DG06S/D Series

6W DC/DC CONVERTER, DIP-Package, 2:1 Wide Input Range

FEATURES

- Efficiency up to 86%
- DIP Package with Industry Standard Pinout
- 1500VDC Voltage Isolation
- 2:1 Wide Input Range
- Low ripple and noise
- Complies with EN55022 Class A
- Temperature Performance -40℃ to +71℃
- Short Circuit Protection
- Internal SMD Construction
- Lead free, RoHs Compliant
- 3 Years Product Warranty

Security Lab Medical Metro Data Center Telecom Industrial Network

The DG06S/D series are miniature, DIP Package, isolated 6W DC/DC converters with 1,500VDC isolation. It offers short circuit protection and allows a wide operating temperature range of –40°C to +71°C. These isolated DC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions. .

Model List

Model Number	Input Voltage (Range)	Output Voltage	Output Current		Input Current		Reflected Ripple Current	Max. capacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	mA(typ.)	uF	%
DG06S0503A	5 (4.5 ~ 7)	3.3	1200	60	1056	80	100	6800	75
DG06S0505A		5	1000	50	1265				79
DG06S0512A		12	500	25	1463				82
DG06S0515A		15	400	20	1463				82
DG06D0505A		±5	±500	±25	1265			1000*	79
DG06D0512A		±12	±250	±12.5	1463				82
DG06D0515A		±15	±200	±10	1463				82
DG06S1203A	12 (9 ~ 18)	3.3	1200	60	429	30	25	6800	77
DG06S1205A		5	1000	50	514				81
DG06S1212A		12	500	25	595				84
DG06S1215A		15	400	20	595				84
DG06D1205A		±5	±500	±25	514			1000*	81
DG06D1212A		±12	±250	±12.5	595				84
DG06D1215A		±15	±200	±10	595				84
DG06S2403A	24 (18 ~ 36)	3.3	1200	60	209	15	15	6800	79
DG06S2405A		5	1000	50	251				83
DG06S2412A		12	500	25	291				86
DG06S2415A		15	400	20	291				86
DG06D2405A		±5	±500	±25	251			1000*	83
DG06D2412A		±12	±250	±12.5	291				86
DG06D2415A		±15	±200	±10	291				86
DG06S4803A	48 (36 ~75)	3.3	1200	60	104	8	10	6800	79
DG06S4805A		5	1000	50	126				83
DG06S4812A		12	500	25	145				86
DG06S4815A		15	400	20	145				86
DG06D4805A		±5	±500	±25	126			1000*	83
DG06D4812A		±12	±250	±12.5	145				86
DG06D4815A		±15	±200	±10	145				86

*For each output

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

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	10	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	3.5	4.4	
	12V Input Models	4.5	6	8	
	24V Input Models	8	12	16	
	48V Input Models	16	24	32	
Under Voltage Shutdown	5V Input Models	---	---	4	
	12V Input Models	---	---	8	
	24V Input Models	---	---	16	
	48V Input Models	---	---	32	
Reverse Polarity Input Current	All Models	---	---	1	A
Short Circuit Input Power		---	1000	3000	mW
Internal Power Dissipation		---	---	2500	mW
Conducted EMI		Compliance to EN 55022,class A and FCC part 15,class A			

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±0.5	±1.0	%
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.5	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.1	±0.3	%
Load Regulation	Io=20% to 100%	---	±0.3	±1.0	%
Ripple & Noise (20MHz)		---	50	75	mV P-P
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	100	mV P-P
Ripple & Noise (20MHz)		---	---	15	mV rms
Transient Recovery Time	25% Load Step Change	---	150	300	uS
Transient Response Deviation		---	±2	±6	%
Temperature Coefficient		---	±0.01	±0.02	%/℃
Over Load Protection	Foldback	120	TBD	---	%
Short Circuit Protection	Continuous				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1500	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	---	380	500	pF
Switching Frequency		---	300	---	KHz
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	1,000,000	---	---	Hours
Safety Approvals	UL/cUL 60950-1 recognition(CSA certificate), IEC/EN 60950-1				

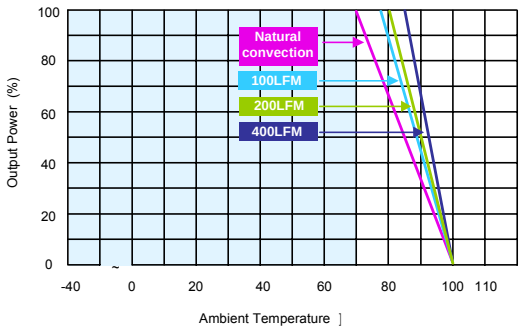
Recommended Input Fuse

5V Input Models	12V Input Models	24V Input Models	48V Input Models
3000mA Slow-Blow Type	1500mA Slow-Blow Type	700mA Slow-Blow Type	350mA 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

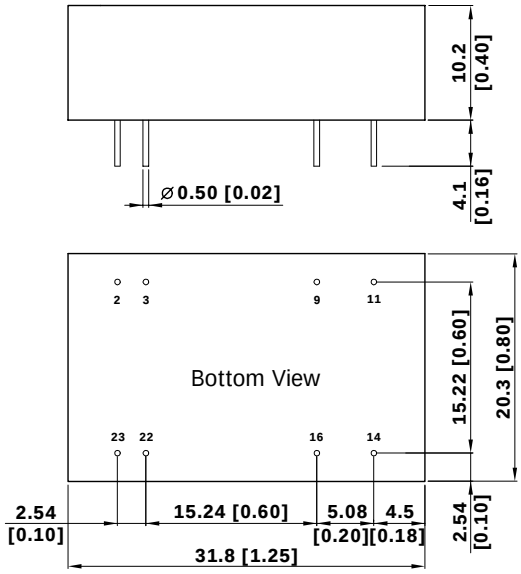


Notes

1 Specifications typical at Ta=+25℃, 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 50% to 100%
3 Ripple & Noise measurement bandwidth is 0-20MHz.
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.

Mechancial Drawing

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

NC: No Connection

▶All dimensions in mm (inches)
▶Tolerance: X.X±0.25 (X.XX±0.01)
X.XX±0.13 (X.XXX±0.005)
▶Pin diameter ⇔ 0.5 ±0.05 (0.02±0.002)

Physical Outline

Case Size	:	31.8x20.3x10.2mm (1.25x0.80x0.40 Inches)
Case Material	:	Metal With Non-Conductive Baseplate
Weight	:	16.9g

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

Part Numbering System

D	G	06	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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