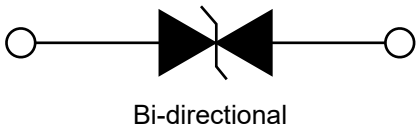
1.Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle): 0.01 %
- 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
- IEC-61000-4-2ESD 30kV(Air),30kV(Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4

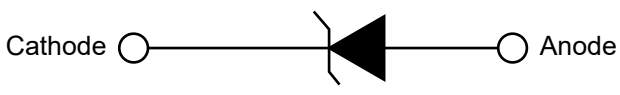
2.Mechanical Data

- Case: SMB (DO-214AA)
  Molding compound meets UL 94 V-0 flammability rating.Base P/N-E3 - RoHS-compliant, commercial grade.Base P/N-M3 - halogen-free, RoHS-compliant commercial grade.Base P/NHE3 - RoHS-compliant Base P/NHM3 - halogen-free, RoHS-compliant.
- Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102 E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test
- Polarity: for uni-directional types the band denotes cathode end, no marking on bi-directional types

3.Pinning information



Bi-directional



Uni-directional

SMB

4.Absolute Maximum Ratings(T_A=25 °C unless otherwise noted)

Parameter	Symbol	Value	Units
Peak power dissipation with a 10/1000 μs waveform (1)(2) (fig. 1)	P_{PPM}	600	W
Peak pulse current with a 10/1000 μs waveform (1)	I_{PPM}	See next table	A
Peak forward surge current 8.3 ms single half sine-wave uni-directional only (2)	I_{FSM}	100	A
Junction temperature and storage temperature range	T_J,T_{STG}	-55 to 150	°C
IEC-61000-4-2 ESD 30kV(Air), 30 kV (Contact)			

Notes:

(1) Non-repetitive current pulse, per fig. 3 and derated above T_A=25 °C per fig. 2.

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

5.Primary Characteristics

V_{BR} (bi-directional)	6.4 V to 231 V
V_{BR} (uni-directional)	6.4 V to 231 V
V_{WM}	5.0 V to 188 V
P_{PPM}	600 W
I_{FSM} (uni-directional only)	100 A
T_J max.	150 °C
Polarity	Uni-directional, bi-directional
Package	SMB (DO-214AA)

6.Electrical Characteristics (T_A=25 °C unless otherwise noted)

DEVICE TYPE MODIFIED "J" BEND LEAD	DEVICE MARKIN GCODE		BREAKDOWN VOLTAGE V_{BR} AT I_T (1)		TEST CURRENT	STAND -OFF VOLTAGE	MAXIMUM REVERSE LEAKAG AT V_{WM}	MAXIMUM PEAK PULSE SURGE CURRENT	MAXIMUM CLAMPING VOLTAGE AT
			(V)		I_T	V_{WM}	I_R(3)	I_{PPM}(2)	I_{PPM}
	UNI	BI	MIN.	MAX.	(mA)	(V)	(μA)	(A)	V_C(V)
SMBJ5.0A(CA)	KE	KE	6.40	7.07	10	5.0	800	65.2	9.2
SMBJ6.0A(CA)	KG	KG	6.67	7.37	10	6.0	800	58.3	10.3
SMBJ6.5A(CA)	KK	AK	7.22	7.98	10	6.5	500	53.6	11.2
SMBJ6.8A(CA)	6V8A	6V8C	6.45	7.14	10	5.80	1000	57.1	10.5
SMBJ7.0A(CA)	KM	KM	7.78	8.60	10	7.0	200	50.0	12.0
SMBJ7.5A(CA)	KP	AP	8.33	9.21	1.0	7.5	100	46.5	12.9
SMBJ8.0A(CA)	KR	AR	8.89	9.83	1.0	8.0	50	44.1	13.6
SMBJ8.5A(CA)	KT	AT	9.44	10.4	1.0	8.5	20	41.7	14.4
SMBJ9.0A(CA)	KV	AV	10.0	11.1	1.0	9.0	10	39.0	15.4
SMBJ10A(CA)	KX	AX	11.1	12.3	1.0	10	5.0	35.3	17.0
SMBJ11A(CA)	KZ	KZ	12.2	13.5	1.0	11	5.0	33.0	18.2
SMBJ12A(CA)	LE	BE	13.3	14.7	1.0	12	5.0	30.2	19.9
SMBJ13A(CA)	LG	LG	14.4	15.9	1.0	13	1.0	27.9	21.5
SMBJ14A(CA)	LK	BK	15.6	17.2	1.0	14	1.0	25.9	23.2
SMBJ15A(CA)	LM	BM	16.7	18.5	1.0	15	1.0	24.6	24.4
SMBJ16A(CA)	LP	LM	17.8	19.7	1.0	16	1.0	23.1	26.0
SMBJ17A(CA)	LR	LR	18.9	20.9	1.0	17	1.0	21.7	27.6
SMBJ18A(CA)	LT	BT	20.0	22.1	1.0	18	1.0	20.5	29.2
SMBJ20A(CA)	LV	LV	22.2	24.5	1.0	20	1.0	18.5	32.4
SMBJ22A(CA)	LX	BX	24.4	26.9	1.0	22	1.0	16.9	35.5
SMBJ24A(CA)	LZ	BZ	26.7	29.5	1.0	24	1.0	15.4	38.9
SMBJ26A(CA)	ME	CE	28.9	31.9	1.0	26	1.0	14.3	42.1

