

## Surface Mount Transient Voltage Suppressors

High temperature stability and high reliability conditions



DO-218AB



### FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology.
- $T_J = 175^\circ\text{C}$  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  $260^\circ\text{C}$ .
- 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
$P_{PP}$ (10/1000 $\mu\text{s}$ )	8000W
$P_{PP}$ (10/10000 $\mu\text{s}$ )	6000W
$P_D$	8.5W
$I_{FSM}$	750A
$T_{Jmax}$	$175^\circ\text{C}$
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 ( $T_C=25^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000 $\mu\text{s}$ waveform	$P_{PP}$	8000	Watts
Peak pulse power dissipation at 10/10000 $\mu\text{s}$ waveform		6000	Watts
Power dissipation on infinite heat sink at $T_C=25^\circ\text{C}$	$P_D$	8.5	Watts
Peak pulse current with 10/1000 $\mu\text{s}$ 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	$^\circ\text{C}$
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.85	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient	$R_{\theta JA}$	11	$^\circ\text{C/W}$

**Note:** Non-repetitive current pulse derated above  $T_A=25^\circ\text{C}$

ELECTRICAL CHARACTERISTICS								
Part Number	V <sub>R</sub>	I <sub>T</sub>	I <sub>R</sub> @V <sub>R</sub>		V <sub>BR</sub> @I <sub>T</sub>		V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub>
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<sub>F</sub>=1.8V at I<sub>F</sub>=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<sub>R</sub>: Stand-off voltage -- Maximum voltage that can be applied

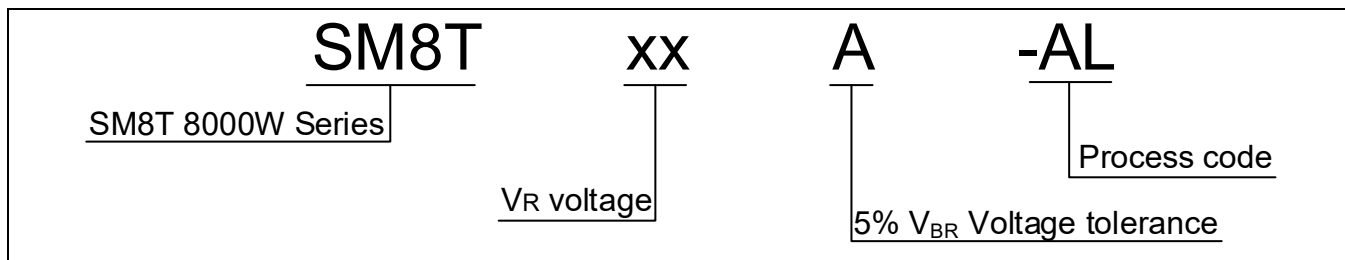
V<sub>BR</sub>: Breakdown voltage

V<sub>C</sub>: Clamping voltage -- Peak voltage measured across the suppressor at a specified I<sub>PP</sub>

I<sub>R</sub>: Reverse leakage current

I<sub>T</sub>: Test current

**ORDERING INFORMATION**



RATINGS AND CHARACTERISTICS CURVES ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

