

### FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- $T_J = 175\text{ }^\circ\text{C}$  capability suitable for high reliability and automotive requirement.
- Available in uni/bi-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge specification (varied by test condition)
- Meets MSL level 1, per J-STD-020, LF maximum peak of  $245\text{ }^\circ\text{C}$
- Compliant to ROHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**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 94 V-0 flammability rating

Base P/NHE3 - RoHS-compliant

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

HE3 suffix meets JESD 201 class 2 whisker test

PRIMARY CHARACTERISTICS	
$V_R$	14 V to 48 V
$P_{PPM}$ (10/1000 $\mu$ s)	6600W
$P_{PPM}$ (10/10000 $\mu$ s)	5200W
$P_D$	8 W
$I_{FSM}$	700A
$T_{Jmax}$	175 $^\circ$ C
Package	DO-218AB

MAXIMUM RATINGS( $T_C=25\text{ }^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000 $\mu$ s waveform	$P_{PPM}$	6600	Watts
Peak pulse power dissipation on 10/10000 $\mu$ s waveform		5200	Watts
Power dissipation on infinite heat sink at $T_C=25\text{ }^\circ\text{C}$	$P_D$	8.0	Watts
Peak pulse current with 10/1000 $\mu$ s waveform	$I_{PPM}^{(1)}$	See next table	Amps
Peak forward surge current, 8.3ms single half sine-wave	$I_{FSM}$	700	Amps
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.9	$^\circ\text{C}/\text{W}$

### Note

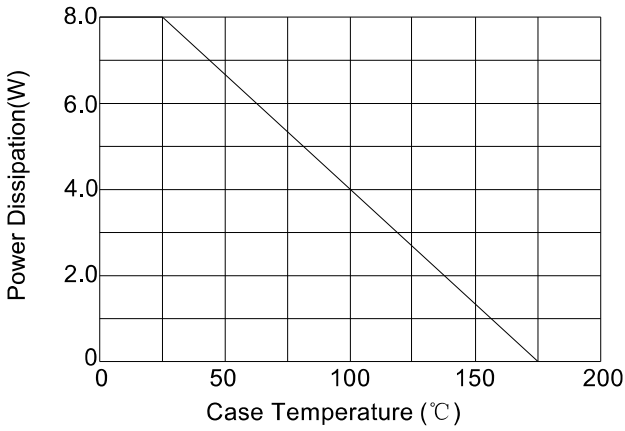
(1) Non-repetitive current pulse derated above  $T_A=25\text{ }^\circ\text{C}$

ELECTRICAL CHARACTERISTICS									
Part Number		$V_R$	$I_T$	$I_R@V_R$		$V_{BR}@I_1$		$V_C@I_{PP}$	$I_{PP}$
Uni-polar	Bi-polar	V	mA	$\mu A@25^\circ C$	$\mu A@175^\circ C$	min(V)	max (V)	V	A
SM8S14A	SM8S14CA	14.0	5	5	150	15.6	17.2	23.2	284
SM8S15A	SM8S15CA	15.0	5	5	150	16.7	18.5	24.4	270
SM8S16A	SM8S16CA	16.0	5	5	150	17.8	19.7	26.0	253
SM8S17A	SM8S17CA	17.0	5	5	150	18.9	20.9	27.6	239
SM8S18A	SM8S18CA	18.0	5	5	150	20.0	22.1	29.2	226
SM8S20A	SM8S20CA	20.0	5	5	150	22.2	24.5	32.4	204
SM8S22A	SM8S22CA	22.0	5	5	150	24.4	26.9	35.5	186
SM8S24A	SM8S24CA	24.0	5	5	150	26.7	29.5	38.9	170
SM8S26A	SM8S26CA	26.0	5	5	150	28.9	31.9	42.1	157
SM8S28A	SM8S28CA	28.0	5	5	150	31.1	34.4	45.4	145
SM8S30A	SM8S30CA	30.0	5	5	150	33.3	36.8	48.4	136
SM8S33A	SM8S33CA	33.0	5	5	150	36.7	40.6	53.3	124
SM8S36A	SM8S36CA	36.0	5	5	150	40.0	44.2	58.1	114
SM8S40A	SM8S40CA	40.0	5	5	150	44.4	49.1	64.5	102
SM8S43A	SM8S43CA	43.0	5	5	150	47.8	52.8	69.4	95
SM8S48A	SM8S48CA	48.0	5	5	150	53.3	58.7	80.6	82

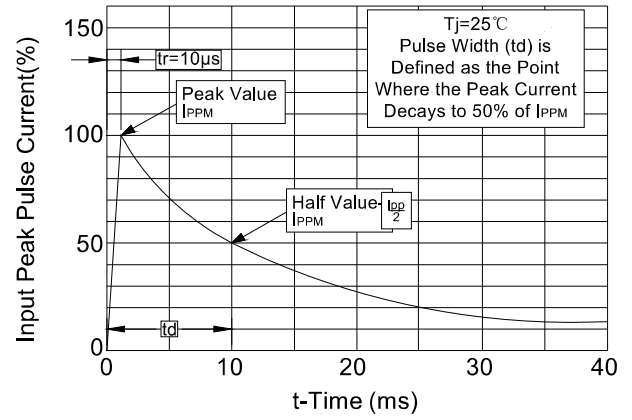
**Note:**

- 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: 10/1000 $\mu s$ 
  - $V_R$ : 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

