SE03S/D Sries

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

FEATURES

- Efficiency up to 83%
- SMD Package with Industry Standard Pinout
- Isolation Voltage 1000VDC
- 2:1 Wide Input Range
- Low ripple and noise
- Short Circuit Protection
- Temperature Performance -40℃ to +71℃
- CSA60950-1 Safety Approval
- > 1MHours MTBF
- Lead free, RoHs Compliant
- 3 Years Product Warranty

Security Lab Medical Metro Data Center Telecom Industrial Network

The SE03S/D series are miniature, SMD Package, isolated 3W DC/DC converters with 1,500VDC isolation. The SE03S/D series features fully regulated output and ultra wide 2:1 input voltage ranges. 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.

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	%
SE03S1203A	12 (9 ~ 18)	3.3	700	70	257	20	25	4700	75
SE03S1205A		5	600	60	316				79
SE03S1212A		12	250	25	305				82
SE03S1215A		15	200	20	305				82
SE03D1205A		±5	±300	±30	321			180*	78
SE03D1212A		±12	±125	±12.5	309				81
SE03D1215A		±15	±100	±10	309				81
SE03S2403A	24 (18 ~ 36)	3.3	700	70	127	5	15	4700	76
SE03S2405A		5	600	60	156				80
SE03S2412A		12	250	25	151				83
SE03S2415A		15	200	20	151				83
SE03D2405A		±5	±300	±30	158			180*	79
SE03D2412A		±12	±125	±12.5	152				82
SE03D2415A		±15	±100	±10	152				82
SE03S4803A	48 (36 ~ 75)	3.3	700	70	63	3	10	4700	76
SE03S4805A		5	600	60	78				80
SE03S4812A		12	250	25	75				83
SE03S4815A		15	200	20	75				83
SE03D4805A		±5	±300	±30	79			180*	79
SE03D4812A		±12	±125	±12.5	76				82
SE03D4815A		±15	±100	±10	76				82

* For each output

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Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Surge Voltage (1 sec. max.)	12V Input Models	-0.7	---	25	VDC
	24V Input Models	-0.7	---	50	
	48V Input Models	-0.7	---	100	
Start-Up Voltage	12V Input Models	4.5	6	8	
	24V Input Models	8	12	18	
	48V Input Models	16	24	36	
Under Voltage Shutdown	12V Input Models	---	---	8	
	24V Input Models	---	---	16	
	48V Input Models	---	---	32	
Reverse Polarity Input Current	All Models	---	---	0.5	A
Short Circuit Input Power		---	---	1500	mW
Input Filter		Pi Filter			
Internal Power Dissipation		---	---	2500	mW

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=10% 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)		---	---	10	mV rms
Transient Recovery Time	25% Load Step Change	---	200	500	uS
Transient Response Deviation		---	±2	±6	%
Temperature Coefficient		---	±0.01	±0.02	%/℃
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	---	65	100	pF
Switching Frequency		---	300	---	KHz
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	1,000,000	---	---	Hours
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D	Level 2			

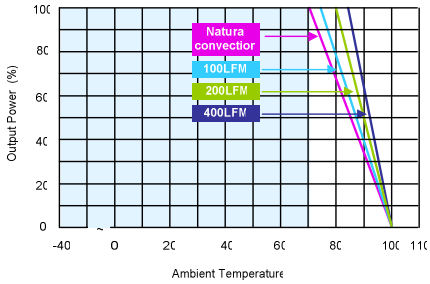
Recommended Input Fuse

12V Input Models	24V Input Models	48V Input Models
750mA Slow-Blow Type	350mA Slow-Blow Type	200mA 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

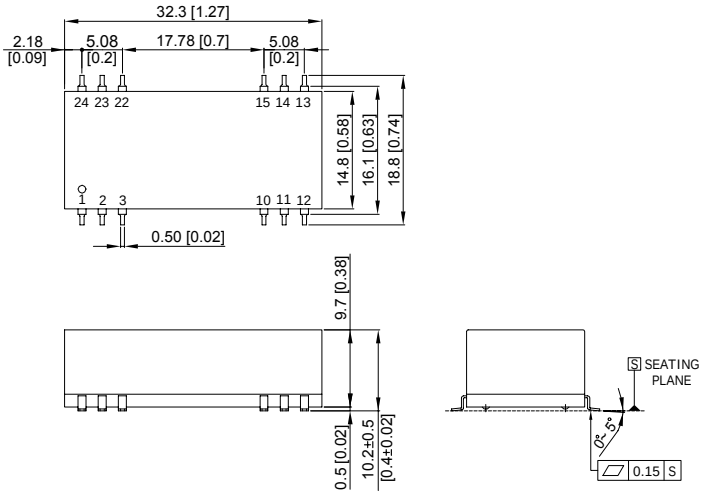


Notes

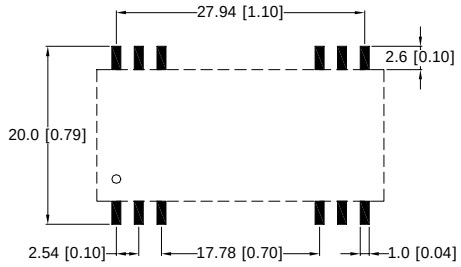
1 Specifications typical at Ta=+25℃, resistive load, nominal input voltage and rated output current unless otherwise noted.
2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%
3 Ripple & Noise measurement bandwidth is 0-20MHz.
4 These power converters 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.
7 It is not recommended to use water-washing process on SMT units.

Mechanical Drawing

Mechanical Dimensions



Connecting Pin Patterns



▶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)

Pin Connections

Pin	Single Output	Dual Output
1,2	-Vin	-Vin
3,11,14,22	NC	NC
10	NC	Common
12	NC	-Vout
13	+Vout	+Vout
15	-Vout	Common
23,24	+Vin	+Vin

NC : No Connection

Physical Characteristics

Case Size	:	32.3x14.8x10.2mm (1.27x0.58x0.4 Inches)
Case Material	:	Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight	:	8.8g

Part Numbering System

S	E	03	S	12	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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