



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





FEATURES

- Efficiency up to 82%
- SMD Package with Industry Standard Pinout
- Moisture sensitivity level (MSL) 3
- Operating Temperature Range -40° to +85°C
- Low ripple and noise
- Isolation Voltage 1000 VDC
- Lead free, RoHs Compliant
- >2 MHours MTBF
- 3 Years Product Warranty



The SA01S series are miniature, SMD Package, isolated 1W DC/DC converters with 1,000VDC 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

Model List

Model Number	Input Voltage (Range) VDC	Output Voltage VDC	Output Current		Input Current		Load Regulation % (max.)	Max. capacitive Load uF	Efficiency (typ.)			
			Max.	Min.	@Max. Load	@No Load			@Max. Load			
			mA	mA	mA(typ.)	mA(typ.)			%			
SA01S0503A	5 (4.5 ~ 5.5)	3.3	300	6	264	30	10	33	75			
SA01S0503ATR												
SA01S0505A		5	200	4	250							80
SA01S0505ATR												
SA01S0509A		9	110	2	254							78
SA01S0509ATR												
SA01S0512A		12	84	1.5	252							80
SA01S0512ATR												
SA01S0515A		15	67	1	248							81
SA01S0515ATR												
SA01S1203A	12 (10.8 ~ 13.2)	3.3	300	6	110	15	8	33	75			
SA01S1203ATR												
SA01S1205A		5	200	4	103							81
SA01S1205ATR												
SA01S1209A		9	110	2	106							78
SA01S1209ATR												
SA01S1212A		12	84	1.5	104							81
SA01S1212ATR												
SA01S1215A		15	67	1	102							82
SA01S1215ATR												
SA01S2403A	24 (21.6 ~ 26.4)	3.3	300	6	57	8	8	33	73			
SA01S2403ATR												
SA01S2405A		5	200	4	53							79
SA01S2405ATR												
SA01S2409A		9	110	2	54							77
SA01S2409ATR												
SA01S2412A		12	84	1.5	53							80
SA01S2412ATR												
SA01S2415A		15	67	1	52							80
SA01S2415ATR												



Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	5V Input Models	4.5	5	5.5	VDC
	12V Input Models	10.8	12	13.2	
	24V Input Models	21.6	24	26.4	
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	9	VDC
	12V Input Models	-0.7	---	18	
	24V Input Models	-0.7	---	30	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter		Internal Capacitor			
Internal Power Dissipation		---	---	450	mW

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±3.0	%
Line Regulation	For Vin Change of 1%	---	±1.2	±1.5	%
Load Regulation	Io=20% to 100%	See Model Selection Guide			
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	60	120	mV _{p-p}
Ripple & Noise (20MHz)		---	---	150	mV _{p-p}
Ripple & Noise (20MHz)		---	---	15	mV rms
Temperature Coefficient		---	±0.01	±0.02	%/°C
Short Circuit Protection	0.5 Second Max.				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	1000	---	---	VDC
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
I/O Isolation Capacitance	100KHz, 1V	---	40	100	pF
Switching Frequency		50	100	140	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	2,000,000	---	---	Hours
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D	Level 3			

