	60	1760	74
PJ03S1205A		5	600	150	320		1000	78
PJ03S1212A		12	250	63	313		170	80
PJ03S1215A		15	200	50	313		110	80
PJ03D1205A		±5	±300	±75	313		470*	80
PJ03D1212A		±12	±125	±31	313		1008*	80
PJ03D1215A		±15	±100	±25	313		47 *	80
PJ03S2403A	24 (9 ~ 36)	3.3	700	175	128	25	1760	75
PJ03S2405A		5	600	150	156		1000	80
PJ03S2412A		12	250	63	154		170	81
PJ03S2415A		15	200	50	154		110	81
PJ03D2405A		±5	±300	±75	158		470 *	79
PJ03D2412A		±12	±125	±31	156		100 *	80
PJ03D2415A		±15	±100	±25	154		47 *	81
PJ03S4803A	48 (18 ~ 75)	3.3	700	175	65	15	1760	74
PJ03S4805A		5	600	150	79		1000	79
PJ03S4812A		12	250	63	79		170	79
PJ03S4815A		15	200	50	79		110	79
PJ03D4805A		±5	±300	±75	79		470*	79
PJ03D4812A		±12	±125	±31	79		100 *	79
PJ03D4815A		±15	±100	±25	78		47 *	80

\* For each output



## Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	12V Input Models	-0.7	---	25	VDC
	24V Input Models	-0.7	---	50	
	48V Input Models	-0.7	---	100	
Start-Up Threshold Voltage	12V Input Models	3	4	4.5	
	24V Input Models	4.5	6	9	
	48V Input Models	8.5	12	18	
Under Voltage Shutdown	12V Input Models	---	3.5	4	
	24V Input Models	---	---	8	
	48V Input Models	---	---	16	
Reverse Polarity Input Current	All Models	---	---	1	A
Short Circuit Input Power		---	---	2500	mW
Internal Filter Type		Capacitor type			
Internal Power Dissipation		---	---	2600	mW

## Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy	At 50% Load and Nominal Vin	---	---	±1.0	%Vom.
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.5	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.3	±0.5	%
Load Regulation	Io=25% to 100%	---	±0.5	±1.0	%
Ripple & Noise (20MHz)	0-20 MHz Bandwidth	---	50	75	mV <sub>p-p</sub>
Transient Recovery Time	25% Load Step Change	---	300	500	µsec
Transient Response Deviation		---	±3	±5	%
Temperature Coefficient		---	---	±0.02	%/°C
Short Circuit Protection	Continuous				

## General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1600	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	---	200	---	pF
Switching Frequency		---	350	---	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	800,000	---	---	Hours
Safety Approvals(pending)	UL/cUL 60950-1 recognition (CSA certificate), IEC/EN 60950-1(CB-scheme)				

## Recommended Input Fuse

12V Input Models	24V Input Models	48V Input Models
1500mA Slow-Blow Type	700mA Slow-Blow Type	350mA Slow-Blow Type

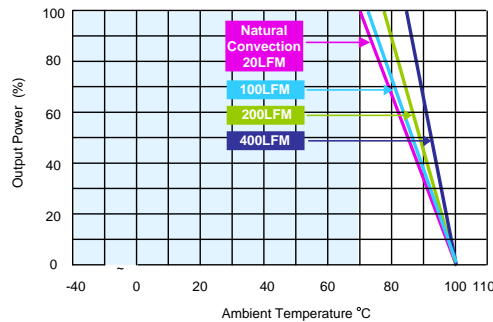
## Remote On/Off Control

Parameter	Conditions	Min.	Typ.	Max.	Unit
Converter On	Under 0.6 VDC or Open Circuit, drops down to 0VDC by 2mV/°C				
Converter Off		2.7	---	15	VDC
Device Standby Input Current		---	1	2.5	mA
Control Input Current ( on )	Vin = 0V	---	---	1	mA
Control Input Current ( off )	Vin = 5.0V	---	---	1	mA
Control Common	Referenced to Negative Input				

## Environmental Characteristics

Parameter	Conditions	Min.	Max.	Unit
Operating Ambient Temperature Range (See Power Derating Curve)	Natural Convection	-40	+85	°C
Case Temperature		---	105	°C
Storage Temperature Range		-55	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

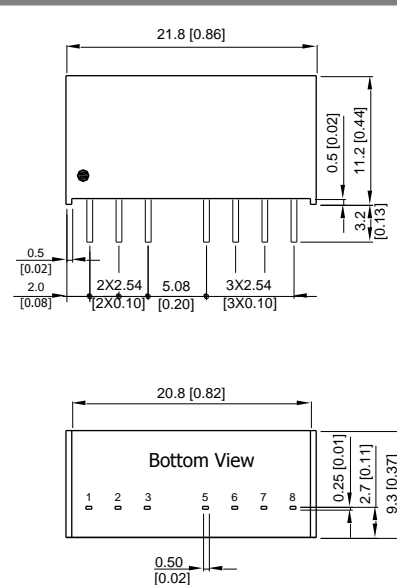
## Power Derating Curve



## Notes

- 1 Specifications typical at  $T_a=+25^{\circ}\text{C}$ , resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%.
- 3 Ripple & Noise measurement bandwidth is 0-20 MHz measured with a  $1\mu\text{F}$  M/C.
- 4 These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will modules; however, they may not meet all specifications listed.
- 5 All DC/DC converters should be externally fused at the front end for protection.
- 6 We recommend to protect the converter by a slow blow fuse in the input supply line.
- 7 That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
- 8 Specifications are subject to change without notice.

## Mechanical Drawing

Mechanical Dimensions		Pin Connections		
 <p>The drawing shows two views of the converter. The top view has a width of 21.8 mm [0.86] and a height of 11.2 mm [0.44]. The bottom view has a width of 20.8 mm [0.82] and a height of 9.3 mm [0.37]. Pin dimensions include 0.5 mm [0.02] for pin width, 2.0 mm [0.08] for pin pitch, and 0.25 mm [0.01] for pin thickness. Pin positions are marked as 1, 2, 3, 5, 6, 7, 8.</p>		Pin	Single Output	Dual Output
		1	-Vin	-Vin
		2	+Vin	+Vin
		3	Remote	Remote
		5	NC	NC
		6	+Vout	+Vout
		7	-Vout	Common
		8	NC	-Vout

NC: No Connection

- ▶ All dimensions in mm (inches)
- ▶ Tolerance:  $X.X\pm 0.5$  ( $X.XX\pm 0.02$ )  
 $X.XX\pm 0.25$  ( $X.XXX\pm 0.01$ )
- ▶ Pins  $\pm 0.1$  ( $\pm 0.004$ )

## Physical Outline

Case Size	: 21.8x9.3x11.2 mm (0.86x0.37x0.44 inches)
Case Material	: Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Pin Material	: Alloy 42
Weight	: 4.8g



Part Numbering System						
P	J	03	S	48	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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