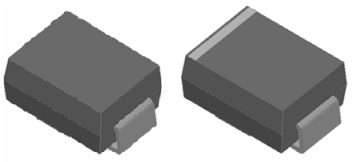
Features

http//:www.xihangsemi.com

- Low profile package
- Built-in strain relief
- Low inductance
- Excellent clamping capability
- Glassed passivated junction
- Typical I_R less than 1uA above 10V
- Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0ps from 0V to V(BR) for unidirectional types
- High temperature soldering: 260℃/10s at terminals
- Plastic package has Underwriters Laboratory Flammability 94V-0
- For surface mounted applications in order to optimize board space
- Pb-free plated



SMB
(jedec DO-214AA)

Bidirectional Unidirectional

Top View

Simplified outline SMB and symbol

Mechanical Data

- Case: JEDEC DO-214AA. Molded plastic over glass passivated junction
- Terminals: Solder plated, solderable per MIL-STD-750 Method 2026
- Polarity: For uni-directional types the band by laser denotes the cathode, which is positive with respect to the anode under normal TVS operation

Device for Bipolar Application

- For Bidirectional use C or CA Suffix for types SMBJ5.0 thru types SMBJ170 (e.g. SMBJ5.0C , SMBJ170CA)
- Electrical characteristics apply in both directions

Maximum Ratings and Characteristics

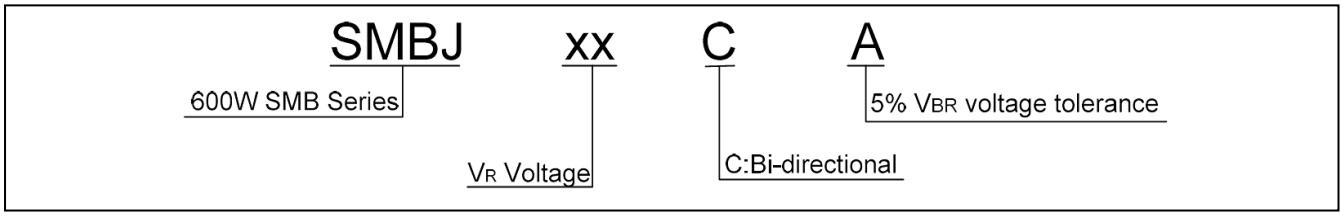
Ratings at 25℃ ambient temperature unless otherwise specified

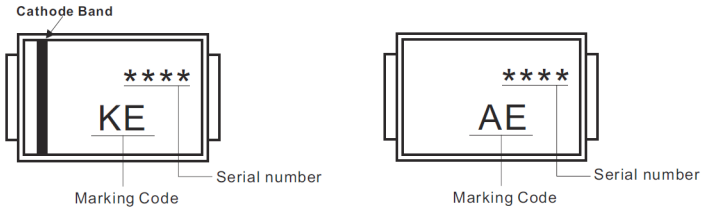
Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000us waveform (Note1,2, FIG.1)	P_{PPM}	400	W
Peak Pulse Current on 10/1000us waveform (Note1, FIG.3)	I_{PPM}	SEE TABLE1	A
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note2,3)	I_{FSM}	100	A
Operating Junction and Storage Temperature Range	T_J/ T_{STG}	-55 to +150	℃

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25℃ per Fig.2.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) copper pads to each terminal.
3. 8.3mm single half sine-wave, or equivalent square waver, duty cycle=4 pulses per minutes maximum

Part Number Naming Rule and Marking





For example: the device marking code of SMBJ5.0A and SMBJ5.0CA are KE and AE respectively.

