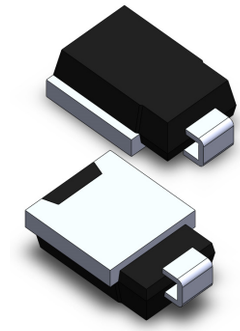
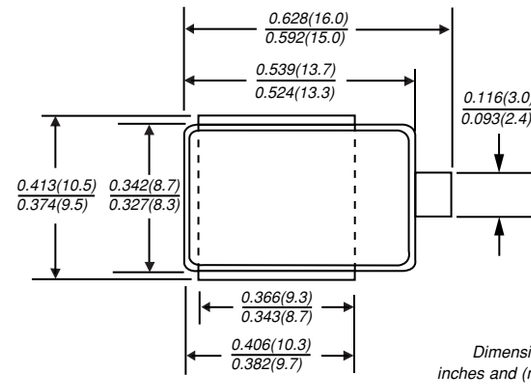
SM5S -H Series

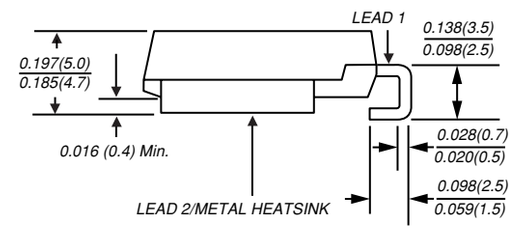
SURFACE MOUNT AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSORS

VOLTAGE RANGE: 10- 36V
POWER: 3600Watts



DO-218AB





Features

- Ideally suited for load dump protection
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- AEC-Q101 qualified
- Junction passivation optimized design technology
- T_J =175 °C capability suitable for high reliability and automotive requirement
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- High temperature stability due to unique oxide passivation and patented PAR®construction
- Integrally molded heatsink provides a very low thermal resistance for maximum heat dissipation
- High temperature soldering guaranteed: 260°C for 10 seconds at terminals
- Low forward voltage drop

APPLICATIONS

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

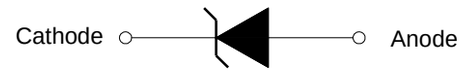
Mechanical Data

- Case: DO-218AB integrally mounted in the encapsulation
- Terminals: Plated, solderable per MIL-STD-750, Method 2026
- Polarity: Heatsink is anode
- Mounting Position: Any
- Weight: 2.691g (approximately)

RoHS compliant



Bi-directional



Uni-direction

Maximum Ratings and Thermal Characteristics (TC = 25°C unless otherwise noted)

Characteristic	Symbol	Value	Unit
Peak pulse power dissipation with 10/1000µs waveform 10/10,000µs waveform	P_{PPM}	3600 2800	W
Steady state power dissipation	P_D	5.0	W
Peak pulse current with a 10/1000µs waveform(1)	I_{PPM}	See Table 1	A
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	500	A
Typical thermal resistance junction to case	$R_{\theta JC}$	1.0	°C/W
Operating junction and storage temperature range	T_J, T_{STG}	–55 to +175	°C

Notes: (1) Non-repetitive current pulse derated above T_A = 25°C

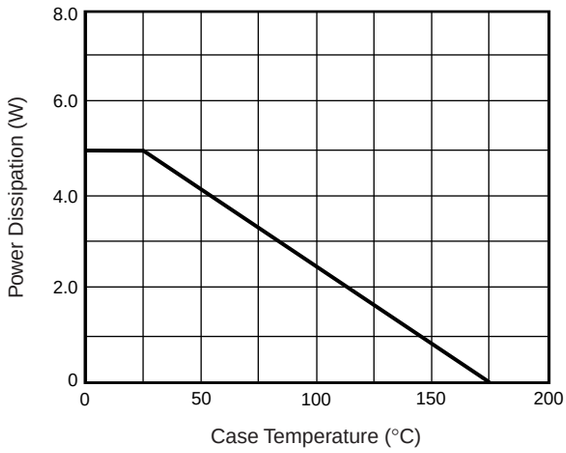
ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

