THE DATASHEET OF

PA01S0509A

PA01S series

1W DC/DC Converter, SIP-Package

FEATURES

- Efficiency up to 80%
- SIP Package with Industry Standard Pinout
- Package Dimension:
  3.3V&5V & 12V Models:
  11.5 x6.1 x10.2mm (0.45” x0.24” x0.40”)
  24V Models,:
  11.5 x7.1 x10.2mm (0.45” x0.28” x0.40”)
- Isolation Voltage 1000VDC
- Operating Temperature range - 40°C to +85°C
- Lead free ,RoHs Compliant
- >2 MHours MTBF
- 3 Years Product Warranty

The PA01S series are miniature, SIP Package, isolated 1W 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)	Output Voltage	Output Current		Input Current		Load Regulation	Maxcapacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	uF	%
PA01S0303A	3.3	3.3	260	6	351	35	14	33	74
PA01S0305A	(2.97 ~ 3.63)	5	200	4	394		14		77
PA01S0503A	5 (4.5 ~ 5.5)	3.3	260	6	238	30	11	33	72
PA01S0505A		5	200	4	290		11		69
PA01S0509A		9	110	2	260		8		76
PA01S0512A		12	84	1.5	262		7		77
PA01S0515A		15	67	1	258		6		78
PA01S1205A	12 (10.8 ~ 13.2)	5	200	4	117	13	9	33	71
PA01S1209A		9	110	2	107		5		77
PA01S1212A		12	84	1.5	106		5		79
PA01S1215A		15	67	1	105		4		80
PA01S2405A	24 (21.6 ~ 26.4)	5	200	4	60	7	8	33	70
PA01S2409A		9	110	2	54		5		76
PA01S2412A		12	84	1.5	53		4		79
PA01S2415A		15	67	1	53		4		79

Input Characteristics

Item	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	3.3V Input Models	2.97	3.3	3.63	VDC
	5V Input Models	4.5	5	5.5	
	12V Input Models	10.8	12	13.2	
	24V Input Models	21.6	24	26.4	
Input Surge Voltage (1 sec. max.)	3.3V Input Models	-0.7	---	6	
	5V Input Models	-0.7	---	9	
	12V Input Models	-0.7	---	18	
	24V Input Models	-0.7	---	30	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter		Internal Capacitor			
Internal Power Dissipation		---	---	450	mW

E-mail: DCDC@delta.com.tw
http://www.delta.com.tw/dcdc

Output Characteristics

Item	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±3.0	%
Line Regulation	For Vin Change of 1%	---	±1.2	±1.5	%
Load Regulation	Io=20% to 100%	See Model -List			
Ripple & Noise (20MHz)		---	100	150	mV_{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	200	mV_{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Temperature Coefficient		---	±0.01	±0.02	%/℃
Short Circuit Protection		0.5 Second Max.			

General Characteristics

Item	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	---	60	100	pF
Switching Frequency		50	90	110	KHz
MTBF (calculated)	@25℃, Ground Benign	2,000,000	-----	-----	Hours

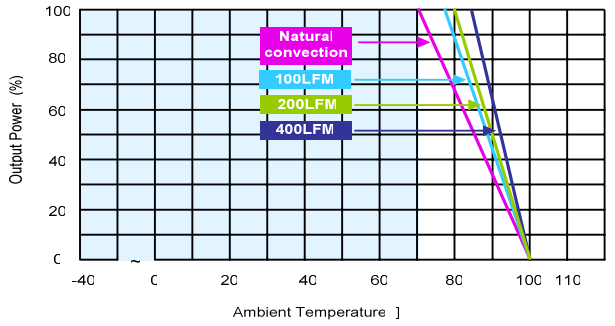
Recommended Outside Input Fuse

3.3V Input Models	5V Input Models	12V Input Models	24V Input Models
800mA Slow-Blow Type	500mA Slow-Blow Type	200mA Slow-Blow Type	100mA Slow-Blow Type

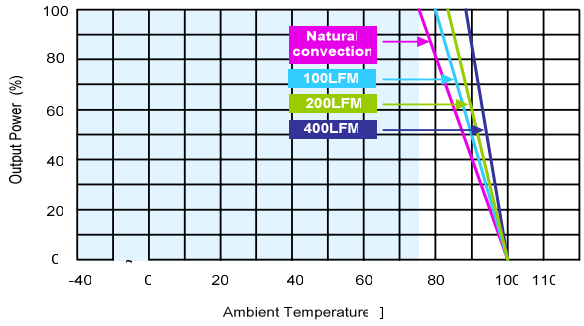
Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	℃
Case Temperature		---	+90	℃
Storage Temperature Range		-50	+125	℃
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	℃

Power Derating Curve



(5V Output Only)



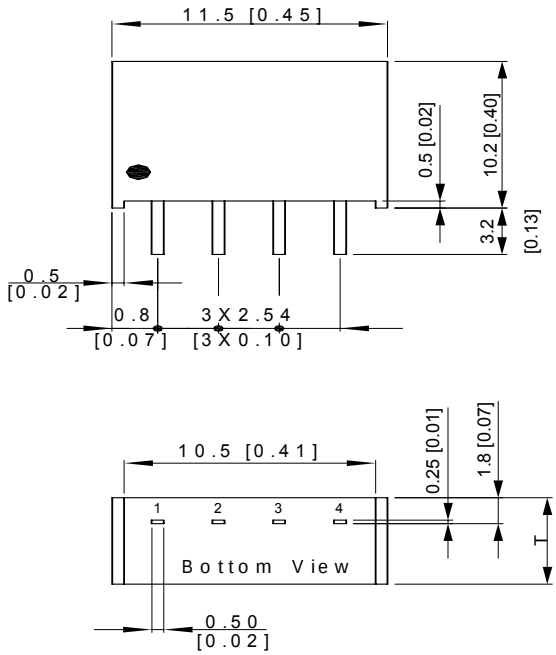
(All Other Output)

Notes

1 Specifications typical at Ta=+25℃, 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 are subject to change without notice.

Mechanical Drawing

Mechanical Dimensions



Pin Connections

Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

T: 6.1mm(0.24 inch) for 3.3V&5V&12V Input Models

T: 7.1mm(0.28 inch) for 24V Input Models

- 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

CaseSize(3.3V,5V,12V Input)	:	11.5x6.1x10.2mm (0.45x0.24x0.40 Inches)
Case Size(24V Input)	:	11.5x7.1x10.2mm (0.45x0.28x0.40 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight(3.3V,5V, 12V Input)	:	1.3g
Weight(24V Input)	:	1.7g

Part Numbering System

P	A	01	S	03	03	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.

E-mail: DCDC@delta.com.tw
http://www.delta.com.tw/dcdc

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View PA01S0509A on WIN SOURCE
- Delta Electronics Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management