

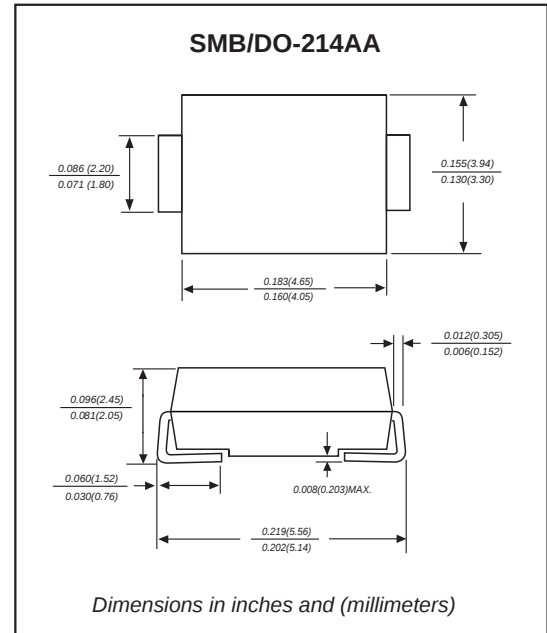
Features

- 1000W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%.
- Low profile surface mounted application in order to optimize board space.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time from 0V to VBR, typically less than 1 ps for uni-directional & 5 ns for bi-directional types.
- Glass passivated chip junction.
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AA /SMB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	Value	UNIT
Peak Power Dissipation	with a 10/1000 μ s waveform, Note 1, 2 & Fig. 1	P_{PPM}	1000	W
Peak Pulse current	with a 10/1000 μ s waveform	I_{PPM}	See Table 1	A
Steady State Power Dissipation	at $T_L=75^\circ\text{C}$, Note 2	$P_{M(AV)}$	5.0	W
Peak Forward Surge Current	8.3ms Single Half Sine-Wave, Note 3	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage	at 50A For Uni-Directional Types Only, Note 4	V_F	3.5/5.0	V
Typical Thermal resistance	Junction to case Junction to ambient	$R_{\theta JC}$ $R_{\theta JA}$	30 50	$^\circ\text{C/W}$
Operating junction temperature range		T_J	-55 ~ +150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

2. Mounted on copper pad area of 0.2"x0.2" (5.0x5.0 mm) per Fig 5

3. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

4. $V_F < 3.5\text{V}$ for $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for $V_{BR} > 201\text{V}$.