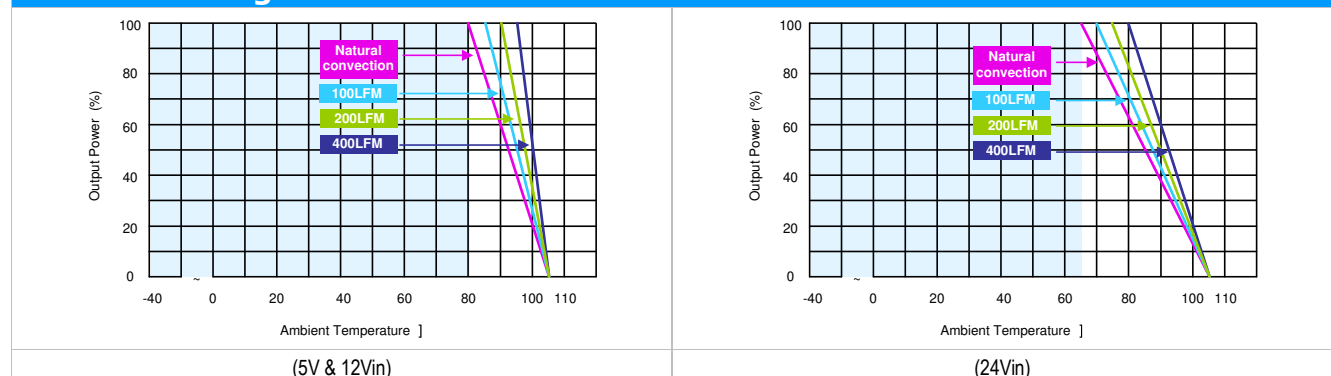
Recommended Input Fuse

5V Input Models	12V Input Models	24V Input Models
500mA Slow-Blow Type	200mA Slow-Blow Type	100mA Slow-Blow Type

Environmental Specifications

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	°C
Case Temperature		---	+90	°C
Storage Temperature Range		-50	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

Power Derating Curve



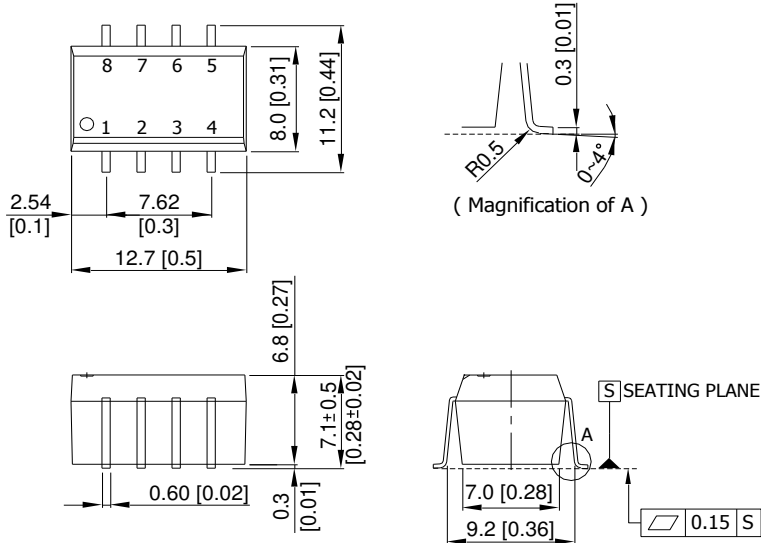


Notes

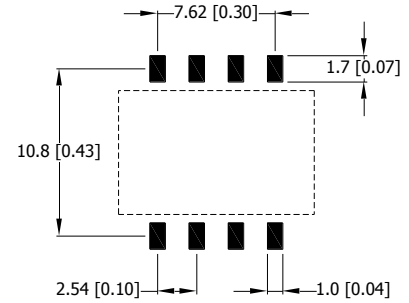
- 1 Specifications typical at $T_a=+25^{\circ}\text{C}$, resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Ripple & Noise measurement bandwidth is 0-20MHz.
- 3 These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
- 4 All DC/DC converters should be externally fused at the front end for protection.
- 5 Specifications subject to change without notice.

Mechanical Drawing

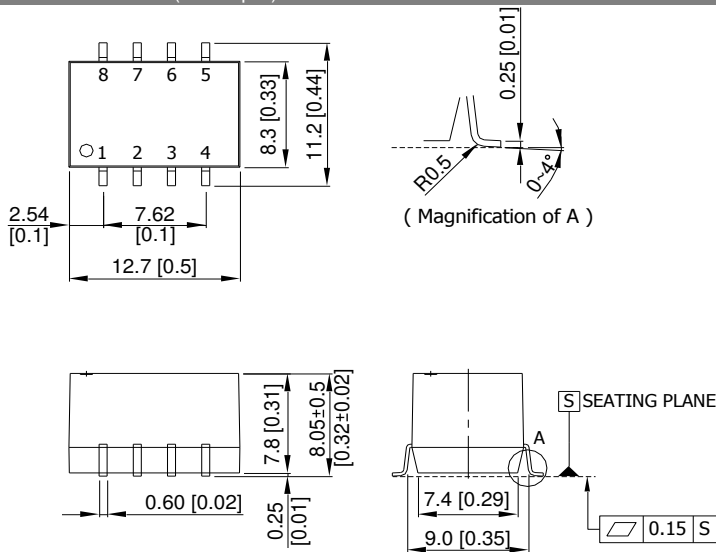
Mechanical Dimensions (5V & 12V Input)