SMBJ28A(CA)	MG	MG	31.1	34.4	1.0	28	1.0	13.2	45.4
SMBJ30A(CA)	MK	CK	33.3	36.8	1.0	30	1.0	12.4	48.4
SMBJ33A(CA)	MM	CM	36.7	40.6	1.0	33	1.0	11.3	53.3
SMBJ36A(CA)	MP	CP	40.0	44.2	1.0	36	1.0	10.3	58.1
SMBJ40A(CA)	MR	CR	44.4	49.1	1.0	40	1.0	9.3	64.5
SMBJ43A(CA)	MT	CT	47.8	52.8	1.0	43	1.0	8.6	69.4
SMBJ45A(CA)	MV	MV	50.0	55.3	1.0	45	1.0	8.3	72.7
SMBJ48A(CA)	MX	MX	53.3	58.9	1.0	48	1.0	7.8	77.4
SMBJ51A(CA)	MZ	MZ	56.7	62.7	1.0	51	1.0	7.3	82.4
SMBJ54A(CA)	NE	NE	60.0	66.3	1.0	54	1.0	6.9	87.1
SMBJ58A(CA)	NG	NG	64.4	71.2	1.0	58	1.0	6.4	93.6
SMBJ60A(CA)	NK	NK	66.7	73.7	1.0	60	1.0	6.2	96.8
SMBJ64A(CA)	NM	NM	71.1	78.6	1.0	64	1.0	5.8	103
SMBJ70A(CA)	NP	NP	77.8	86.0	1.0	70	1.0	5.3	113
SMBJ75A(CA)	NR	NR	83.3	92.1	1.0	75	1.0	5.0	121
SMBJ78A(CA)	NT	NT	86.7	95.8	1.0	78	1.0	4.8	126
SMBJ85A(CA)	NV	NV	94.4	104	1.0	85	1.0	4.4	137
SMBJ90A(CA)	NX	NX	100	111	1.0	90	1.0	4.1	146
SMBJ100A(CA)	NZ	NZ	111	123	1.0	100	1.0	3.7	162
SMBJ110A(CA)	PE	PE	122	135	1.0	110	1.0	3.4	177
SMBJ120A(CA)	PG	PG	133	147	1.0	120	1.0	3.1	193
SMBJ130A(CA)	PK	PK	144	159	1.0	130	1.0	2.9	209
SMBJ150A(CA)	PM	PM	167	185	1.0	150	1.0	2.5	243
SMBJ160A(CA)	PP	PP	178	197	1.0	160	1.0	2.3	259
SMBJ170A(CA)	PR	PR	189	209	1.0	170	1.0	2.2	275
SMBJ188A(CA)	PS	PS	209	231	1.0	188	1.0	2.0	328