Electrical Characteristics (Ta=25℃, unless otherwise noted)

Table1 “*” Stand for commonly used models

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	Vc@Ipp	Ipp (1)
Uni-Polar	Bi-Polar	Uni	Bi	V	uA	min(V)	max(V)	mA	max(V)	A
SMBJ5.0A*	SMBJ5.0CA*	KE	AE	5	500	6.4	7	10	9.2	65.3
SMBJ6.0A	SMBJ6.0CA*	KG	AG	6	500	6.67	7.37	10	10.3	58.3
SMBJ6.5A	SMBJ6.5CA*	KK	AK	6.5	300	7.22	7.98	10	11.2	53.6
SMBJ7.0A	SMBJ7.0CA	KM	AM	7	200	7.78	8.6	10	12	50
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	100	8.33	9.21	1	12.9	46.6
SMBJ8.0A	SMBJ8.0CA*	KR	AR	8	50	8.89	9.83	1	13.6	44.2
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	20	9.44	10.4	1	14.4	41.7
SMBJ9.0A	SMBJ9.0CA	KV	AV	9	10	10	11.1	1	15.4	39
SMBJ10A	SMBJ10CA*	KX	AX	10	5	11.1	12.3	1	17	35.3
SMBJ11A	SMBJ11CA	KZ	AZ	11	1	12.2	13.5	1	18.2	33
SMBJ12A	SMBJ12CA*	LE	BE	12	1	13.3	14.7	1	19.9	30.2
SMBJ13A	SMBJ13CA	LG	BG	13	1	14.4	15.9	1	21.5	28
SMBJ14A	SMBJ14CA	LK	BK	14	1	15.6	17.2	1	23.2	25.9
SMBJ15A*	SMBJ15CA	LM	BM	15	1	16.7	18.5	1	24.4	24.6
SMBJ16A	SMBJ16CA	LP	BP	16	1	17.8	19.7	1	26	23.1
SMBJ17A	SMBJ17CA	LR	BR	17	1	18.9	20.9	1	27.6	21.8
SMBJ18A	SMBJ18CA	LT	BT	18	1	20	22.1	1	29.2	20.6
SMBJ20A	SMBJ20CA*	LV	BV	20	1	22.2	24.5	1	32.4	18.6
SMBJ22A	SMBJ22CA	LX	BX	22	1	24.4	26.9	1	35.5	16.9

Electrical Characteristics (Ta=25℃, unless otherwise noted)

