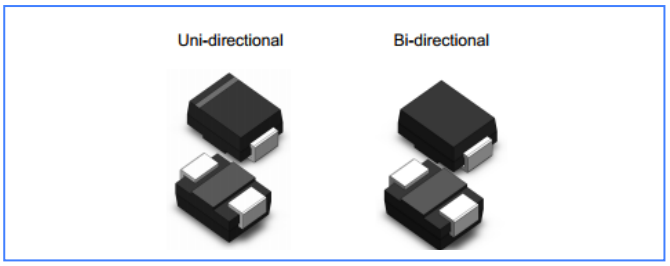
SMB10J Series

Description

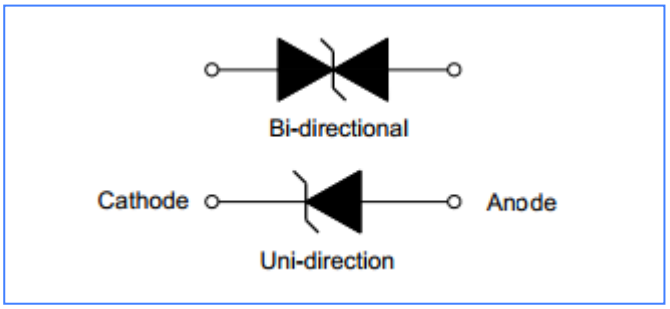
The SMB10J series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.



Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 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
- Case: DO-214AA (SMB)
- 1000 W peak pulse power capability with a10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types

Functional Diagram



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, and telecommunication

Maximum Ratings (TA=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation (T = 1 ms)	P_{PK}	1000	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	100	Amps
Steady State Power Dissipation @ TL = 75 °C	P_D	5	Watts
Maximum Instantaneous Forward Voltage @ I_{PP} = 35 A (For Unidirectional Units Only)	V_F	3.5/5.0	Volts
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

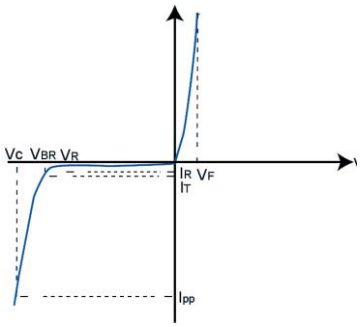
Note：

1. Non-repetitive current pulse per Fig.5 and derated above TA= 25 °C per Fig.1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
3. VF<3.5V for devices of VBR<50V.、