Connecting Pin Patterns



Mechanical Dimensions (24V Input)



Pin Connections

Pin	Function
1	-Vin
2	+Vin
3	NA
4	-Vout
5	+Vout
6	NA
7	NA
8	NA

NA : Not Available for Electrical Connection

- ▶ 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)

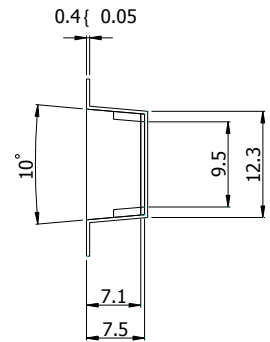
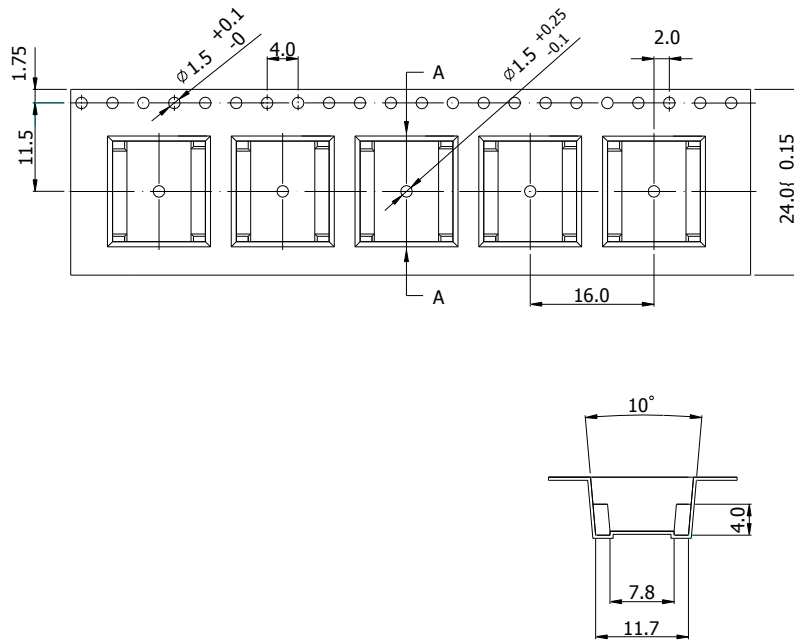
Physical Outline

Case Size (5V&12V Input) : 12.7x8.0x6.8mm (0.50x0.31x0.27 Inches)
 Case Size (24V Input) : 12.7x8.3x7.8mm (0.50x0.33x0.31 Inches)
 Case Material : Molding (flammability to UL 94V-0 rated)