Table1 "*" Stand for commonly used models

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	Vc@Ipp	Ipp (1)
Uni-Polar	Bi-Polar	Uni	Bi	V	uA	min(V)	max(V)	mA	max(V)	A
SMBJ24A	SMBJ24CA*	LZ	BZ	24	1	26.7	29.5	1	38.9	15.5
SMBJ26A*	SMBJ26CA	ME	CE	26	1	28.9	31.9	1	42.1	14.3
SMBJ28A	SMBJ28CA	MG	CG	28	1	31.1	34.4	1	45.4	13.3
SMBJ30A	SMBJ30CA	UNI	BI	30	1	33.3	36.8	1	48.4	12.4
SMBJ33A	SMBJ33CA	MK	CK	33	1	36.7	40.6	1	53.3	11.3
SMBJ36A	SMBJ36CA*	MM	CM	36	1	40	44.2	1	58.1	10.4
SMBJ40A*	SMBJ40CA	MP	CP	40	1	44.4	49.1	1	64.5	9.3
SMBJ43A	SMBJ43CA	MR	CR	43	1	47.8	52.8	1	69.4	8.7
SMBJ45A	SMBJ45CA	MT	CT	45	1	50	55.3	1	72.7	8.3
SMBJ48A	SMBJ48CA	MV	CV	48	1	53.3	58.9	1	77.4	7.8
SMBJ51A	SMBJ51CA*	MX	CX	51	1	56.7	62.7	1	82.4	7.3
SMBJ54A	SMBJ54CA	MZ	CZ	54	1	60	66.3	1	87.1	6.9
SMBJ58A	SMBJ58CA	NE	DE	58	1	64.4	71.2	1	93.6	6.5
SMBJ60A	SMBJ60CA	NG	DG	60	1	66.7	73.7	1	96.8	6.2
SMBJ64A	SMBJ64CA	NK	DK	64	1	71.1	78.6	1	103	5.9
SMBJ70A	SMBJ70CA	NM	DM	70	1	77.8	86	1	113	5.3
SMBJ75A	SMBJ75CA	NP	DP	75	1	83.3	92.1	1	121	5
SMBJ78A	SMBJ78CA	NR	DR	78	1	86.7	95.8	1	126	4.8
SMBJ85A	SMBJ85CA	NT	DT	85	1	94.4	104	1	137	4.4
SMBJ90A	SMBJ90CA	NV	DV	90	1	100	111	1	146	4.1
SMBJ100A	SMBJ100CA	NX	DX	100	1	111	123	1	162	3.7
SMBJ110A	SMBJ110CA	NZ	DZ	110	1	122	135	1	177	3.4
SMBJ120A*	SMBJ120CA	PE	EE	120	1	133	147	1	193	3.1
SMBJ130A	SMBJ130CA	PG	EG	130	1	144	159	1	209	2.9
SMBJ150A*	SMBJ150CA	PK	EK	150	1	167	185	1	243	2.5
SMBJ160A	SMBJ160CA	PM	EM	160	1	178	197	1	259	2.3
SMBJ170A*	SMBJ170CA	PP	EP	170	1	189	209	1	275	2.2
SMBJ180A	SMBJ180CA	PR	ER	180	1	201	222	1	292	2.1
SMBJ200A	SMBJ200CA	PT	ET	200	1	224	247	1	324	1.9
SMBJ220A	SMBJ220CA	PV	EV	220	1	246	272	1	356	1.7
SMBJ250A	SMBJ250CA	PX	EX	250	1	279	309	1	405	1.5
SMBJ300A	SMBJ300CA	PZ	EZ	300	1	335	371	1	486	1.3
SMBJ350A	SMBJ350CA	QE	FE	350	1	391	432	1	567	1.1
SMBJ400A	SMBJ400CA*	QG	FG	400	1	447	494	1	648	0.9
SMBJ440A	SMBJ440CA	QK	FK	440	1	492	543	1	713	0.9

(1)Surge waveform:10/1000us

V_R: Stand-off voltage—maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage—peak voltage measured across the suppressor at a specified I_{pp}

I_R: Reverse leakage current

Characteristics curves (Ta=25℃, unless otherwise noted)