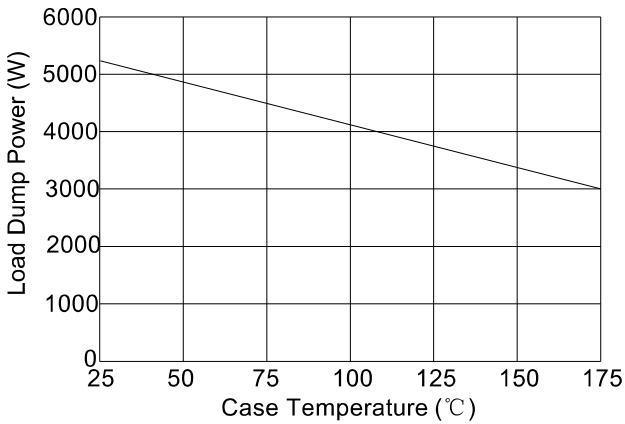
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A=25^\circ\text{C}$ , unless otherwise noted)



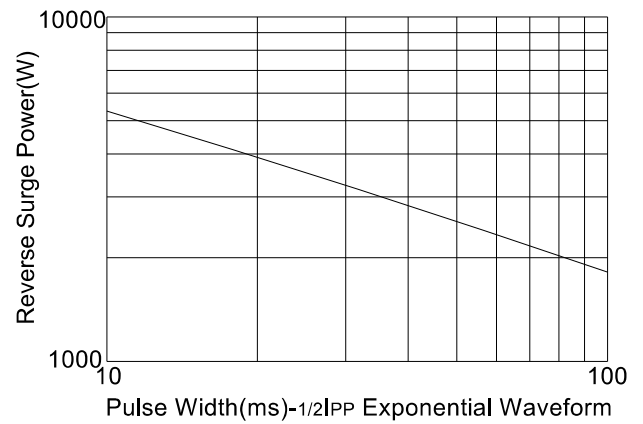
**FIG.1: Power Derating Curve**



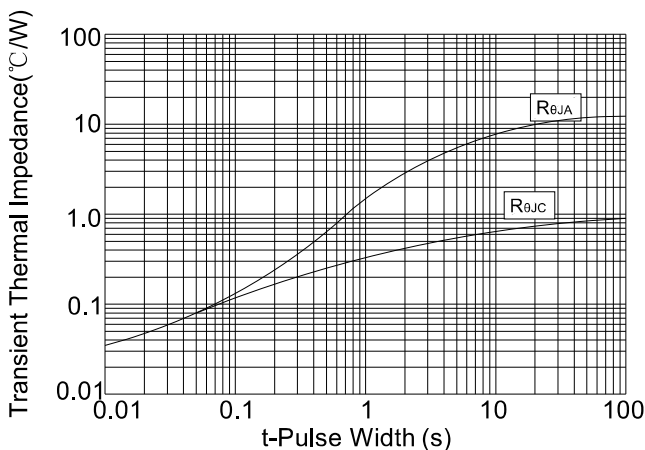
**FIG.2: Pulse Waveform**



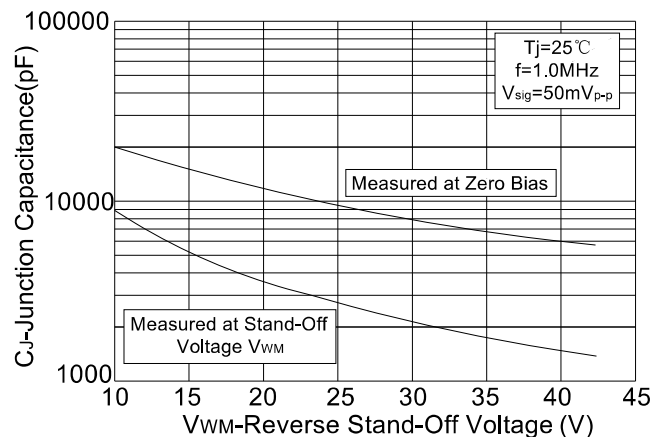
**FIG.3: Load Dump Power Characteristics (10ms Exponential Waveform)**



**FIG.4: Reverse Power Capability**







**FIG.5: Typical Transient Thermal Impedance**



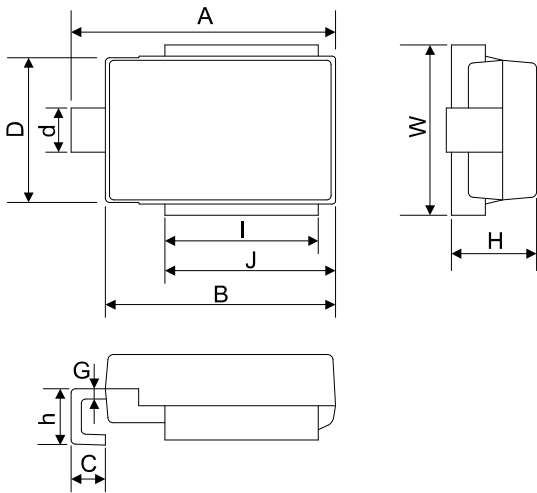
**FIG.6: Typical Junction Capacitance**

**PINNING INFORMATION**

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

**PACKAGE MECHANICAL DATA**

**DO-218AB**



Dimensions	Millimeters	
	Min.	Max.
A	15.00	16.00
B	13.30	13.70
C	1.50	2.50
D	8.30	8.70
d	2.30	3.10
G	0.50	0.70
H	4.70	5.20
h	2.50	3.90
I	8.70	9.30
J	9.70	10.30
W	9.50	10.50