

Surface Mount Transient Voltage Suppressors

High temperature stability and high reliability conditions



DO-218AB



- Junction passivation optimized design passivated anisotropic rectifier technology.
- $T_J = 175$ capability suitable for high reliability and automotive requirement.
- Available in uni-directional polarity only.
- Low leakage current.
- Low forward voltage drop.
- High surge capability.
- Meets ISO16750-2 surge specification(varied by test condition).
- Meets MSL-1, per J-STD-020, LF maximum peak of 260 .
- AEC-Q101 qualified.
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC.

V_R	20V to 43V
P_{PP} (10/1000 μ s)	8000W
P_{PP} (10/10000 μ s)	6000W
P_D	8.5W
I_{FSM}	750A
T_{Jmax}	175
Polarity	Uni-directional
Package	DO-218AB

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

Case: DO-218AB

Molding compound meets UL 94V-0 flammability rating
Base P/NHE3-RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002

(T _C =25 , RH=45%-75%, unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000 μ s waveform	P_{PP}	8000	Watts
Peak pulse power dissipation at 10/10000 μ s waveform		6000	Watts
Power dissipation on infinite heat sink at T _C =25	P_D	8.5	Watts
Peak pulse current with 10/1000 μ s waveform	$I_{PPM}^{(1)}$	See next table	Amps
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	750	Amps
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.85	/W
Typical thermal resistance, junction to ambient	$R_{\theta JA}$	11	/W

Note: Non-repetitive current pulse derated above T_A=25



Part Number	V _R	I _T	I _R @V _R		V _{BR} @I _T		V _C @I _{PP}	I _{PP}
Uni-polar	V	mA	μA@25°C	μA@175°C	min(V)	max (V)	V	A
SM8T20A-AL	20.0	5	5	150	22.2	24.5	32.4	247
SM8T22A-AL	22.0	5	5	150	24.4	26.9	35.5	225
SM8T24A-AL	24.0	5	5	150	26.7	29.5	38.9	205
SM8T26A-AL	26.0	5	5	150	28.9	31.9	42.1	190
SM8T28A-AL	28.0	5	5	150	31.1	34.4	45.4	176
SM8T30A-AL	30.0	5	5	150	33.3	36.8	48.4	165
SM8T32A-AL	32.0	5	5	150	35.5	39.4	51.4	156
SM8T33A-AL	33.0	5	5	150	36.7	40.6	53.3	150
SM8T36A-AL	36.0	5	5	150	40.0	44.2	58.1	138
SM8T40A-AL	40.0	5	5	150	44.4	49.1	64.5	124
SM8T43A-AL	43.0	5	5	150	47.8	52.8	69.4	115

Note:

.For all types maximum V_F=1.8V at I_F=100A measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

Surge waveform: 10/1000μs

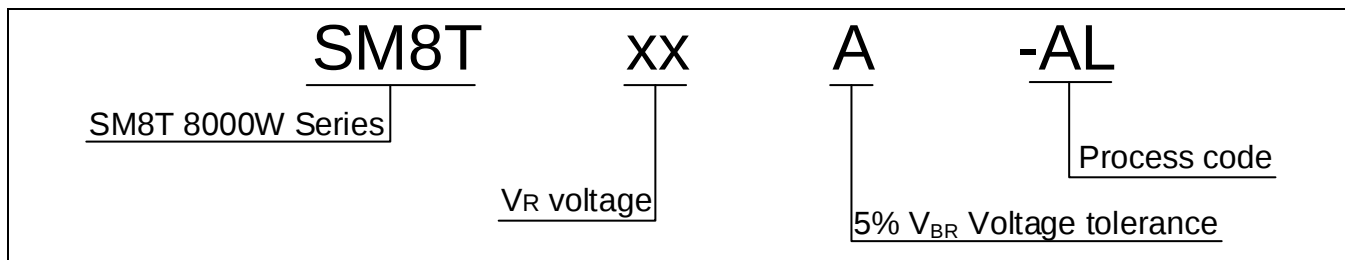
V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

I_T: Test current



($T_A=25$, unless otherwise noted)