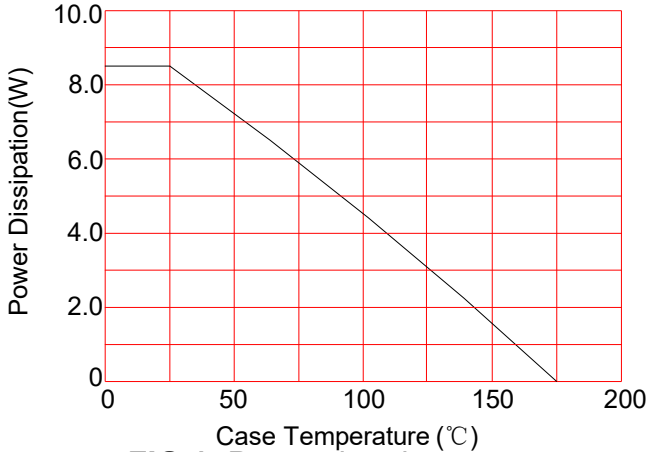


FIG.1: Power derating curve

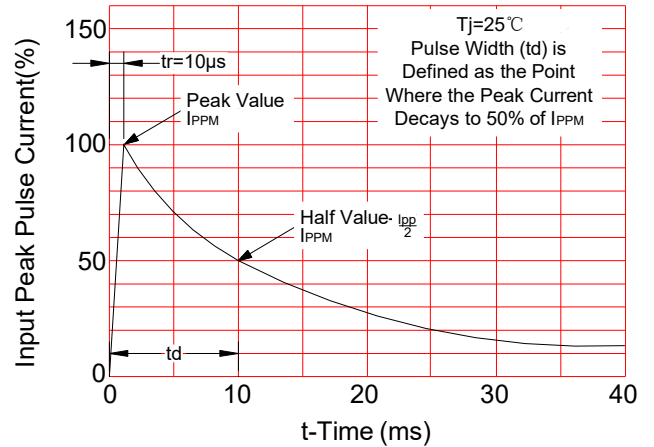


FIG.2: Pulse waveform

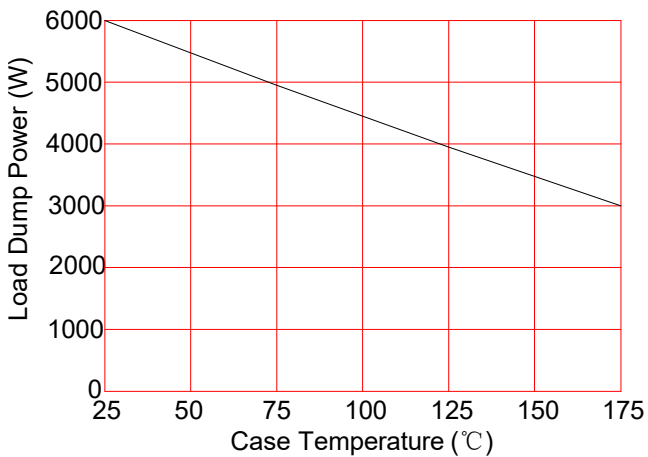


FIG.3: Load Dump Power Characteristics (10ms Exponential Waveform)

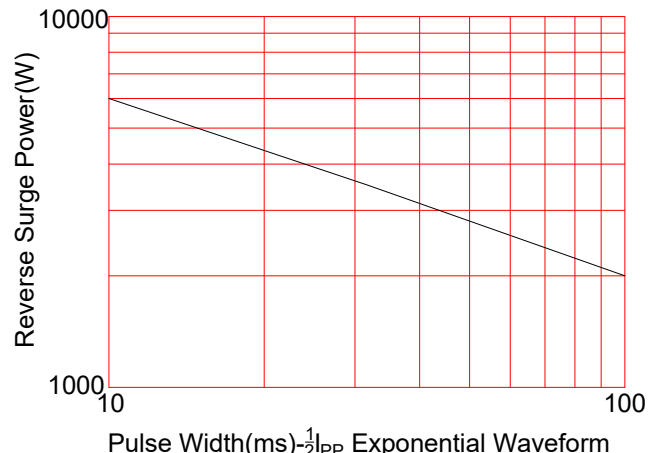


FIG.4: Reverse Power Capability

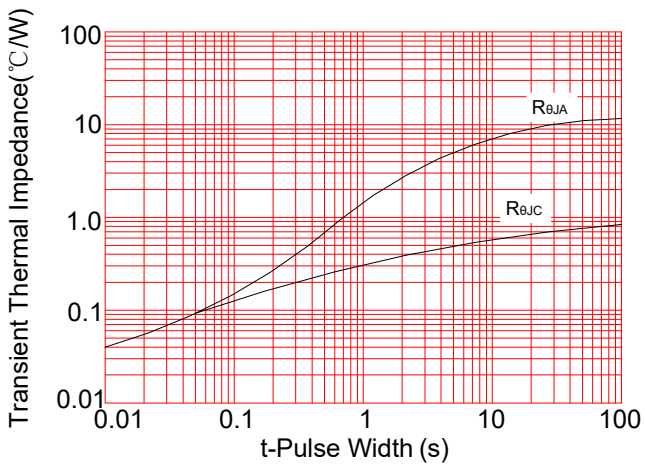


FIG.5: Typical Transient Thermal Impedance

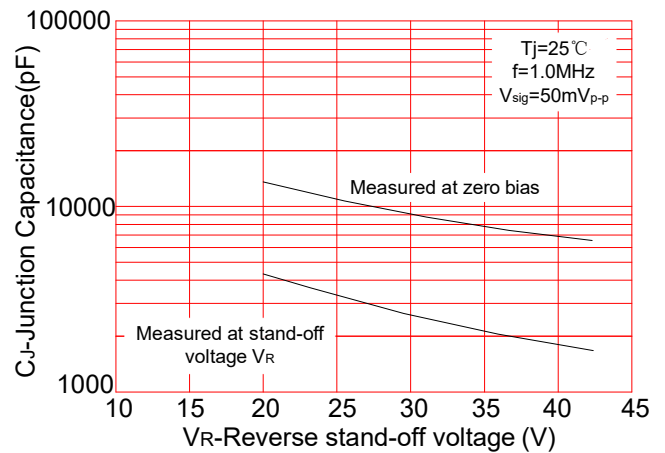
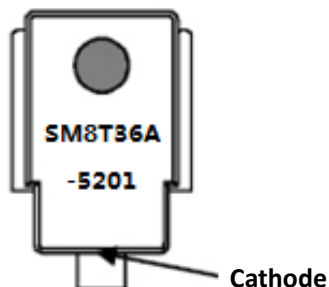


