DD03S/ D Series

3W DC/DC CONVERTER, DIP-Package, 2:1 Wide Input Range



FEATURES

- Efficiency up to 81%
- DIP Package with Industry Standard Pinout
- Wide 2:1 Input Range
- Operating Temperature Range –40°C to +85°C
- Isolation Voltage 1500 VDC
- Short Circuit Protection
- Complies with EN55022,Class A
- Lead free, RoHs Compliant
- 3 Years Product Warranty



The DD03S/D series are miniature, DIP Package, isolated 3W DC/DC converters with 1,500VDC isolation. The DD03S/D series features fully regulated output and wide 2:1 input voltage ranges. 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. 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 Selection Guide

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	%
DD03S0505A	5 (4.5 ~ 9)	5	600	60	857	40	100	2000	70
DD03S0512A		12	250	25	811				74
DD03S0515A		15	200	20	811				74
DD03D0512A		±12	±125	±12.5	811			1000*	74
DD03D0515A		±15	±100	±10	811				74
DD03S1205A	12 (9 ~ 18)	5	600	60	329	20	30	2000	76
DD03S1212A		12	250	25	313				80
DD03S1215A		15	200	20	313				80
DD03D1212A		±12	±125	±12.5	313			1000*	80
DD03D1215A		±15	±100	±10	313				80
DD03S2405A	24 (18 ~ 36)	5	600	60	162	5	15	2000	77
DD03S2412A		12	250	25	154				81
DD03S2415A		15	200	20	154				81
DD03D2412A		±12	±125	±12.5	154			1000*	81
DD03D2415A		±15	±100	±10	154				81
DD03S4805A	48 (36 ~ 75)	5	600	60	81	3	10	2000	77
DD03S4812A		12	250	25	77				81
DD03S4815A		15	200	20	77				81
DD03D4812A		±12	±125	±12.5	77			1000*	81
DD03D4815A		±15	±100	±10	77				81

* For each output

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Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	11	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		---	1000	1500	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	±2.0	%
Output Voltage Balance	Dual Output, Balanced Loads	---	±0.5	±2.0	%
Line Regulation	Vin=Min. to Max.	---	±0.2	±0.5	%
Load Regulation	Io=10% to 100%	---	±0.2	±0.5	%
Ripple & Noise (20MHz)		---	45	60	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	---	300	500	uS
Transient Response Deviation		---	±3	±5	%
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	---	---	150	pF
Switching Frequency		---	330	---	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

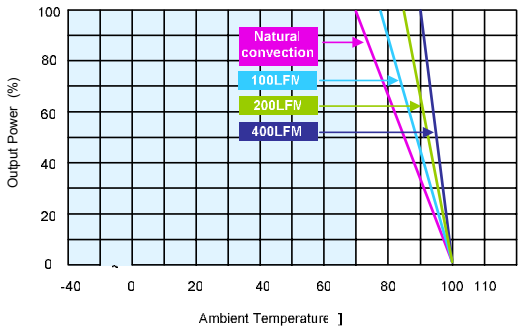
5V Input Models	12V Input Models	24V Input Models	48V Input Models
1500mA Slow-Blow Type	700mA Slow-Blow Type	350mA Slow-Blow Type	135mA Slow-Blow Type

Environmental Characteristics

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	℃

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Power Derating Curve

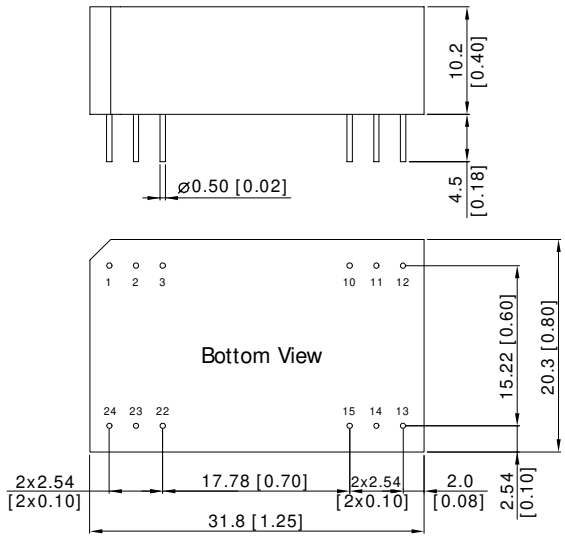


Notes

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 75% 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.

Mechanical Drawing

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
1	+Vin	+Vin
2	NC	-Vout
3	NC	Common
10	-Vout	Common
11	+Vout	+Vout
12	-Vin	-Vin
13	-Vin	-Vin
14	+Vout	+Vout
15	-Vout	Common
22	NC	Common
23	NC	-Vout
24	+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	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight	:	12.4g

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Part Numbering System

D	D	03	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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