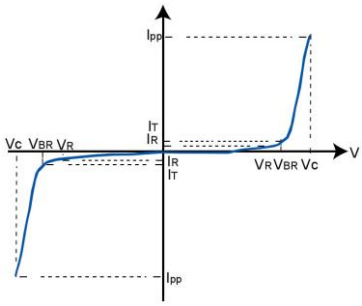
Electrical Characteristics (TA = 25 °C unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@I_T		Test Current I_T(mA)	Maximum Reverse Leakage I_R@ V_R(μA)	Maximum Peak Pulse Current I pp (A)	Maximum Clamping Voltage V_C @ I_{pp} (V)
		BI	UNI		Min .V	Max .V				
SMB10J5.0CA	SMB10J5.0A	AAE	AKE	5.0	6.40	7.00	10	800	108.70	9.2
SMB10J6.0CA	SMB10J6.0A	AAG	AKG	6.0	6.67	7.37	10	800	97.09	10.3
SMB10J6.5CA	SMB10J6.5A	AAK	AKK	6.5	7.22	7.98	10	500	89.29	11.2
SMB10J7.0CA	SMB10J7.0A	AAM	AKM	7.0	7.78	8.60	10	200	83.33	12.0
SMB10J7.5CA	SMB10J7.5A	AAP	AKP	7.5	8.33	.9.21	1	100	77.52	12.9
SMB10J8.0CA	SMB10J8.0A	AAR	AKR	8.0	8.89	9.83	1	50	73.53	13.6
SMB10J8.5CA	SMB10J8.5A	AAT	AKT	8.5	9.44	10.4	1	10	69.44	14.4
SMB10J9.0CA	SMB10J9.0A	AAV	AKV	9.0	10.0	11.1	1	5	64.94	15.4
SMB10J10CA	SMB10J10A	AAX	AKX	10	11.1	12.3	1	5	58.82	17.0
SMB10J11CA	SMB10J11A	AAZ	AKZ	11	12.2	13.5	1	5	54.95	18.2
SMB10J12CA	SMB10J12A	ABE	ALE	12	13.3	14.7	1	5	50.25	19.9
SMB10J13CA	SMB10J13A	ABG	ALG	13	14.4	15.9	1	1	46.51	21.5
SMB10J14CA	SMB10J14A	ABK	ALK	14	15.6	17.2	1	1	43.10	23.2
SMB10J15CA	SMB10J15A	ABM	ALM	15	16.7	18.5	1	1	40.98	24.4
SMB10J16CA	SMB10J16A	ABP	ALP	16	17.8	19.7	1	1	38.46	26.0
SMB10J17CA	SMB10J17A	ABR	ALR	17	18.9	20.9	1	1	36.23	27.6
SMB10J18CA	SMB10J18A	ABT	ALT	18	20.0	22.1	1	1	34.25	29.2
SMB10J19CA	SMB10J19A	ABB	ALB	19	21.1	23.3	1	1	32.49	30.8
SMB10J20CA	SMB10J20A	ABV	ALV	20	22.2	24.5	1	1	30.86	32.4
SMB10J22CA	SMB10J22A	ABX	ALX	22	24.4	26.9	1	1	28.17	35.5
SMB10J24CA	SMB10J24A	ABZ	ALZ	24	26.7	29.5	1	1	25.71	38.9
SMB10J26CA	SMB10J26A	ACE	AME	26	28.9	31.9	1	1	23.75	42.1
SMB10J28CA	SMB10J28A	ACG	AMG	28	31.1	34.4	1	1	22.03	45.4
SMB10J30CA	SMB10J30A	ACK	AMK	30	33.3	36.8	1	1	20.66	48.4
SMB10J33CA	SMB10J33A	ACM	AMM	33	36.7	40.6	1	1	18.76	53.3
SMB10J36CA	SMB10J36A	ACP	AMP	36	40.0	44.2	1	1	17.21	58.1
SMB10J40CA	SMB10J40A	ACR	AMR	40	44.4	49.1	1	1	15.50	64.5
SMB10J43CA	SMB10J43A	ACT	AMT	43	47.8	52.8	1	1	14.41	69.4
SMB10J45CA	SMB10J45A	ACV	AMV	45	50.0	55.3	1	1	13.76	72.7
SMB10J48CA	SMB10J48A	ACX	AMX	48	53.3	58.9	1	1	12.92	77.4
SMB10J51CA	SMB10J51A	ACZ	AMZ	51	56.7	62.7	1	1	12.14	82.4
SMB10J54CA	SMB10J54A	ADE	ANE	54	60.0	66.3	1	1	11.48	87.1
SMB10J58CA	SMB10J58A	ADG	ANG	58	64.4	71.2	1	1	10.68	93.6

I-V Curve Characteristics



Uni-directional



Bi-directional

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @V_{RWM}
V_{BR}	Breakdown Voltage @ I_T(Test Current)