Notes:

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

(3) For bi-directional types having V_{WM} of 10 V and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

(5) For the bi-directional SMBJ5.0CA, the maximum V_{BR} is 7.25 V

(6) V_F=3.5V max. at I_F=50 A (uni-directional only)

(+) Underwriters laboratory recognition for the classification of protectors (QVGQ2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

7.Typical characteristic

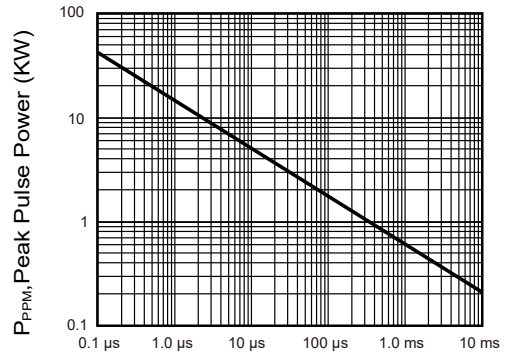


Figure 1: Peak Pulse Power Rating Curve

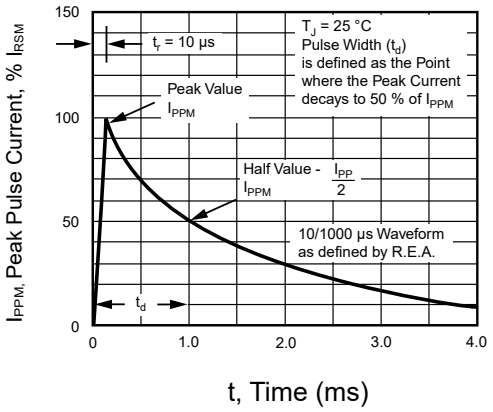


Figure 2: Pulse Waveform

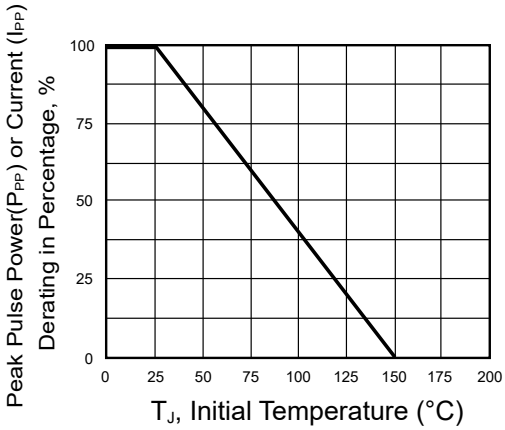


Figure 3: Pulse Power or Current vs. Initial Junction Temperature

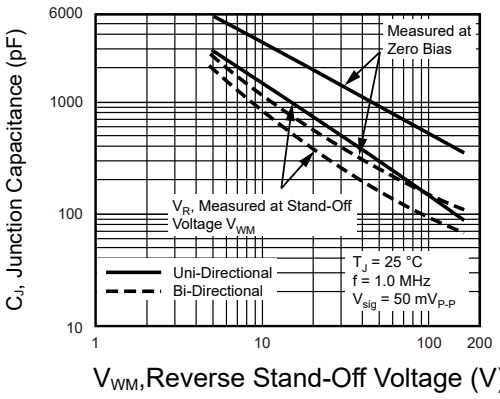


Figure 4: Typical Junction Capacitance

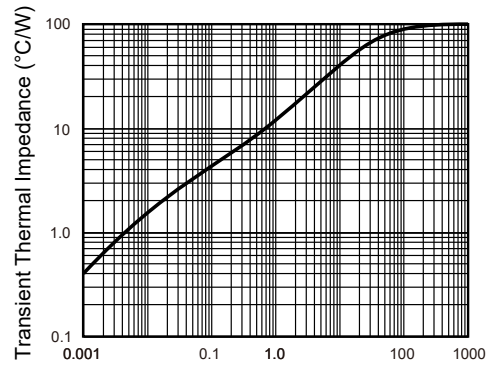


Figure 5: Typical Transient Thermal Impedance

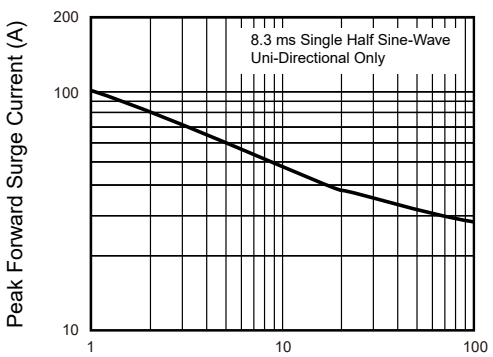
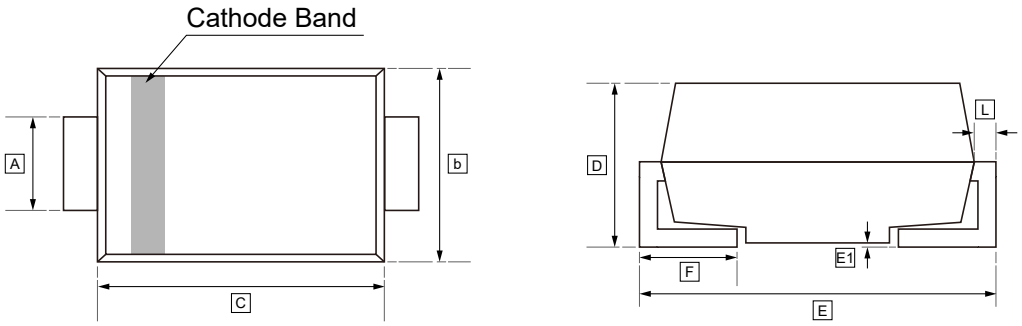


Figure 6: Maximum Non-Repetitive Peak Forward Surge Current

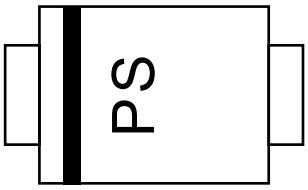
8.SMB Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	b	C	D	E	E1	F	L
Min	1.95	3.30	4.06	2.13	5.10	0	0.76	0.152
