

# Surface Mount TRANSZORB<sup>®</sup> Transient Voltage Suppressors


**DO-214AB (SMC J-Bend)**

**RoHS  
COMPLIANT  
HALOGEN  
FREE**
**FEATURES**

- Available in uni-directional polarity only
- 5000 W peak pulse power capability with a 10/1000  $\mu$ s waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

PRIMARY CHARACTERISTICS	
$V_{BR}$	11.1 V to 24.5 V
$V_{WM}$	10 V to 20 V
$P_{PPM}$	5000 W
$T_J$ max.	150 °C
Polarity	Uni-directional
Package	DO-214AB (SMCJ)

**TYPICAL APPLICATIONS**

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive, and telecommunication.

**MECHANICAL DATA**
**Case:** DO-214AB (SMCJ)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** for uni-directional types the band denoted cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 $\mu$ s waveform (fig. 1)	$P_{PPM}^{(1)}$	5000	W
Peak pulse current with a 10/1000 $\mu$ s waveform (fig 3.)	$I_{PPM}^{(1)}$	See next table	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	°C

**Note**
<sup>(1)</sup> Non-repetitive current pulse, per fig. 3 and derated above  $T_A = 25$  °C, per fig. 2

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)								
DEVICE TYPE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE $V_{BR}^{(1)}$ (V) AT $I_T$		TEST CURRENT $I_T$ (mA)	STAND-OFF VOLTAGE $V_{WM}$ (V)	MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ ( $\mu$ A)	MAX. PEAK PULSE SURGE CURRENT $I_{PPM}^{(2)}$ (A)	MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ $V_C$ (V)
		MIN.	MAX.					
SMC5K10A	5GDX	11.1	12.3	1.0	10	10.0	294.1	17.0
SMC5K12A	5GEE	13.3	14.7	1.0	12	10.0	251.3	19.9
SMC5K13A	5GEG	14.4	15.9	1.0	13	10.0	232.6	21.5
SMC5K16A	5GEP	17.8	19.7	1.0	16	2.0	192.3	26.0
SMC5K17A	5GER	18.9	20.9	1.0	17	2.0	181.2	27.6
SMC5K18A	5GET	20.0	22.1	1.0	18	2.0	171.2	29.2
SMC5K20A	5GEV	22.2	24.5	1.0	20	2.0	154.3	32.4

**Notes**
<sup>(1)</sup> Pulse test:  $t_p \leq 50$  ms

<sup>(2)</sup> Surge current waveform per fig. 3 and derated per fig.2

<sup>(3)</sup> All terms and symbols are consistent with ANSI/IEEE C62.35



ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMC5K10A-M3/H	0.257	H	850	7" diameter plastic tape and reel
SMC5K10A-M3/I	0.257	I	3500	13" diameter plastic tape and reel
SMC5K10AHM3/H <sup>(1)</sup>	0.257	H	850	7" diameter plastic tape and reel
SMC5K10AHM3/I <sup>(1)</sup>	0.257	I	3500	13" diameter plastic tape and reel

