

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- 600 W peak pulse power capability with a 10/1000 μ s waveform
- Available in uni-directional and bi-directional
- Excellent clamping capability
- Low inductance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

MECHANICAL DATA

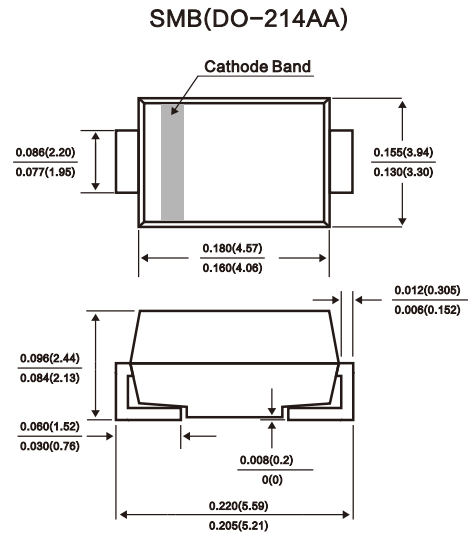
Case: DO-214AA (SMB)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-E3 - RoHS compliant, commercial grade
 Base P/NHE3 - RoHS compliant, high reliability/
 automotive grade (AEC Q101 qualified)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation on 10/1000 μ s waveform ⁽¹⁾⁽²⁾ (Fig. 1)	P_{PPM}	600	W
Peak power pulse current with a 10/1000 μ s waveform ⁽¹⁾ (Fig. 3)	I_{PPM}	See next table	A
Power dissipation on infinite heatsink $T_A = 50\text{ }^\circ\text{C}$	P_D	5.0	W
Peak forward surge current 10 ms single half sine-wave uni-directional only ⁽²⁾	I_{FSM}	100	A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to +150	$^\circ\text{C}$

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25\text{ }^\circ\text{C}$ per Fig. 2

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)												
TYPE ⁽¹⁾	DEVICE MARKING CODE		BREAKDOWN VOLTAGE V _{BR} AT I _T ⁽²⁾ (V)		TEST CURRENT (mA)	STAND-OFF VOLTAGE V _{RM} (V)	LEAKAGE CURRENT ⁽³⁾ I _{RM} AT V _{RM} (μA)	CLAMPING VOLTAGE V _C AT I _{PP} 10/1000 μs		CLAMPING VOLTAGE V _C AT I _{PP} 8/20 μs		α _T Max. 0 ⁻⁴ /°C
	UNI	BI	MIN.	MAX.				(V)	(A)	(V)	(A)	
SM6T6V8A(CA)	KE	KE	6.45	7.14	10	5.80	1000	10.5	57.0	13.4	298	5.7
SM6T7V5A(CA)	KK	AK	7.13	7.88	10	6.40	500	11.3	53.0	14.5	276	6.1
SM6T10A(CA)	KT	AT	9.50	10.5	1.0	8.55	10.0	14.5	41.0	18.6	215	7.3
SM6T12A(CA)	KX	AX	11.4	12.6	1.0	10.2	5.0	16.7	36.0	21.7	184	7.8
SM6T15A(CA)	LG	LG	14.3	15.8	1.0	12.8	1.0	21.2	28.0	27.2	147	8.4
SM6T18A(CA)	LP	LM	17.1	18.9	1.0	15.3	1.0	25.2	24.0	32.5	123	8.8
SM6T22A(CA)	LT	BT	20.9	23.1	1.0	18.8	1.0	30.6	20.0	39.3	102	9.2
SM6T24A(CA)	LV	LV	22.8	25.2	1.0	20.5	1.0	33.2	18.0	42.8	93	9.4
SM6T27A(CA)	LZ	BZ	25.7	28.4	1.0	23.1	1.0	37.5	16.0	48.3	83	9.6
SM6T30A(CA)	ME	CE	28.5	31.5	1.0	25.6	1.0	41.5	14.5	53.5	75	9.7
SM6T33A(CA)	MG	MG	31.4	34.7	1.0	28.2	1.0	45.7	13.1	59.0	68	9.8
SM6T36A(CA)	MK	CK	34.2	37.8	1.0	30.8	1.0	49.9	12.0	64.3	62	9.9
SM6T39A(CA)	MM	CM	37.1	41.0	1.0	33.3	1.0	53.9	11.1	69.7	57	10.0
SM6T68A(CA)	NK	NK	64.6	71.4	1.0	58.1	1.0	92.0	6.50	121	33	10.4
SM6T100A(CA)	NV	NV	95.0	105	1.0	85.5	1.0	137	4.40	178	22.5	10.6
SM6T150A(CA)	PG	PG	143	158	1.0	128	1.0	207	2.90	265	15	10.8
SM6T200A(CA)	PR	PR	190	210	1.0	171	1.0	274	2.20	353	11.3	10.8
SM6T220A(CA)	PS	PS	209	231	1.0	188	1.0	328	2.00	388	10.3	10.8

Notes:

- (1) For bi-directional devices add suffix "CA"
- (2) V_{BR} measured after I_T applied for 300 μs square wave pulse
- (3) For bipolar devices with V_R = 10 V or under, the I_T limit is doubled

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance, junction to ambient air ⁽¹⁾	R _{θJA}	100	°C/W
Thermal resistance, junction to leads	R _{θJL}	20	°C/W

Note:

- (1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SM6T10A-E3/52	0.096	52	750	7" diameter plastic tape and reel
SM6T10A-E3/5B	0.096	5B	3200	13" diameter plastic tape and reel
SM6T10AHE3/52 ⁽¹⁾	0.096	52	750	7" diameter plastic tape and reel
SM6T10AHE3/5B ⁽¹⁾	0.096	5B	3200	13" diameter plastic tape and reel

Note:

- (1) Automotive grade AEC Q101 qualified

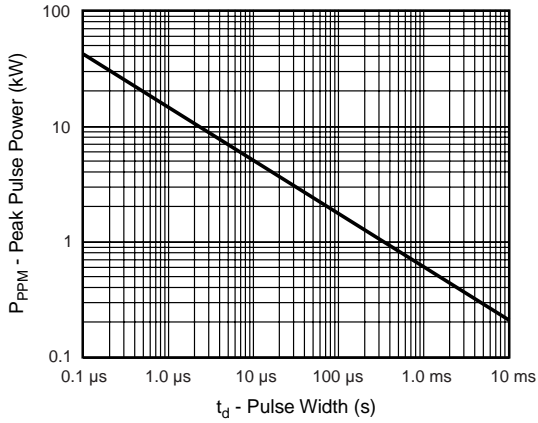


Figure 1. Peak Pulse Power Rating Curve

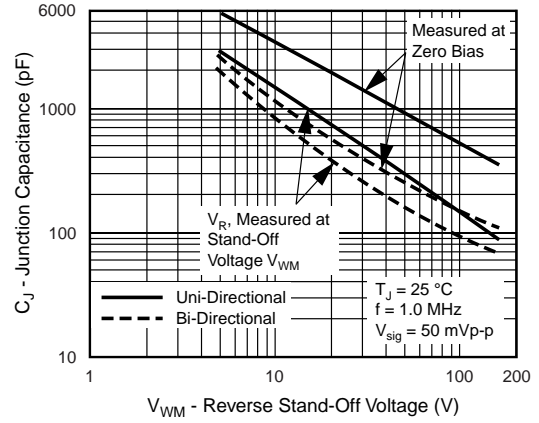


Figure 4. Typical Junction Capacitance

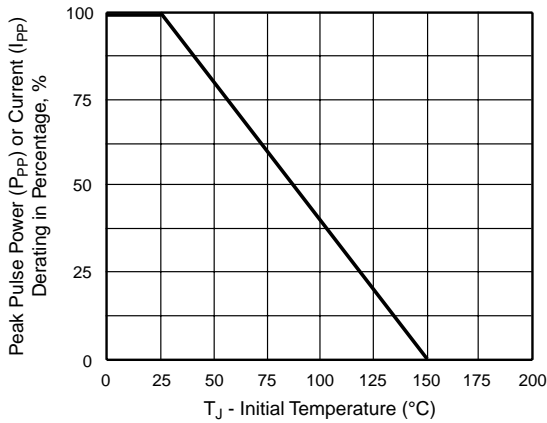


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

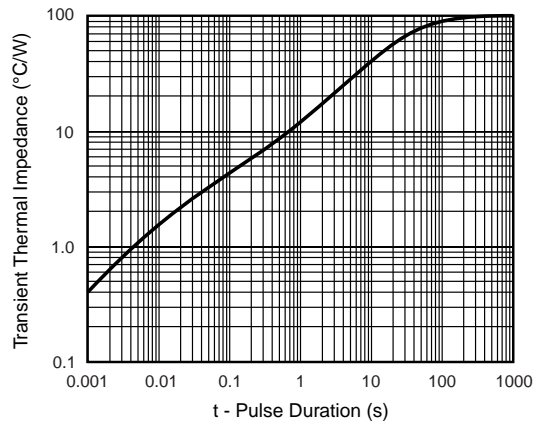


Figure 5. Typical Transient Thermal Impedance

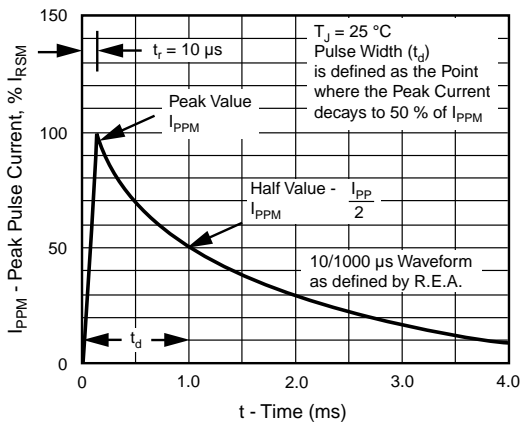


Figure 3. Pulse Waveform

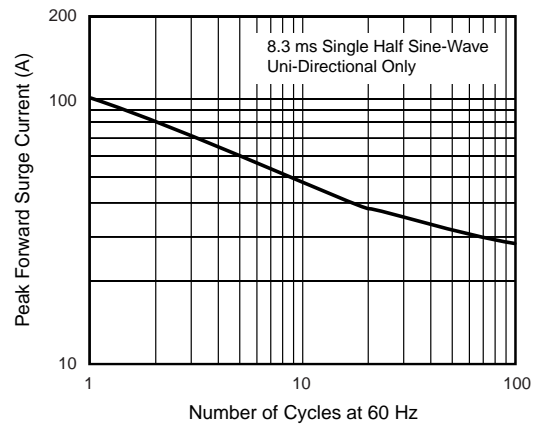


Figure 6. Maximum Non-Repetitive Peak Forward Surge Current