Type	Breakdown Voltage $V_{(BR)}$ (V)		Test Current I_T	Stand-off Voltage V_{WM}	Maximum Reverse Leakage at V_{WM} I_D	Maximum Reverse Leakage at V_{WM} Tc = 175°C	Max. Peak Pulse Current at 10/1000μs Waveform	Maximum Clamping Voltage at I_{PPM} V_C
	Min.	Max.	(mA)	(V)	(μA)	I_D(μA)	(A)	(V)
SM5S10CA-H	11.1	13.6	5.0	10.0	15	250	191	18.8
SM5S10A-H	11.1	12.3	5.0	10.0	15	250	212	17.0
SM5S11CA-H	12.2	14.9	5.0	11.0	10	150	179	20.1
SM5S11A-H	12.2	13.5	5.0	11.0	10	150	198	18.2
SM5S12CA-H	13.3	16.3	5.0	12.0	10	150	164	22.0
SM5S12A-H	13.3	14.7	5.0	12.0	10	150	181	19.9
SM5S13CA-H	14.4	17.6	5.0	13.0	10	150	151	23.8
SM5S13A-H	14.4	15.9	5.0	13.0	10	150	167	21.5
SM5S14CA-H	15.6	19.1	5.0	14.0	10	150	140	25.8
SM5S14A-H	15.6	17.2	5.0	14.0	10	150	155	23.2
SM5S15CA-H	16.7	20.4	5.0	15.0	10	150	134	26.9
SM5S15A-H	16.7	18.5	5.0	15.0	10	150	148	24.4
SM5S16CA-H	17.8	21.8	5.0	16.0	10	150	125	28.8
SM5S16A-H	17.8	19.7	5.0	16.0	10	150	138	26.0
SM5S17CA-H	18.9	23.1	5.0	17.0	10	150	118	30.5
SM5S17A-H	18.9	20.9	5.0	17.0	10	150	130	27.6
SM5S18CA-H	20.0	24.4	5.0	18.0	10	150	112	32.2
SM5S18A-H	20.0	22.1	5.0	18.0	10	150	123	29.2
SM5S20CA-H	22.2	27.1	5.0	20.0	10	150	101	35.8
SM5S20A-H	22.2	24.5	5.0	20.0	10	150	111	32.4
SM5S22CA-H	24.4	29.8	5.0	22.0	10	150	91	39.4
SM5S22A-H	24.4	26.9	5.0	22.0	10	150	101	35.5
SM5S24CA-H	26.7	32.6	5.0	24.0	10	150	84	43.0
SM5S24A-H	26.7	29.5	5.0	24.0	10	150	93	38.9
SM5S26CA-H	28.9	35.3	5.0	26.0	10	150	77	46.6
SM5S26A-H	28.9	31.9	5.0	26.0	10	150	86	42.1
SM5S28CA-H	31.1	38.0	5.0	28.0	10	150	72	50.1
SM5S28A-H	31.1	34.4	5.0	28.0	10	150	79	45.4
SM5S30CA-H	33.3	40.7	5.0	30.0	10	150	67	53.5
SM5S30A-H	33.3	36.8	5.0	30.0	10	150	74	48.4
SM5S33CA-H	36.7	44.9	5.0	33.0	10	150	61	59.0
SM5S33A-H	36.7	40.6	5.0	33.0	10	150	68	53.3
SM5S36CA-H	40.0	48.9	5.0	36.0	10	150	56	64.3
SM5S36A-H	40.0	44.2	5.0	36.0	10	150	62	58.1

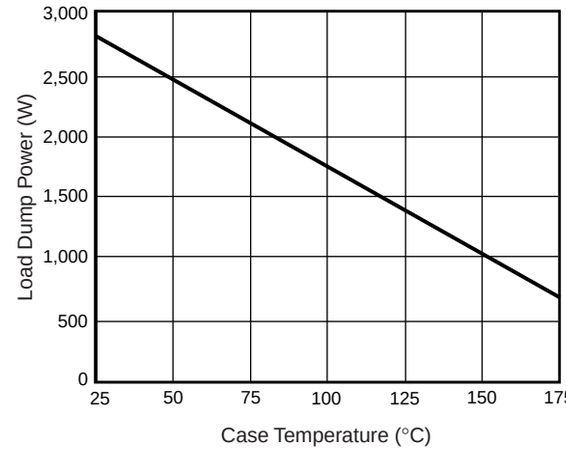
Note: For all types maximum V_F = 2.0V at I_F = 100A measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