FIG.6: Typical junction capacitance

**MARKING**



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

**x201:**

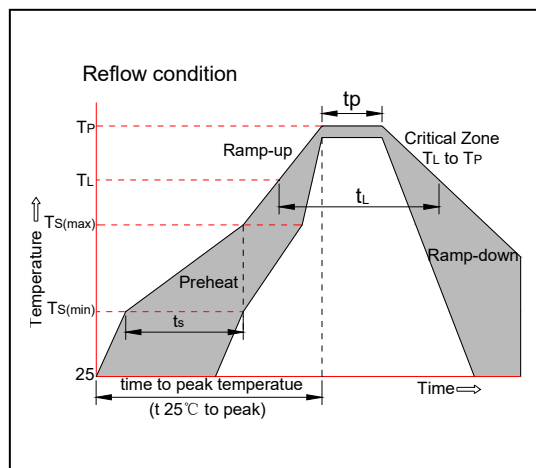
2015	2016	2017	2018	2019	2020
5	6	7	8	9	0
2021	2022	2023	2024	...	
1	2	3	4	...	

**5x01:** Month, 1、2、3 ~ 9、O、N、D

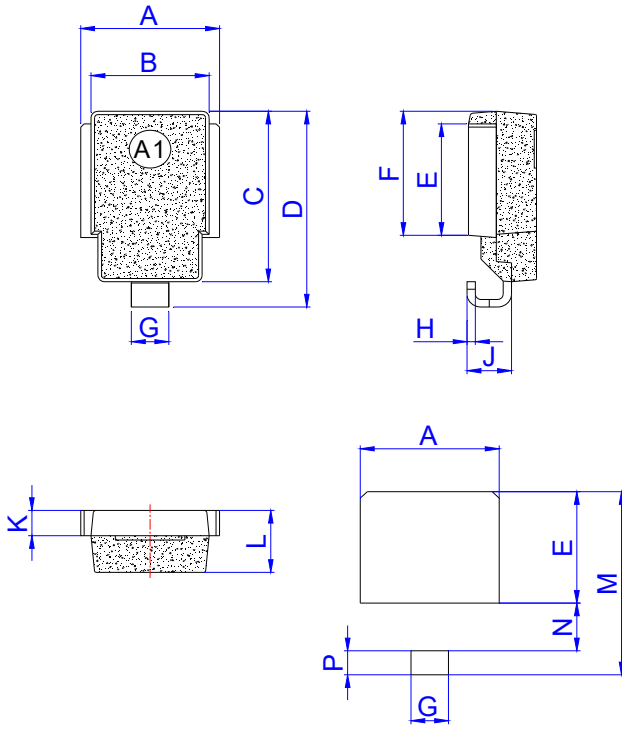
**52xx:** Lot number

**SOLDERING PARAMETERS**

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



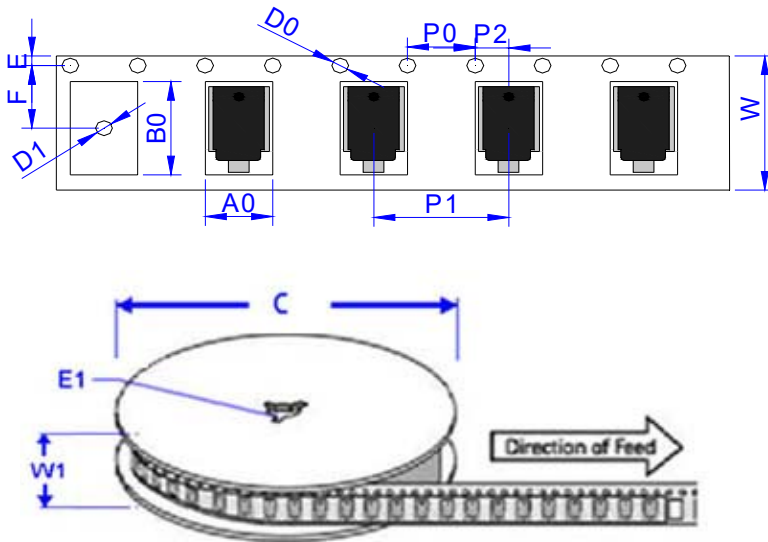
PACKAGE MECHANICAL DATA



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



JieJie products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable JieJie product documentation. Warranties granted by JieJie shall be deemed void for products used for any purpose not expressly set forth in applicable JieJie documentation. JieJie shall not be liable for any claims or damages arising out of products used in applications not expressly intended by JieJie as set forth in applicable JieJie documentation. The sale and use of JieJie products is subject to JieJie terms and conditions of sale, unless otherwise agreed by JieJie.

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 2.2nd version which is made in 7-Apr.-2022. This document supersedes and replaces all information previously supplied.

 is a registered trademark of Jiangsu JieJie Microelectronics Co.,Ltd.

Copyright©2022 Jiangsu JieJie Microelectronics Co.,Ltd. Printed All rights reserved.