Rev.A-2

Surface Mount Transient Voltage Suppressors

High temperature stability and high reliability conditions

DO-218AB

Uni-directional

FEATURES

- 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.

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

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-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

MAXIMUM RATINGS(T_C=25℃, RH=45%-75%, unless otherwise noted)			
Parameter	**Symbol**	**Value**	**Unit**
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	8000	Watts
Peak pulse power dissipation on 10/10000μs waveform		6000	Watts
Power dissipation on infinite heat sink at T_C=25℃	P_D	8.5	Watts
Peak pulse current with 10/1000μs 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℃

ELECTRICAL CHARACTERISTICS								
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:

①.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.

②. Surge waveform: 10/1000μs

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

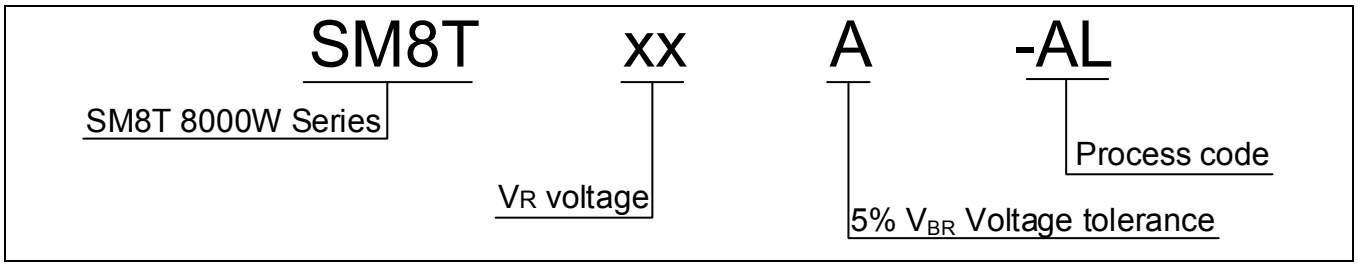
V_{BR}: Breakdown voltage

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

I_R: Reverse leakage current

I_T: Test current

ORDERING INFORMATION



RATINGS AND CHARACTERISTICS CURVES (T_A=25℃, unless otherwise noted)

