DM03S/D Series

3W DC/DC CONVERTER, DIP-Package , High Isolation





FEATURES

- Efficiency up to 84%
- MTBF > 1M Hours
- Reinforced Insulation rated for 300VAC Working Voltage
- UL/EN60601-1&EN60950-1 Safety Approval
- Operating Temperature Range –40°C to +85 °C
- High Isolation Voltage 4000VACrms
- Wide 2:1 Input Range
- Complies with EN5022 Class A
- Overload Protection
- Low Leakage Current
- 3 Years Product Warranty

The DM03S/D series are miniature, DIP Package, isolated 3W DC/DC converters with 4,000VACrms 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. 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	%
DM03S0505A	5 (4.5 ~ 9)	5	600	90	857	40	60	1000	70
DM03S0512A		12	250	37.5	800			470	75
DM03S0524A		24	125	18.8	800			470	76
DM03D0512A		±12	±125	±18.8	800			220*	75
DM03D0515A		±15	±100	±15	800			220*	75
DM03S1205A	12 (9 ~ 18)	5	600	90	338	30	30	1000	74
DM03S1212A		12	250	37.5	313			470	80
DM03S1224A		24	125	18.8	313			470	81
DM03D1212A		±12	±125	±18.8	313			220*	80
DM03D1215A		±15	±100	±15	313			220*	80
DM03S2405A	24 (18 ~ 36)	5	600	90	160	20	15	1000	78
DM03S2412A		12	250	37.5	151			470	83
DM03S2424A		24	125	18.8	151			470	84
DM03D2412A		±12	±125	±18.8	151			220*	83
DM03D2415A		±15	±100	±15	151			220*	83
DM03S4805A	48 (36 ~ 75)	5	600	90	80	10	10	1000	78
DM03S4812A		12	250	37.5	75			470	83
DM03S4824A		24	125	18.8	75			470	84
DM03D4812A		±12	±125	±18.8	75			220*	83
DM03D4815A		±15	±100	±15	75			2208	83

* 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	---	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	3.7	4	4.5	
	12V Input Models	8	8.5	9	
	24V Input Models	15	17	18	
	48V Input Models	30	33	36	
Under Voltage Shutdown	5V Input Models	---	---	4	
	12V Input Models	---	---	8.5	
	24V Input Models	---	---	17	
	48V Input Models	---	---	34	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Short Circuit Input Power		---	---	2000	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.	---	±0.3	±0.5	%
Load Regulation	Io=25% to 100%	---	±0.5	±1.0	%
Ripple & Noise (20MHz)	5V Output Models	---	75	100	mV_{P-P}
	Other Output Models	---	100	150	mV_{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	180	mV_{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Transient Recovery Time	25% Load Step Change	---	150	500	uS
Transient Response Deviation		---	±3	±6	%
Temperature Coefficient		---	±0.02	±0.05	%/℃
Over Load Protection	Foldback	120	150	---	%
Short Circuit Protection	Continuous				

Isolation, Safety Approvals

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	4000	---	---	VACrms
I/O Isolation Test Voltage	Flash tested for 1 Second	6000	---	---	V_{PK}
Leakage Current	240VAC, 60Hz	---	---	2	uA
I/O Isolation Resistance	500 VDC	10	---	---	GΩ
I/O Isolation Capacitance	100KHz, 1V	---	7	13	pF
Safety Standards	cUL/UL60950-1, CSA C22.2 No. 60950-1-03				
	UL60601-1,CSA C22.2 No.601-1				
	IEC/EN 60950-1, IEC/EN 60601-1				
Safety Approvals	IEC60950-1 CB report, cUL/UL 60950-1 certificate				
	UL60601-1 UL certificate				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Switching Frequency		---	150	---	KHz
MTBF(calculated)	MIL-HDBK-217F@25℃, Ground Benign	1,000,000	---	---	Hours

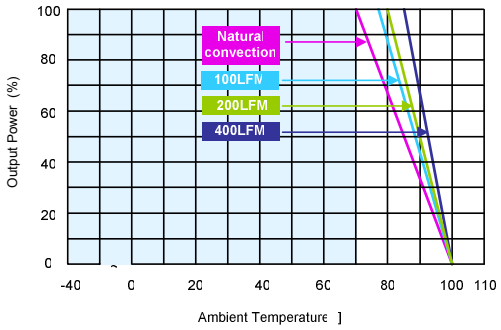
Recommended Input Fuse

5V Input Models	12V Input Models	24V Input Models	48V Input Models
2000mA Slow-Blow Type	1000mA Slow-Blow Type	500mA Slow-Blow Type	250mA Slow-Blow Type

Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	℃
Case Temperature		---	+95	℃
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

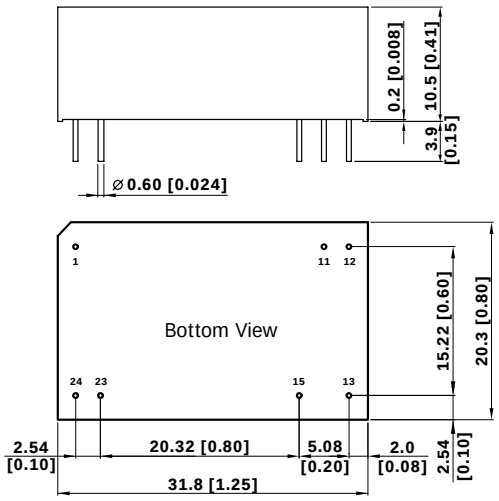


Notes

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 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	Single Output	Dual Output
1	+Vin	+Vin
11	No Pin	Common
12	-Vout	No Pin
13	+Vout	-Vout
15	No Pin	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

▶All dimensions in mm (inches)
▶Tolerance: X.X±0.25 (X.XX±0.01)
X.XX±0.13 (X.XXX±0.005)
▶Pin diameter ⇔ 0.6 ±0.05 (0.024±0.002)

Physical Outline

Case Size	:	31.8x20.3x10.5mm (1.25x0.8x0.41 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight	:	16.2g

Part Numbering System

D	M	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.

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:

DM03D1212A DM03S4812A DM03D0515A DM03S1205A DM03D2415A DM03S2412A DM03S1212A DM03S0505A DM03S2405A DM03D4815A DM03S4805A DM03D2412A DM03D1215A DM03S2424A DM03S0524A DM03D4812A DM03S0512A DM03S4824A DM03S1224A DM03D0512A