

SD5S SERIES

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR STAND-OFF VOLTAGE - 16 TO 43 Volts



FEATURES

- ⊙ Halogen-Free
- ⊙ RoHS compliant
- ⊙ Glass Passivated Junction technology
- ⊙ $T_J = 175\text{ }^\circ\text{C}$ capability suitable for high reliability
- ⊙ Both available in uni and bi-polar directional polarity
- ⊙ Low leakage current
- ⊙ Low forward voltage drop for uni-directional polarity
- ⊙ High surge capability
- ⊙ Meets ISO7637-2 & ISO16750-2 surge specification (varied by test condition)
- ⊙ AEC-Q101 qualified

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

MECHANICAL DATA

Case: DO-218. Molded plastic over glass passivated junction
Molding compound meets UL 94 V-0 flammability rating

Polarity: Heatsink is anode

Terminal: Solderable per MIL-STD-750, Method 2026

Mounting Position: Any

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at $25\text{ }^\circ\text{C}$ ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 μs waveform (Note 1)	P_{PPM}	3600	Watts
Peak Pulse Power Dissipation on 10/10000 μs waveform (Note 1)	P_{PPM}	2800	Watts
Peak Pulse Current of on 10/1000 μs waveform	I_{PPM}	SEE TABLE 1	Amps
Power dissipation on infinite heatsink at $T_C = 25\text{ }^\circ\text{C}$ (fig. 1)	$P_M (AV)$	5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method)	I_{FSM}	500	Amps
Operating junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 175	$^\circ\text{C}$

Note

(1) Non-repetitive current pulse derated above $T_A = 25\text{ }^\circ\text{C}$

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3.6KW PART NUMBER		REVERSE STAND-OFF VOLTAGE $V_{RWM}(V)$	BREAKDOWN VOLTAGE $V_{BR}(V) @ I_T$		TEST CURRENT $I_T (mA)$	MAXIMUM CLAMPING VOLTAGE @ $I_{PP} V_C (V)$	PEAK PULSE CURRENT AT 10/1000 $\mu s I_{pp} (A)$	REVERSE LEAKAGE @ $V_{RWM} I_R (\mu A)$
UNI-POLAR	BI-POLAR		MIN	MAX				
SD5S16A	SD5S16CA	16.0	17.80	19.70	5	26.0	138.0	10
SD5S17A	SD5S17CA	17.0	18.90	20.90	5	27.6	130.0	10
SD5S18A	SD5S18CA	18.0	20.00	22.10	5	29.2	123.0	10
SD5S20A	SD5S20CA	20.0	22.20	24.50	5	32.4	111.0	10
SD5S22A	SD5S22CA	22.0	24.40	26.90	5	35.5	101.0	10
SD5S24A	SD5S24CA	24.0	26.70	29.50	5	38.9	93.0	10
SD5S26A	SD5S26CA	26.0	28.90	31.90	5	42.1	86.0	10
SD5S28A	SD5S28CA	28.0	31.10	34.40	5	45.4	79.0	10
SD5S30A	SD5S30CA	30.0	33.30	36.80	5	48.4	74.0	10
SD5S33A	SD5S33CA	33.0	36.70	40.6	5	53.3	68.0	10
SD5S36A	SD5S36CA	36.0	40.00	44.2	5	58.1	62.0	10
SD5S40A	SD5S40CA	40.0	44.40	49.1	5	64.5	56.0	10
SD5S43A	SD5S43CA	43.0	47.80	52.8	5	69.4	52.0	10

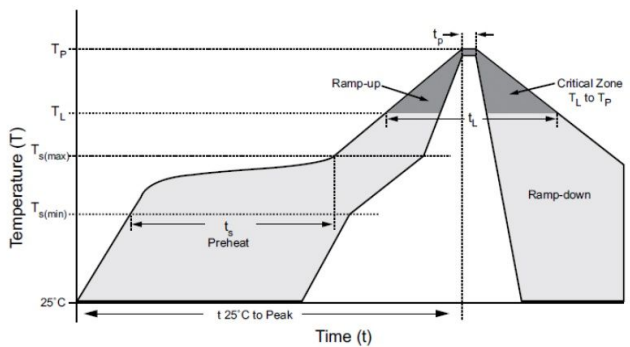
Note

- For uni-directional part, the maximum VF = 1.8 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (t_s)	60 -120 secs
Average ramp up rate(Liquidus Temp(T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	-Temperature Min (T_L)	217°C
	Time (t_r) maintained above T_L	60 - 150 seconds
Peak temperature(T_p)		245 $^{+0/-5}C$
Time within 5°C of actual peak Temperature(t_p)		20 - 40 seconds
Ramp-down Rate		6°C/second max
Time 2 5°C to peak Temperature(T_p)		8 minutes Max.

Soldering Profile



Note : Number of reflow cycles allowed 3 times

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RATINGS AND CHARACTERISTIC CURVES