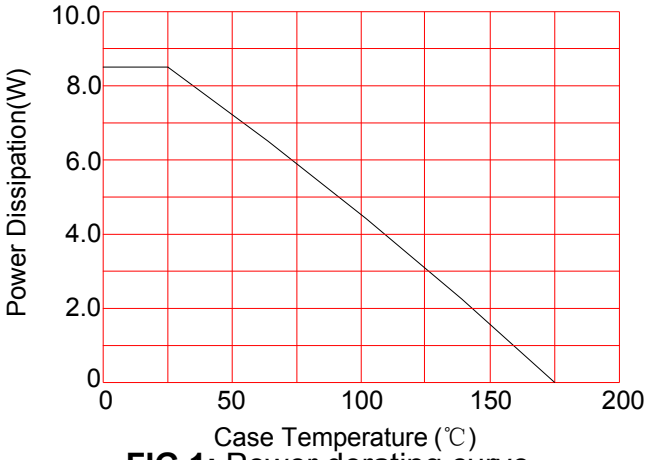


FIG.1: Power derating curve

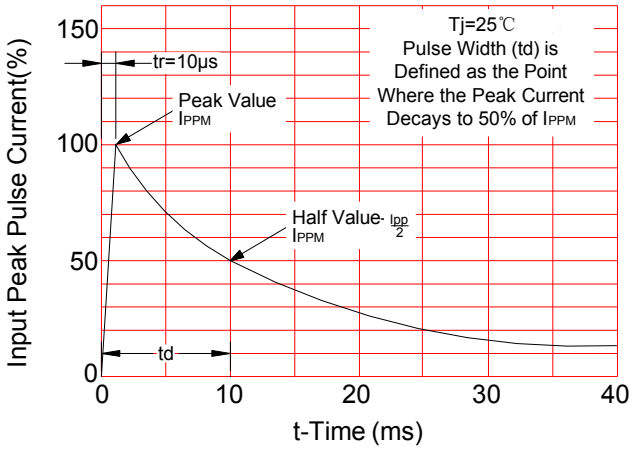


FIG.2: Pulse waveform

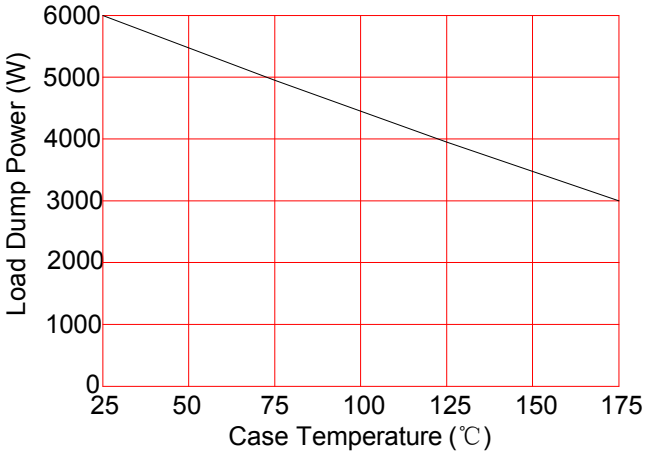


FIG.3: Load Dump Power Characteristics (10ms Exponential Waveform)

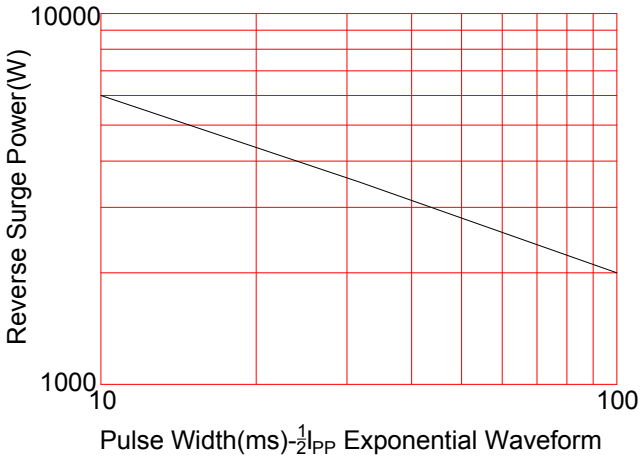


FIG.4: Reverse Power Capability

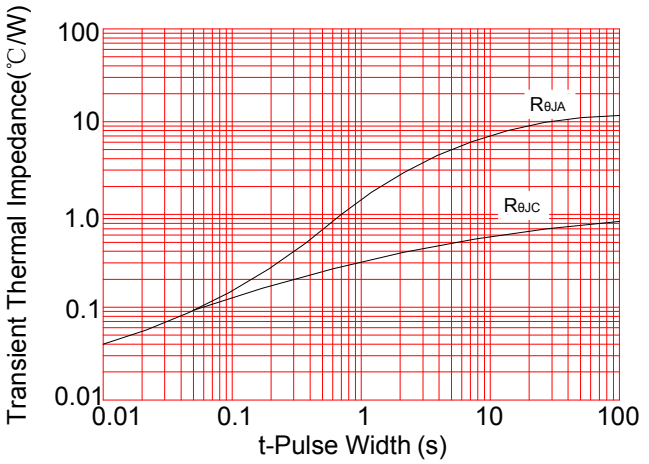


FIG.5: Typical Transient Thermal Impedance

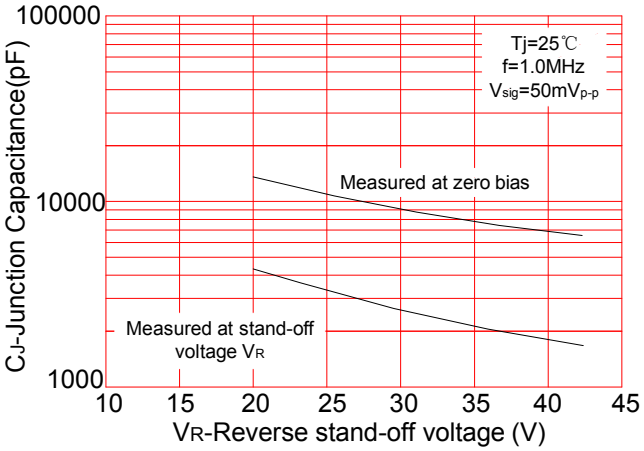
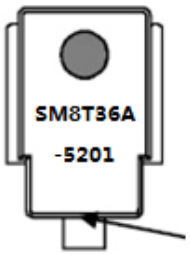


