SE03S/D Sries

DC/DC CONVERTER 3W, SMD-Package

Photo is for reference only

FEATURES

- Efficiency up to 83%
- SMD Package with Industry Standard Pinout
- Isolation 1500VDC
- 2:1 Wide Input Range
- Low ripple and noise
- Short Circuit Protection
- Temperature Performance -40℃ to +71℃
- CSA60950-1 Safety Approval
- MTBF > 1,000,000 Hours
- Lead free, RoHs Compliant
- 3 Years Product Warranty

The SE03S/D seriesare 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. 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	%
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			

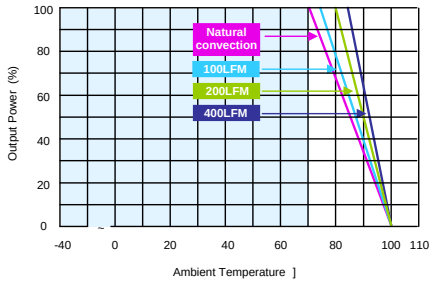
Recommended Input Fuse

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

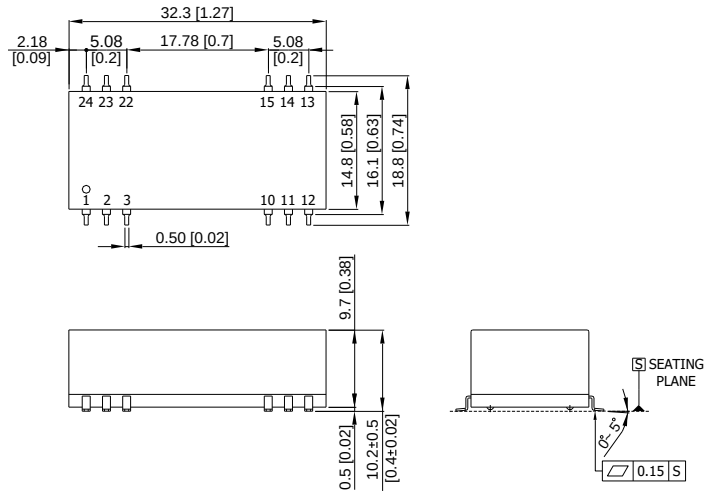


Notes

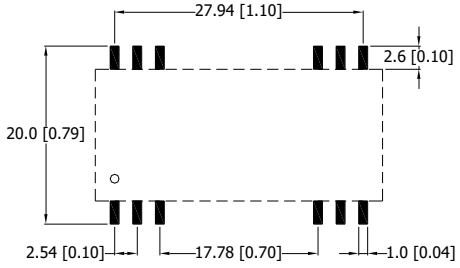
1 Specifications typical at Ta=+25℃, resistive load, nominal input voltage and rated output current unless otherwise noted.
2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%
3 Ripple & Noise measurement bandwidth is 0-20MHz.
4 These power converters 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.

Mechancial 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	ATR -Tape/reel package option
S-SMD		03:3W		12:12V	12:12V	
		04:4W		24: 24V	15: 15V	
		06:6W		48:48V	24: 24V	

WARRANTY

Delta offers a two (2) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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