**Note**

<sup>(1)</sup> AEC-Q101 qualified

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

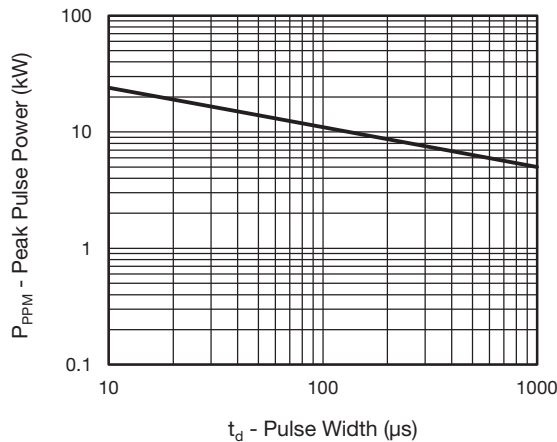


Fig. 1 - Peak Pulse Power Derating Curve

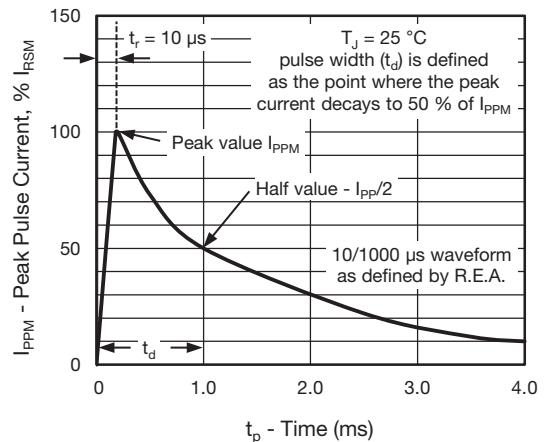


Fig. 3 - Pulse Waveform

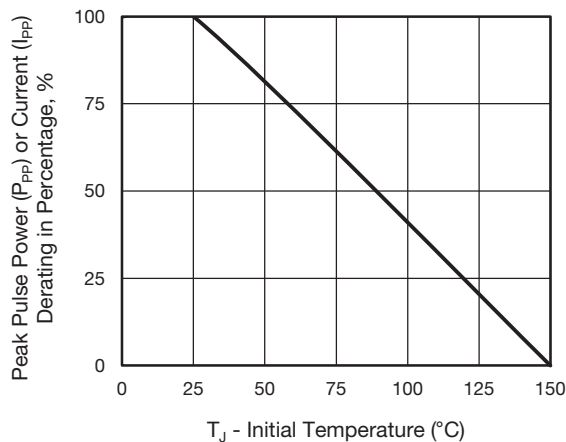


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

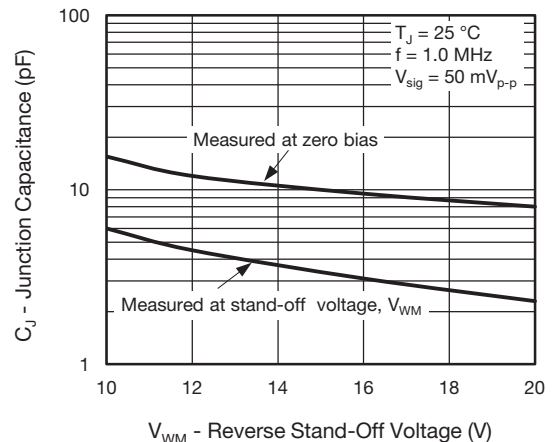
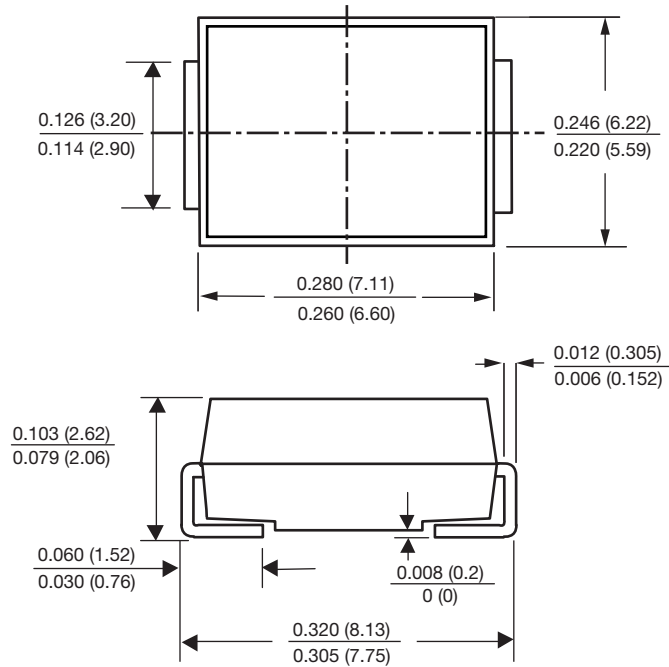


Fig. 4 - Typical Junction Capacitance

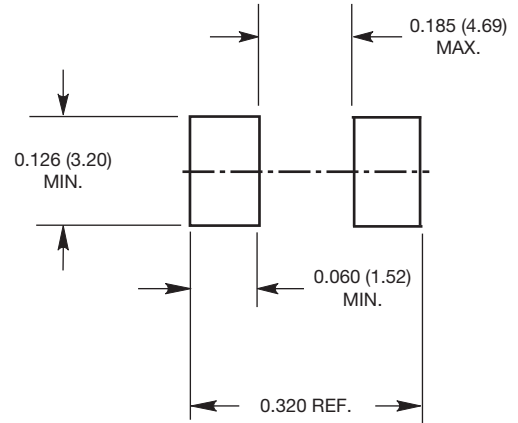


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AB (SMC J-Bend)



### Mounting Pad Layout





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