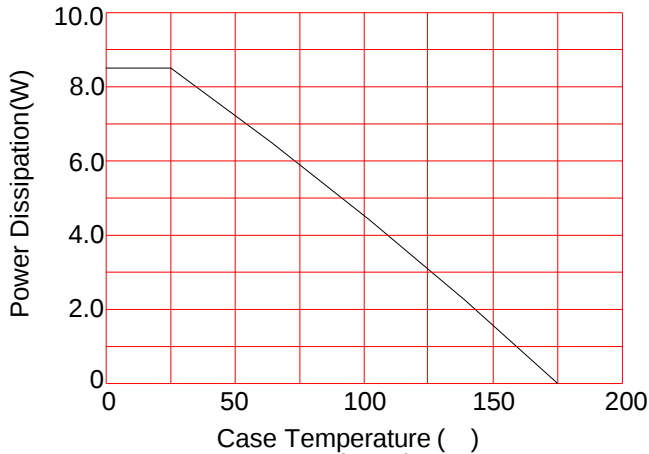


FIG.1: Power derating curve

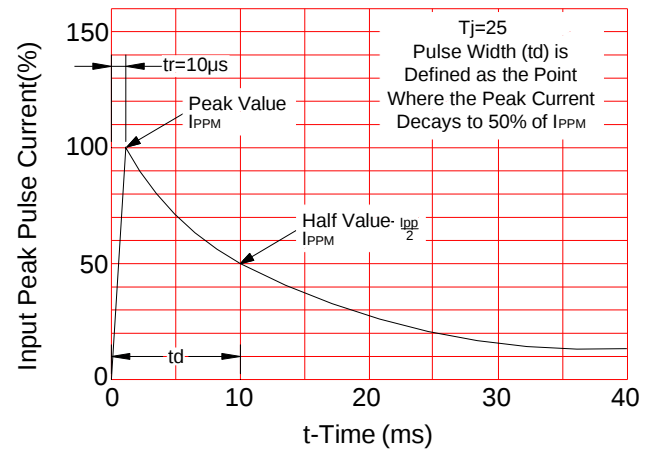


FIG.2: Pulse waveform

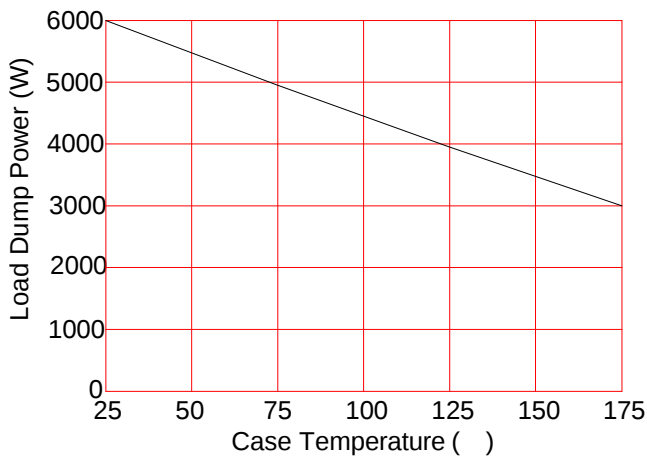


FIG.3: Load Dump Power Characteristics (10ms Exponential Waveform)