FIG.6: Typical junction capacitance

MARKING



Cathode

SM8T36A：Device marking code

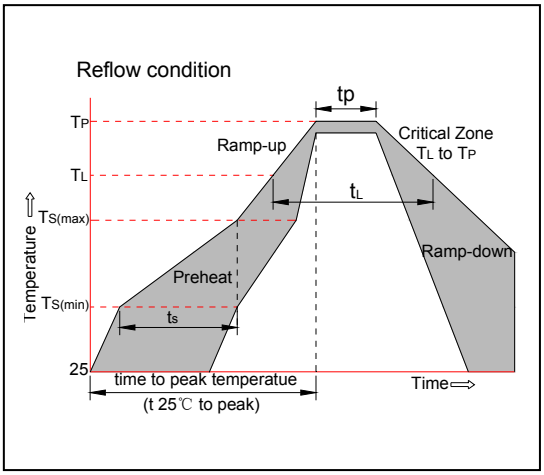
5201：“5”--2015 （year）

“2”--2 （month）

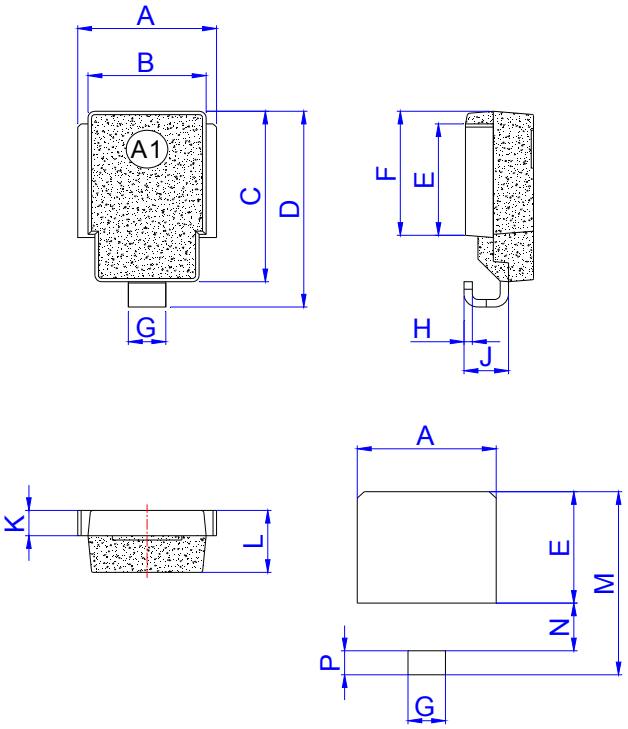
“01”-- （lot）

SOLDERING PARAMETERS

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℃



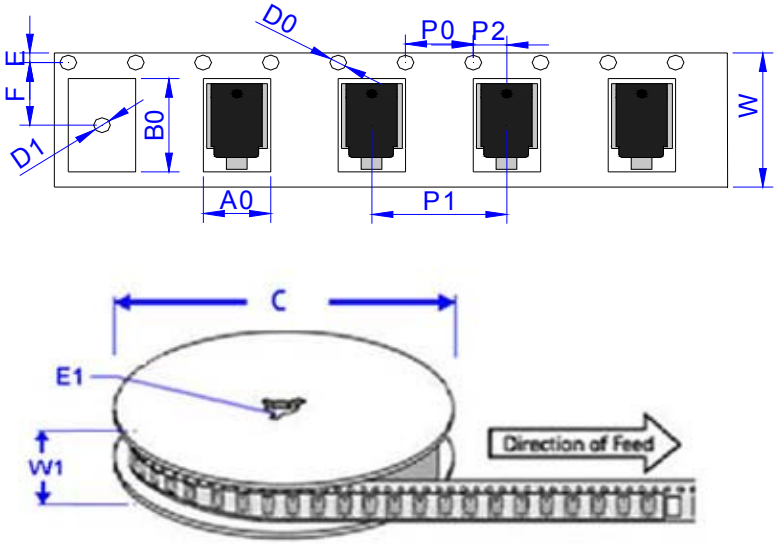
PACKAGE MECHANICAL DATA



DO-218AB

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
J	2.7	3.7	0.106	0.146
K	1.9	2.1	0.075	0.083
L	4.7	5.1	0.185	0.201
M	14.2	14.8	0.559	0.583
N	3.5	4.1	0.138	0.161
P	1.6	2.2	0.063	0.087

TAPE AND REEL SPECIFICATION-DO-218AB



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
SM8TxxA-AL	3.040	750	3000	13 inch reel pack

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co.,Ltd assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.
Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.
Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information.
This document is the second version which is made in 26-Apr.-2021. This document supersedes and replaces all information previously supplied.