CHARACTERISTICS CURVES (T_A = 25°C unless otherwise noted)

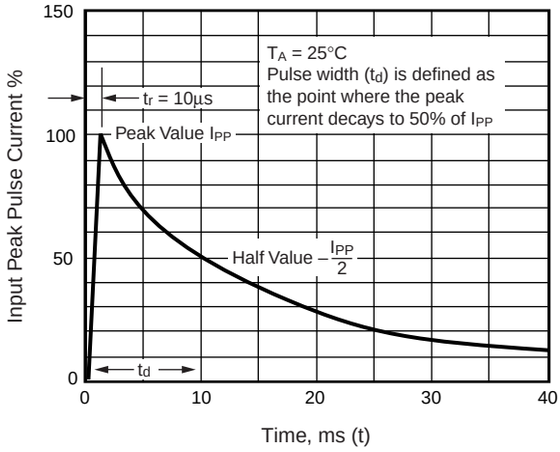
Power Derating Curve



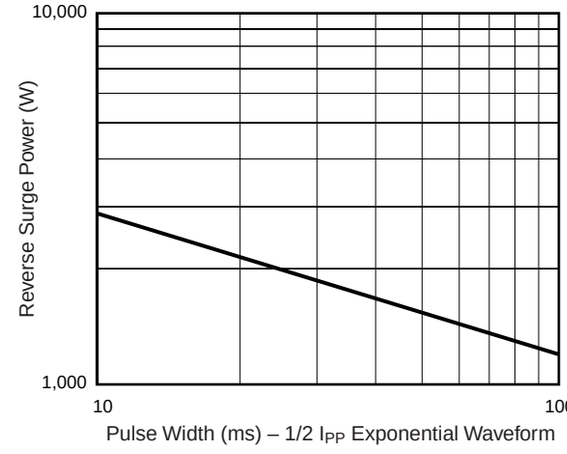
Load Dump Power Characteristics (10ms Exponential Waveform)