Fig.1 Peak Pulse Power Rating

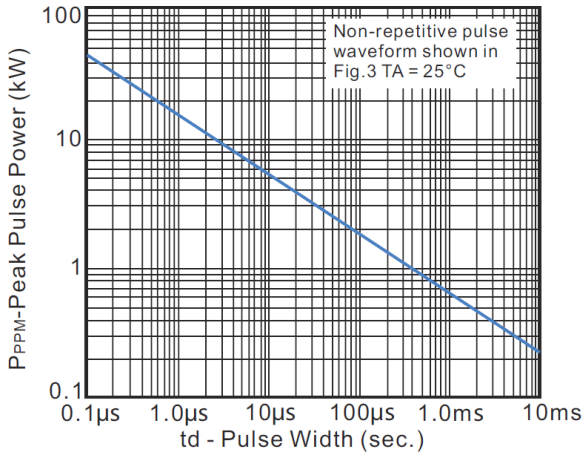


Fig.2 Pulse Derating Cruve

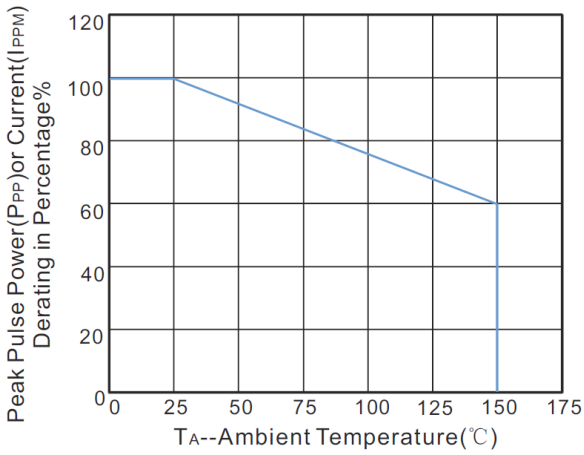


Fig.3 Pulse Waveform

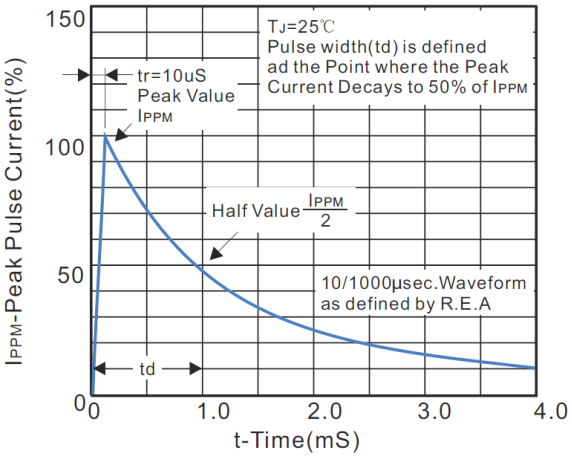


Fig.4 Typical Junction Capacitance

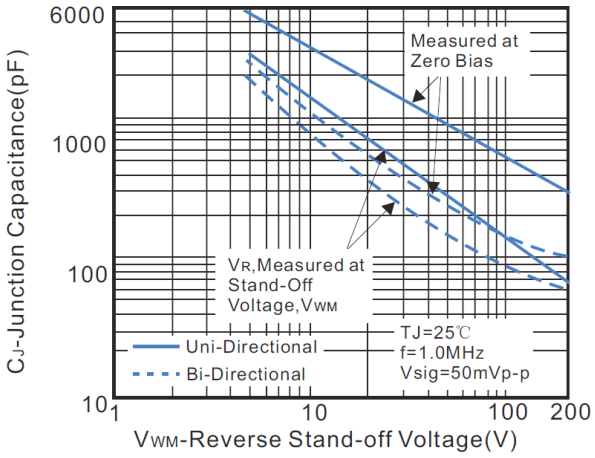


Fig.5 Typ.Transient Thermal Impedance

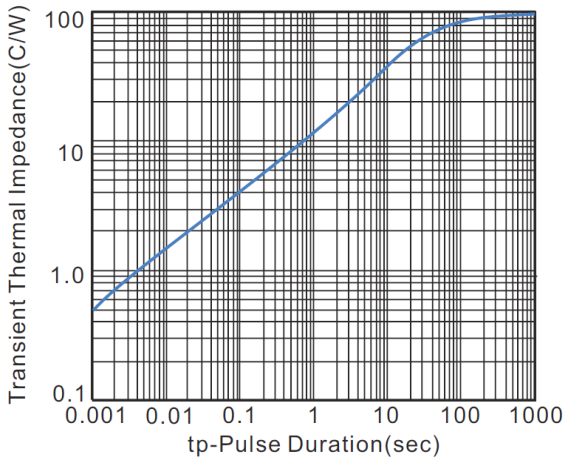
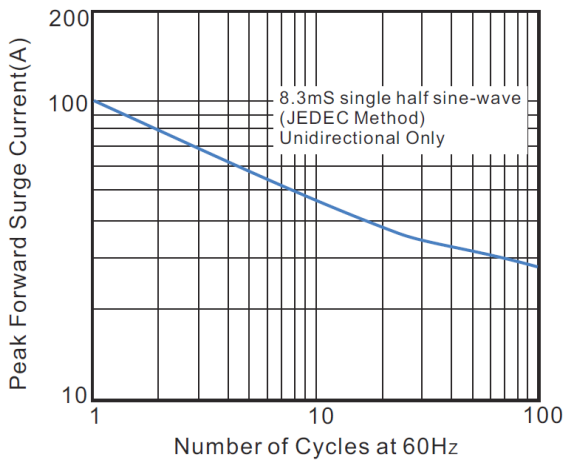
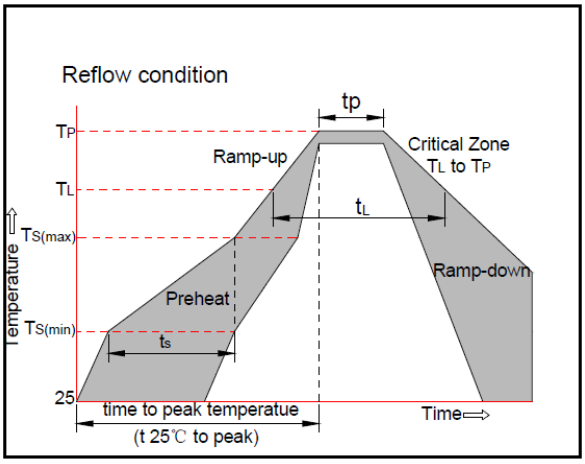


