



FEATURES

- Efficiency up to 81%
- SIP Package with Industry Pinout
- Small Footprint: 21.8 x 9.3 mm (0.86"x 0.37"inch)
- Wide 2:1 Input Range
- Operating Temperature Range -40°C to +85°C
- Isolation Voltage 1000VDC
- Fully Regulated Output
- Short circuit protection
- Lead free, RoHS Compliant
- 3 Years Product Warranty



Security



Lab



Medical



Metro



Data Center



Telecom



Industrial



Network

The PG02S series are miniature, SIP Package, isolated 2W DC/DC converters with 1,000VDC isolation. The PG02S series features fully regulated output and wide 2:1 input voltage ranges. The most convenient advantage is the modules with a small footprint occupying only 2.0 cm² (0.3 square in.) on the PCB. 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 Selection Guide

Model Number	Input Voltage (Range) VDC	Output Voltage VDC	Output Current		Input Current		Reflected Ripple Current mA(typ.)	Max.capacitive Load uF	Efficiency (typ.)
			Max. mA	Min. mA	@Max. Load mA(typ.)	@No Load mA(typ.)			@Max. Load %
PG02S0503A	5 (4.5 ~ 9)	3.3	500	125	471	40	400	2200	70
PG02S0505A		5	400	100	548			1000	73
PG02S0512A		12	167	42	534			170	75
PG02S1203A	12 (9 ~ 18)	3.3	500	125	184	20	300	2200	73
PG02S1205A		5	400	100	217			1000	77
PG02S1212A		12	167	42	209			170	80
PG02S2403A	24 (18 ~ 36)	3.3	500	125	96	10	200	2200	72
PG02S2405A		5	400	100	109			1000	77
PG02S2412A		12	167	42	103			170	81
PG02S4803A	48 (36 ~ 75)	3.3	500	125	49	8	500	2200	71
PG02S4805A		5	400	100	57			1000	73
PG02S4812A		12	167	42	53			170	79

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	15	VDC
	12V Input Models	-0.7	---	25	
	24V Input Models	-0.7	---	50	
	48V Input Models	-0.7	---	100	
Start-Up Voltage	5V Input Models	3.5	4	4.5	
	12V Input Models	4.5	7	9	
	24V Input Models	8	12	18	
	48V Input Models	16	24	36	
Under Voltage Shutdown	5V Input Models	---	3.5	4	
	12V Input Models	---	6.5	8.5	
	24V Input Models	---	11	17	
	48V Input Models	---	22	34	
Reverse Polarity Input Current	All Models	---	---	1	A
Short Circuit Input Power		---	---	1500	mW
Input Filter		Capacitor type			
Internal Power Dissipation		---	---	3500	mW

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.3	±0.5	%
Load Regulation	Io=25% to 100%	---	±0.5	±0.75	%
Ripple & Noise (20MHz)		---	30	50	mV _{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	75	mV _{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Transient Recovery Time	25% Load Step Change	---	100	300	μs
Transient Response Deviation		---	±3	±5	%
Temperature Coefficient		---	±0.01	±0.02	%/°C
Short Circuit Protection	Continuous				

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	---	65	120	pF
Switching Frequency		100	300	650	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground	1,000,000	---	---	Hours

Recommended Outside input Fuse

5V Input Models	12V Input Models	24V Input Models	48V Input Models
1500mA Slow-Blow Type	700mA Slow-Blow Type	350mA Slow-Blow Type	135mA Slow-Blow Type

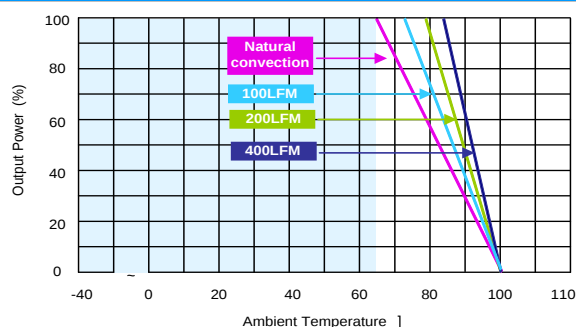
Remote On/Off Control

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 to 15 VDC				
Standby Input Current		---	0.1	0.2	mA
Control Input Current (on)	Vin = 0V	---	---	-0.4	mA
Control Input Current (off)	Vin = 5.0V	---	---	1	mA
Control Common	Referenced to Negative Input				

Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	°C
Case Temperature		---	+90	°C
Storage Temperature Range		-55	+105	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

Power Derating Curve

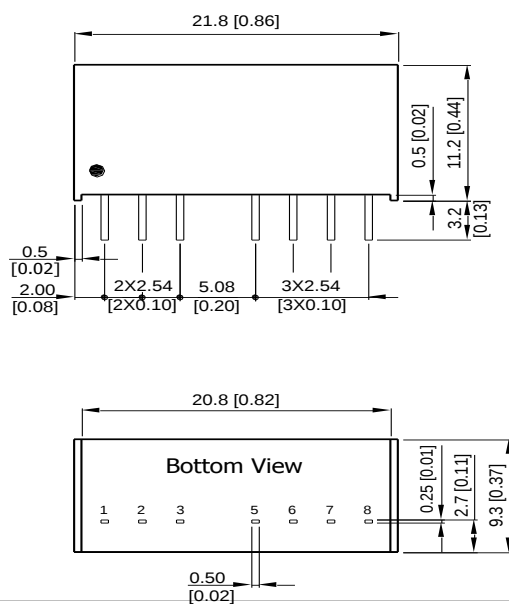


Notes

- 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.
- 4 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.
- 5 All DC/DC converters should be externally fused at the front end for protection.
- 6 Specifications subject to change without notice.

Mechanical Drawing

Mechanical Dimensions



Pin Connections

Pin	Function
1	-Vin
2	+Vin
3	Remote On/Off
5	NC
6	+Vout
7	-Vout
8	NC

NC: No Connection

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

Physical

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



Part Numbering System						
P	G	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.

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Delta Electronics:

[PG02S2403A](#) [PG02S1203A](#) [PG02S1205A](#) [PG02S2405A](#) [PG02S4805A](#) [PG02S0503A](#) [PG02S4812A](#)
[PG02S0505A](#) [PG02S4803A](#) [PG02S1212A](#) [PG02S0512A](#) [PG02S2412A](#)