Weight (5V&12V Input) : 1.5g
 Weight (24V Input) : 1.8g

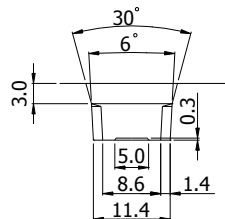
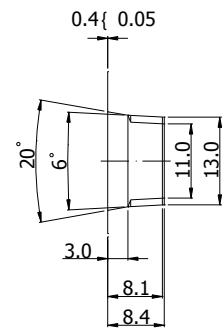
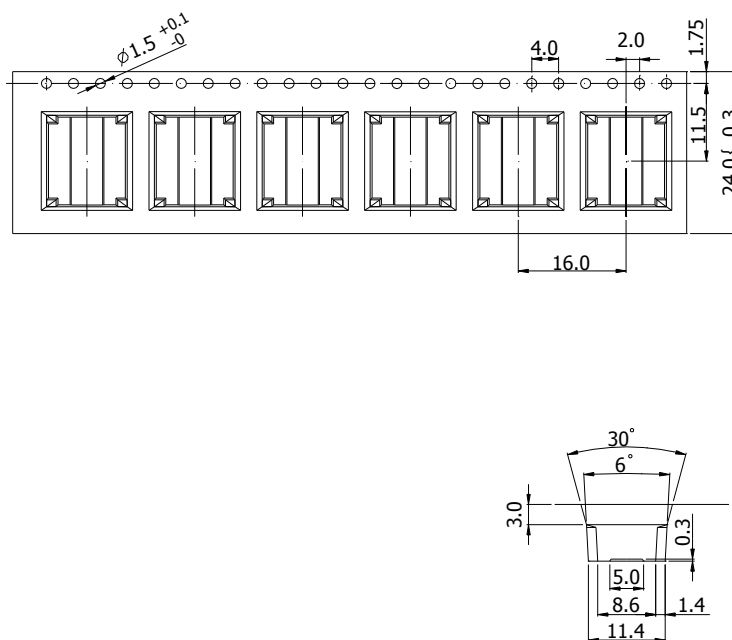
Reel Taping Package

Tape(5V & 12V Input)



SECTION A-A

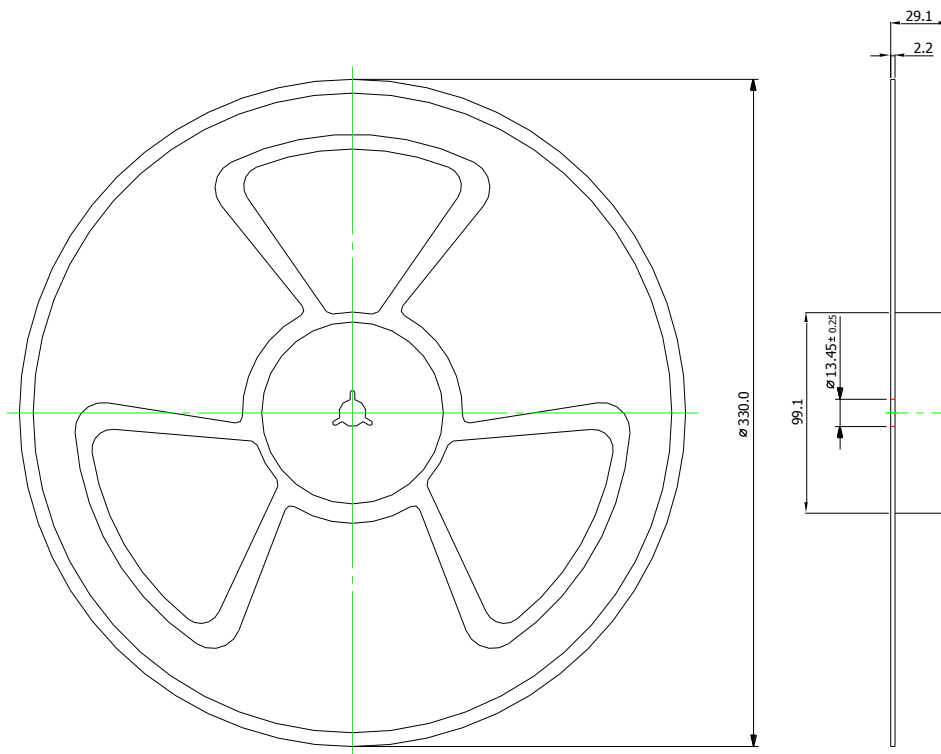
Tape(24V Input)



- ▶ All dimensions in mm
- ▶ Tolerance: ± 0.1

Reel Taping Package

Packaging Specifications



- ▶ All dimensions in mm
- ▶ Tolerance: ± 0.1

Part Numbering System

S	A	01	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	ATR - Std. Functions with Tape and Reel
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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