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part No. (Uni)	Part No. (Bi)	Reverse Stand-off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}		Maximum Reverse Leakage Current	Marking Code	
		V_{RWM}	$V_{BR\ Min}$	$V_{BR\ Max}$	I_T	V_c	I_{PP}	$I_R@V_{RWM}$		
		Volts	Volts	Volts	mA	Volts	A	μA	UNI	BI
SMB10J 5.0A	SMB10J 5.0CA	5.0	6.40	7.00	10	9.2	108.7	800	10KE	10AE
SMB10J 6.0A	SMB10J 6.0CA	6.0	6.67	7.37	10	10.3	97.1	800	10KG	10AG
SMB10J 6.5A	SMB10J 6.5CA	6.5	7.22	7.98	10	11.2	89.3	500	10KK	10AK
SMB10J 7.0A	SMB10J 7.0CA	7.0	7.78	8.60	10	12.0	83.3	200	10KM	10AM
SMB10J 7.5A	SMB10J 7.5CA	7.5	8.33	9.21	1.0	12.9	77.5	100	10KP	10AP
SMB10J 8.0A	SMB10J 8.0CA	8.0	8.89	9.83	1.0	13.6	73.5	50	10KR	10AR
SMB10J 8.5A	SMB10J 8.5CA	8.5	9.44	10.4	1.0	14.4	69.4	20	10KT	10AT
SMB10J 9.0A	SMB10J 9.0CA	9.0	10.0	11.1	1.0	15.4	64.9	10	10KV	10AV
SMB10J 10A	SMB10J 10CA	10	11.1	12.3	1.0	17.0	58.8	5	10KX	10AX
SMB10J 11A	SMB10J 11CA	11	12.2	13.5	1.0	18.2	54.9	5	10KZ	10AZ
SMB10J 12A	SMB10J 12CA	12	13.3	14.7	1.0	19.9	50.3	5	10LE	10BE
SMB10J 13A	SMB10J 13CA	13	14.4	15.9	1.0	21.5	46.5	5	10LG	10BG
SMB10J 14A	SMB10J 14CA	14	15.6	17.2	1.0	23.2	43.1	5	10LK	10BK
SMB10J 15A	SMB10J 15CA	15	16.7	18.5	1.0	24.4	41.0	5	10LM	10BM
SMB10J 16A	SMB10J 16CA	16	17.8	19.7	1.0	26.0	38.5	5	10LP	10BP
SMB10J 17A	SMB10J 17CA	17	18.9	20.9	1.0	27.6	36.2	5	10LR	10BR
SMB10J 18A	SMB10J 18CA	18	20.0	22.1	1.0	29.2	34.2	5	10LT	10BT
SMB10J 20A	SMB10J 20CA	20	22.2	24.5	1.0	32.4	30.9	5	10LV	10BV
SMB10J 22A	SMB10J 22CA	22	24.4	26.9	1.0	35.5	28.2	5	10LX	10BX
SMB10J 24A	SMB10J 24CA	24	26.7	29.5	1.0	38.9	25.7	5	10LZ	10BZ
SMB10J 26A	SMB10J 26CA	26	28.9	31.9	1.0	42.1	23.8	5	10ME	10CE
SMB10J 28A	SMB10J 28CA	28	31.1	34.4	1.0	45.4	22.0	5	10MG	10CG
SMB10J 30A	SMB10J 30CA	30	33.3	36.8	1.0	48.4	20.7	5	10MK	10CK
SMB10J 33A	SMB10J 33CA	33	36.7	40.6	1.0	53.3	18.8	5	10MM	10CM
SMB10J 36A	SMB10J 36CA	36	40.0	44.2	1.0	58.1	17.2	5	10MP	10CP
SMB10J 40A	SMB10J 40CA	40	44.4	49.1	1.0	64.5	15.5	5	10MR	10CR
SMB10J 43A	SMB10J 43CA	43	47.8	52.8	1.0	69.4	14.4	5	10MT	10CT
SMB10J 45A	SMB10J 45CA	45	50.0	55.3	1.0	72.7	13.7	5	10MV	10CV
SMB10J 48A	SMB10J 48CA	48	53.3	58.9	1.0	77.4	12.9	5	10MX	10CX
SMB10J 51A	SMB10J 51CA	51	56.7	62.7	1.0	82.4	12.1	5	10MZ	10CZ
SMB10J 54A	SMB10J 54CA	54	60.0	66.3	1.0	87.1	11.4	5	10NE	10DE
SMB10J 58A	SMB10J 58CA	58	64.4	71.2	1.0	93.6	10.6	5	10NG	10DG
SMB10J 60A	SMB10J 60CA	60	66.7	73.7	1.0	96.8	10.3	5	10NK	10DK
SMB10J 64A	SMB10J 64CA	64	71.1	78.6	1.0	103.0	9.7	5	10NM	10DM
SMB10J 70A	SMB10J 70CA	70	77.8	86.0	1.0	113.0	8.8	5	10NP	10DP
SMB10J 75A	SMB10J 75CA	75	83.3	92.1	1.0	121.0	8.2	5	10NR	10DR
SMB10J 78A	SMB10J 78CA	78	86.7	95.8	1.0	126.0	7.9	5	10NT	10DT
SMB10J 85A	SMB10J 85CA	85	94.4	104	1.0	137.0	7.2	5	10NV	10DV

- Note 1. V_{BR} measured after I_T applied for 300us, I_T =square wave pulse or equivalent
 2. Surge current waveform per Fig. 2
 3. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled
 4. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
 5. All terms and symbols are consistent with ANS/IEEE C62.35

Rating and characteristic curves (SMB10J SERIES)