Max	2.20	3.94	4.57	2.44	5.59	0.2	1.52	0.305

9.Ordering information



Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SMBJ12A	LE	SMB	750	Tape and reel
UMW SMBJ12CA	BE	SMB	750	Tape and reel
UMW SMBJ15A	LM	SMB	750	Tape and reel
UMW SMBJ15CA	BM	SMB	750	Tape and reel
UMW SMBJ16CA	LM	SMB	750	Tape and reel
UMW SMBJ188A	PS	SMB	750	Tape and reel
UMW SMBJ188CA	PS	SMB	750	Tape and reel
UMW SMBJ18CA	BT	SMB	750	Tape and reel
UMW SMBJ20A	LV	SMB	750	Tape and reel
UMW SMBJ24A	LZ	SMB	750	Tape and reel
UMW SMBJ24CA	BZ	SMB	750	Tape and reel
UMW SMBJ26CA	CE	SMB	750	Tape and reel
UMW SMBJ28CA	MG	SMB	750	Tape and reel
UMW SMBJ30A	MK	SMB	750	Tape and reel
UMW SMBJ30CA	CK	SMB	750	Tape and reel
UMW SMBJ33CA	CM	SMB	750	Tape and reel
UMW SMBJ36A	MP	SMB	750	Tape and reel

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW SMBJ36CA	CP	SMB	750	Tape and reel
UMW SMBJ5.0A	KE	SMB	750	Tape and reel
UMW SMBJ5.0CA	KE	SMB	750	Tape and reel
UMW SMBJ6.0A	KG	SMB	750	Tape and reel
UMW SMBJ6.0CA	KG	SMB	750	Tape and reel
UMW SMBJ6.5A	KK	SMB	750	Tape and reel
UMW SMBJ6.5CA	AK	SMB	750	Tape and reel
UMW SMBJ6.8A	6V8A	SMB	750	Tape and reel
UMW SMBJ6.8CA	6V8C	SMB	750	Tape and reel

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