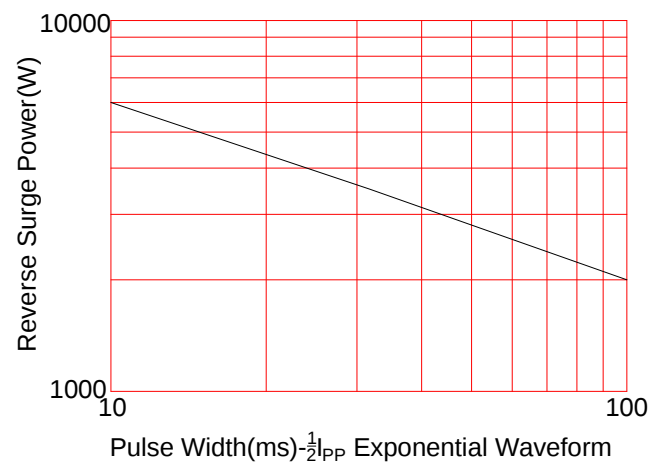


FIG.4: Reverse Power Capability

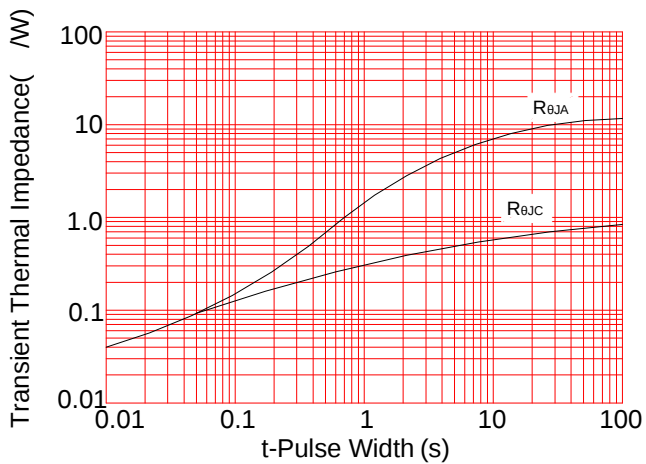


FIG.5: Typical Transient Thermal Impedance

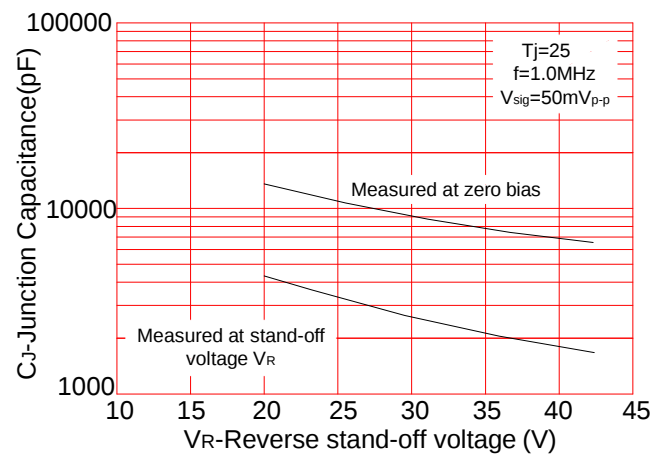
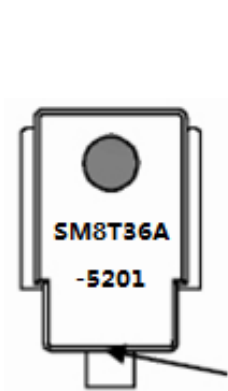


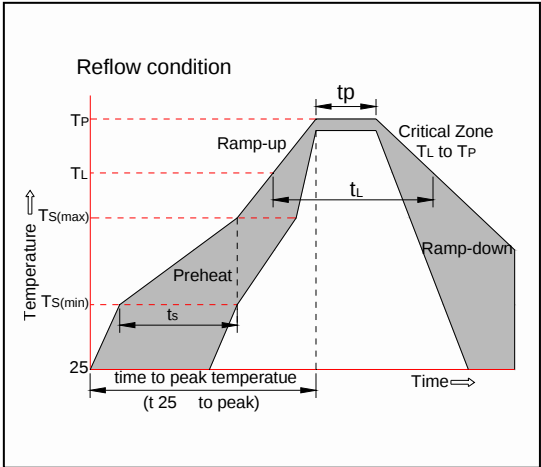
FIG.6: Typical junction capacitance

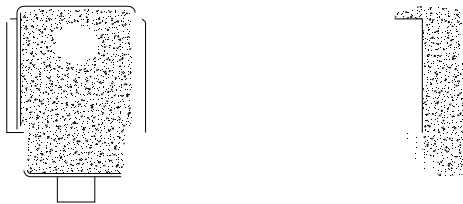


SM	Surface Mount
8T	$P_D=8.5W$
36	$V_R:36V$
A	Uni-directional

x201					
2015	2016	2017	2018	2019	2020
5	6	7	8	9	0
2021	2022	2023	2024	...	
1	2	3	4	...	
5x01 Month 1 2 3 9 O N D					
52xx Lot number					

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150
	-Temperature Max($T_{s(max)}$)	+200
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3 /sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 /sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)
Time within 5 of actual Peak Temp (t_P)		20-40secs.
Ramp-down Rate		6 /sec. Max
Time 25 to Peak Temp (T_P)		8 min. Max
Do not exceed		+260





Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.5	10.5	0.374	0.413
B	8.3	8.7	0.327	0.342
C	13.3	13.7	0.524	0.539
D	15.0	16.0	0.592	0.628
E	8.5	9.1	0.335	0.358
F	9.5	10.1	0.374	0.398
G	2.4	3.0	0.094	0.118
H	0.5	0.7	0.020	0.028
	1.9	2.1	0.075	0.083
	14.2	14.8	0.559	0.583
	3.5	4.1	0.138	0.161



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