Fig.3 - Pulse Waveform

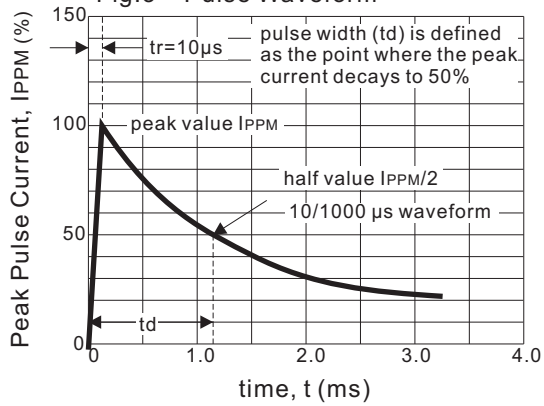


Fig.4 - Typical Junction Capacitance

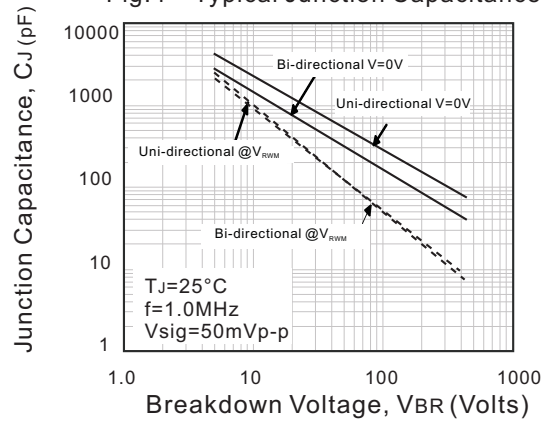


Fig.5 - Steady State Power Derating Curve

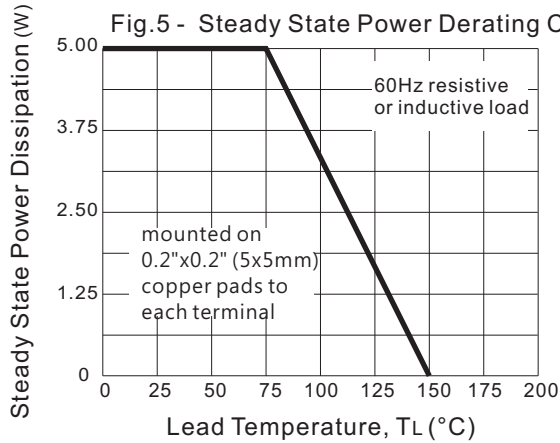


Fig.6 - Maximum Non-Repetitive Forward Surge Current

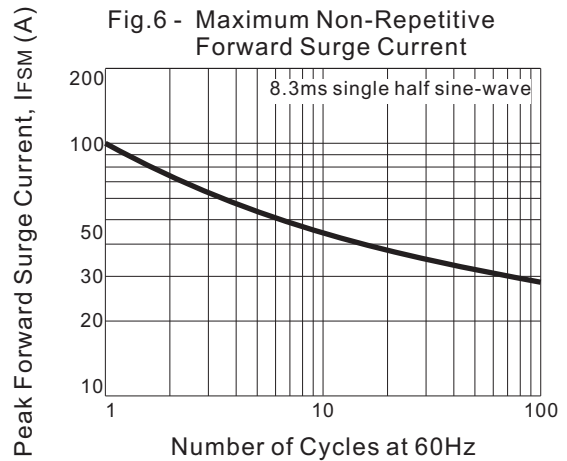


Fig. 7 - Transients of several thousand volts can be clamped to a safe level by the TVS

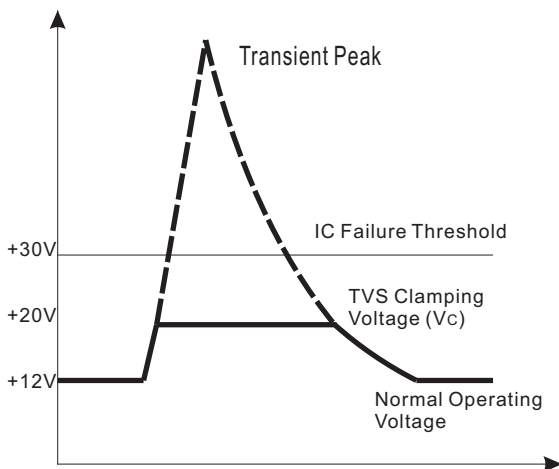
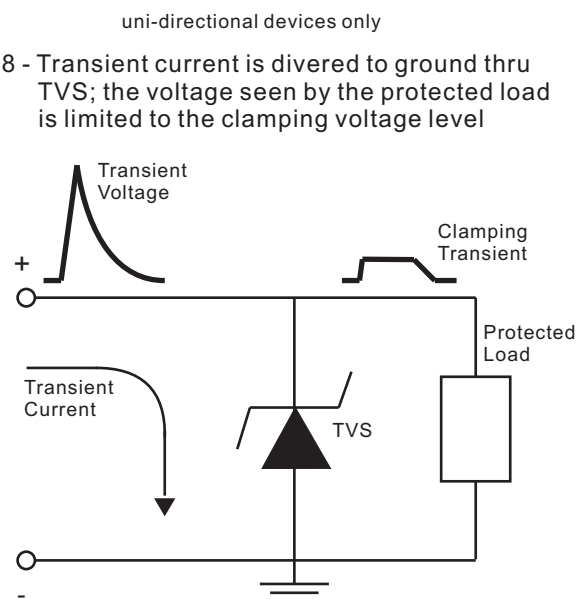


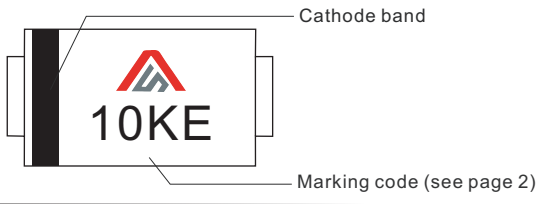
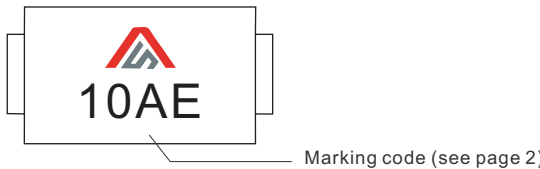
Fig. 8 - Transient current is diverted to ground thru TVS; the voltage seen by the protected load is limited to the clamping voltage level



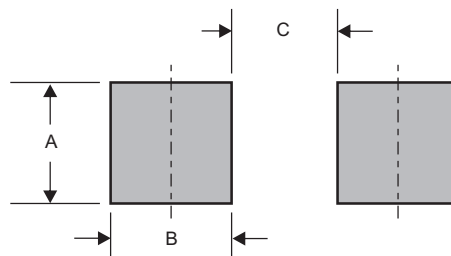
Pinning information

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

Marking

Type number	Example
Uni-Directional	
Bi-Directional	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMB	0.078 (2.00)	0.059 (1.50)	0.110 (2.80)