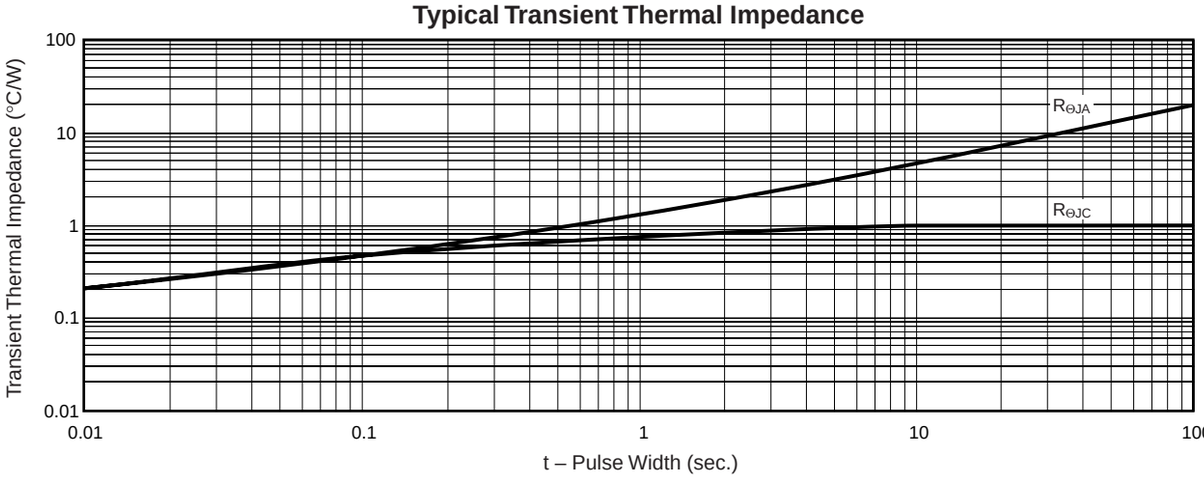
Pulse Waveform



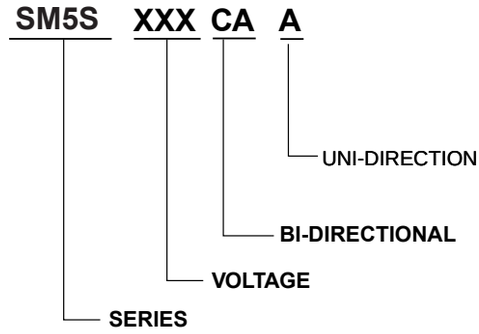
Reverse Power Capability



Typical Transient Thermal Impedance

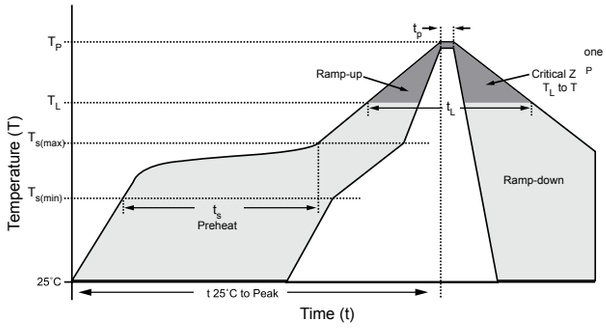


Part Numbering System

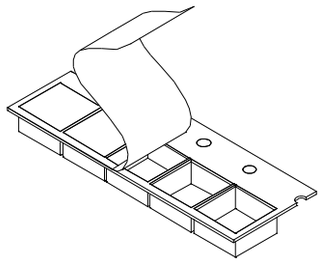


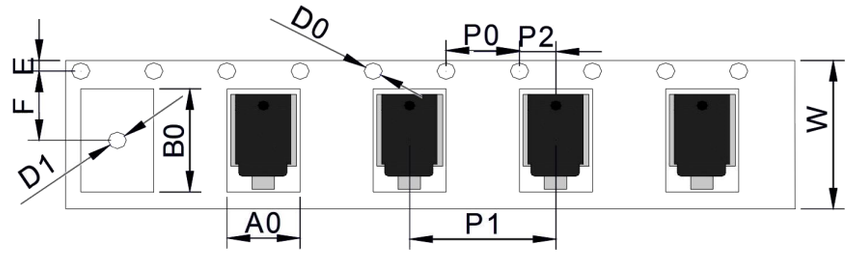
Soldering Parameters

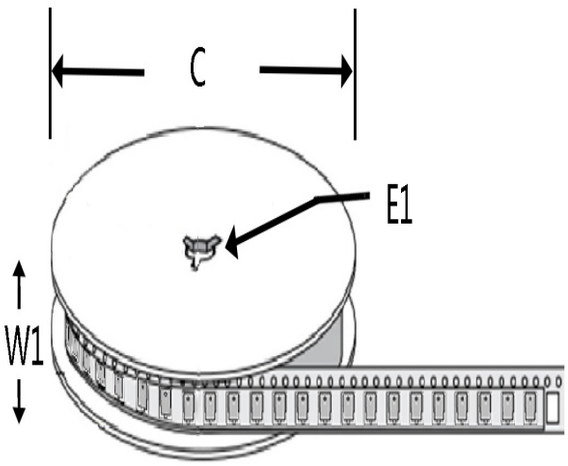
Feflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(min)}$)	200°C
	- Time (min to max) (t_s)	60-180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20-40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Surface Mount Tape and Reel Packaging







Ref.	Dimensions	
	Millimeters	Inches
A0	10.80 ± 0.3	0.425± 0.012
B0	16.13 ± 0.3	0.635 ± 0.012
C	330.0 ± 0.3	13.0 ± 0.012
D0	1.55 ± 0.2	0.061 ± 0.008
D1	1.55 ± 0.2	0.061± 0.008
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.30 ± 0.2	0.524 ± 0.008
F	11.50 ± 0.2	0.453 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	16.00 ± 0.2	0.630 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	24.00 ± 0.2	0.945 ± 0.008
W1	25.85 ± 0.2	1.018 ± 0.008

ORDERING INFORMATION

PART No.	UNIT WEIGHT (g)typ	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SM8SxxA	2.985	750	3000	13 inch reel pack

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