Rating & Characteristic Curves

Figure 1- Pulse Derating Curve

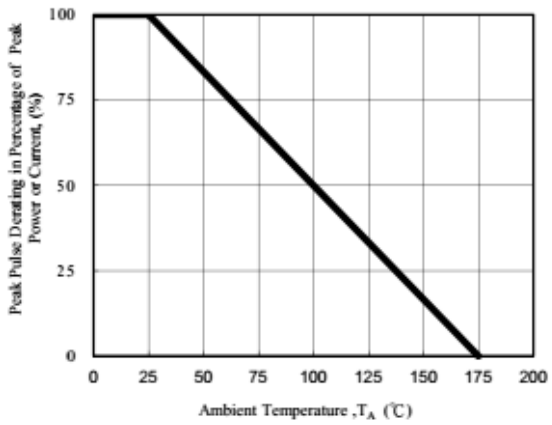


Figure 2- Maximum Non-Repetitive Surge Curren

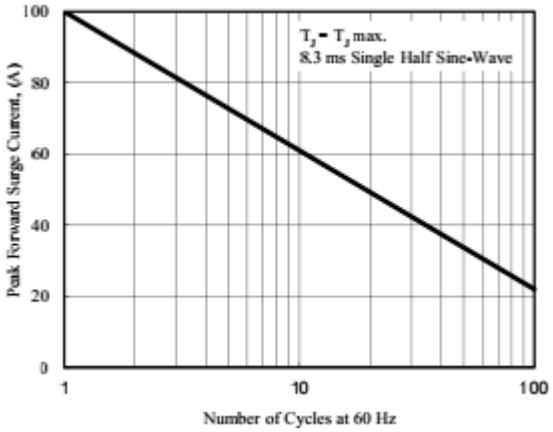


Figure 3- Steady State Power Derating Curve

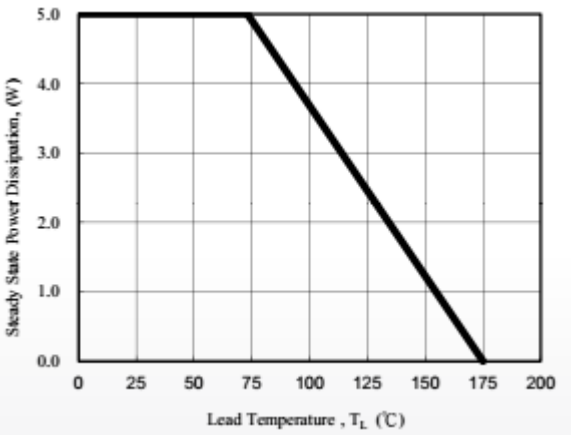


Figure 4- Peak Pulse Power Rating Curve

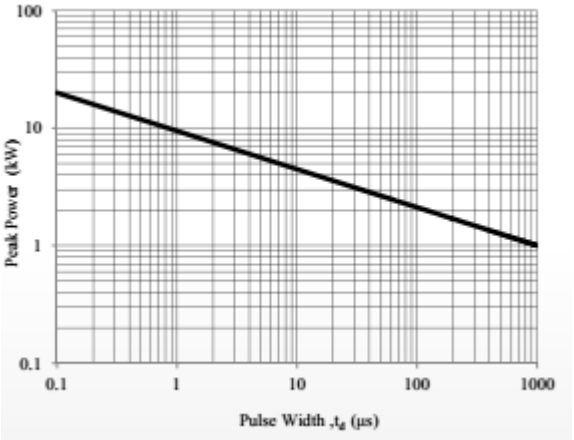


Figure 5- Pulse Waveform

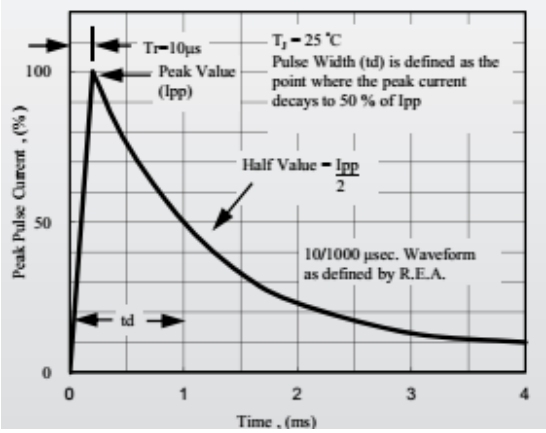
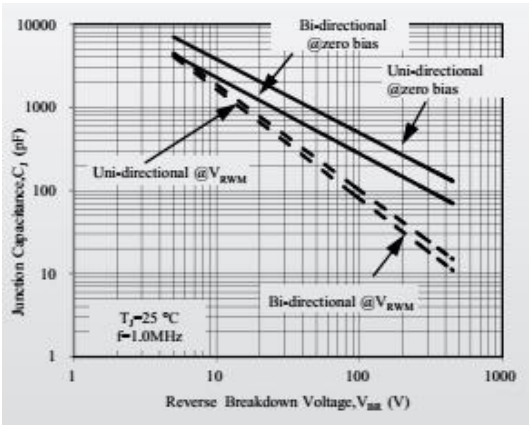
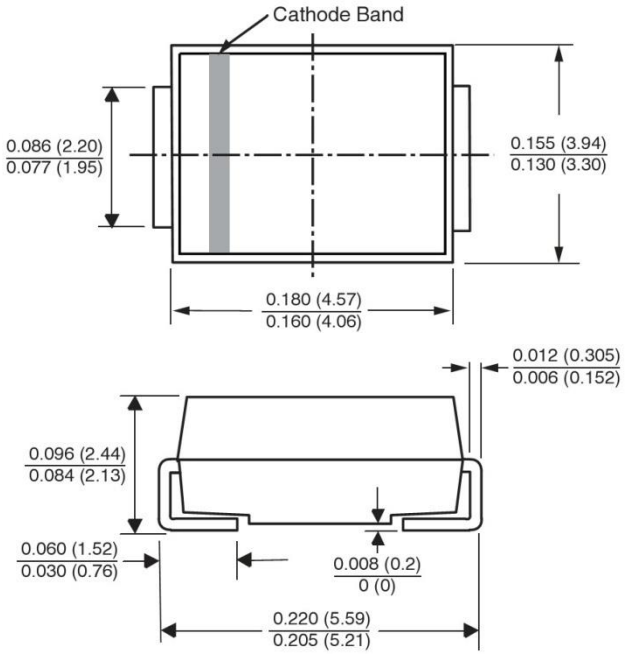


Figure 5- Typical Junction Capacitance

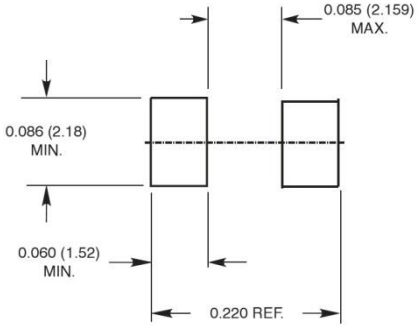


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.