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

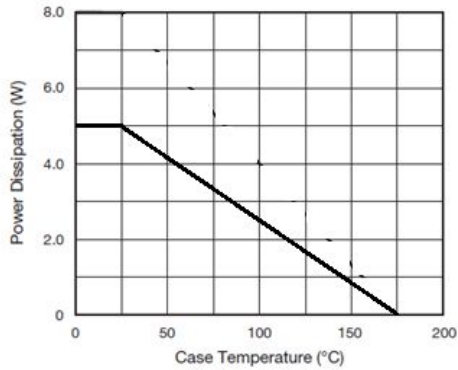


Fig. 1 - Power Derating Curve

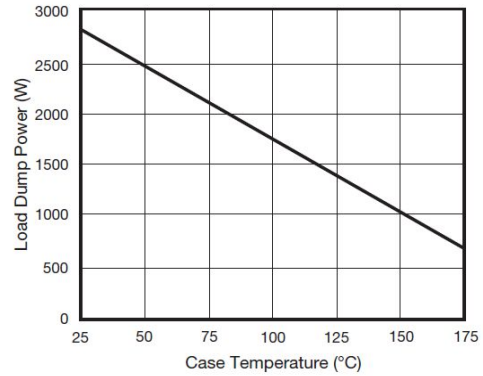


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

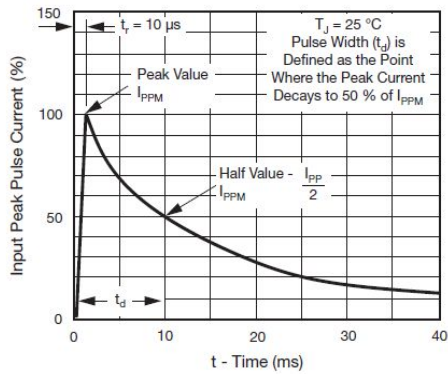


Fig. 3 - Pulse Waveform

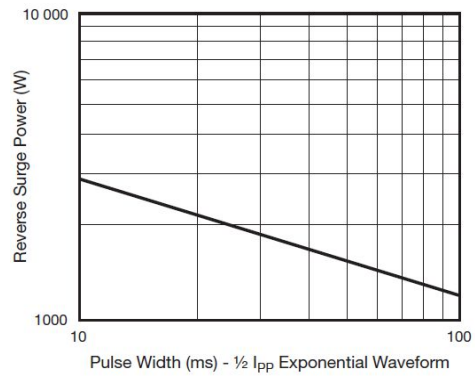


Fig. 4 - Reverse Power Capability

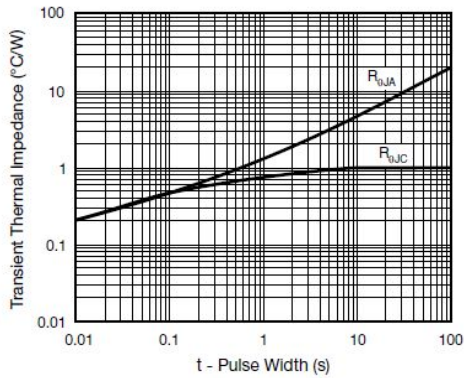
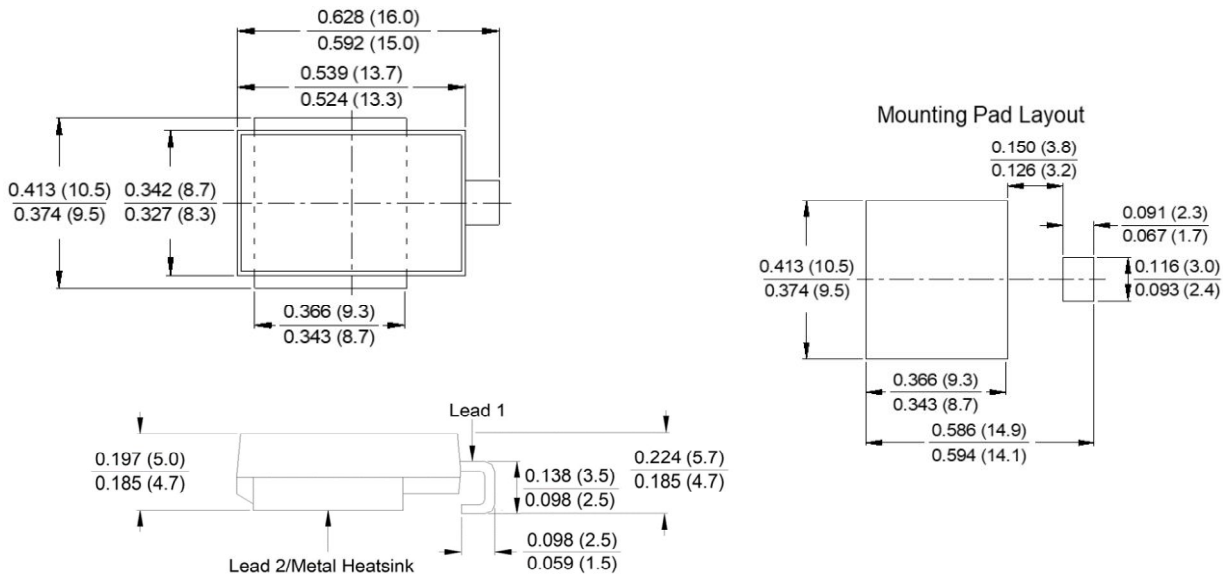


Fig. 5 - Typical Transient Thermal Impedance

SD5S SERIES PACKAGE OUTLINE DIMENSIONS

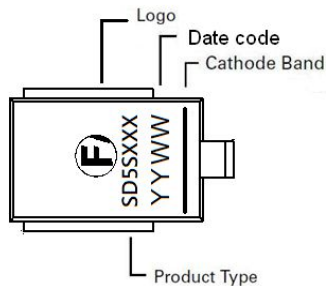
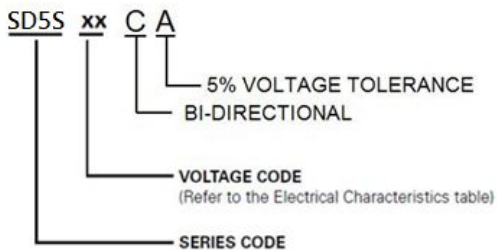
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



SD5S SERIES GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

Part Numbering System

Part Marking System



Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
SD5SXXX	DO-218	750	Tape & Reel - 24mm/13" tape	EIA STD RS-481