Fig.6 Maximum Non-Repetitive Peak
Forward Surge Current Uni-Directional Only

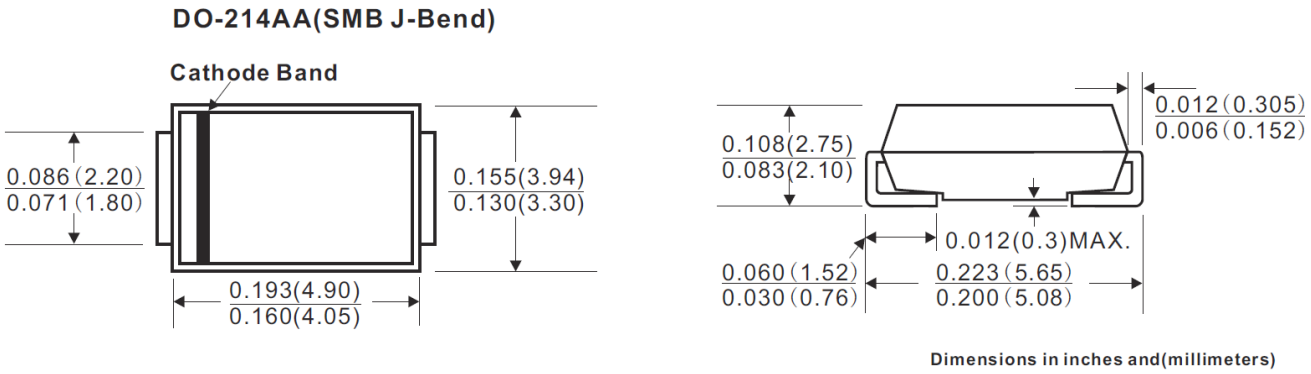


Recommended Soldering Conditions

Reflow Condition		Pb-Free assembly （see figure at right）
Pre Heat	-Temperature Min($T_{S(min)}$)	+150℃
	-Temperature Min($T_{S(max)}$)	+200℃
	-Time(Min to Max)(ts)	60-180 secs.
Average ramp up rate (Liquidus Temp(T_L) to peak)		3℃/sec.Max
$T_{S(max)}$ to T_L-Ramp-up-Rate		3℃/sec.Max
Reflow	-Temperature(T_L)(Liquidus)	+ 217℃
	- Temperature(t_L)	60-150 secs
Peak Temp(T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp （t_p）		20-40 secs.
Ramp-down Rate		6℃/sec.Max
Time 25℃ to Peak Temp (T_p)		8 min.Max
Do not exceed		260℃



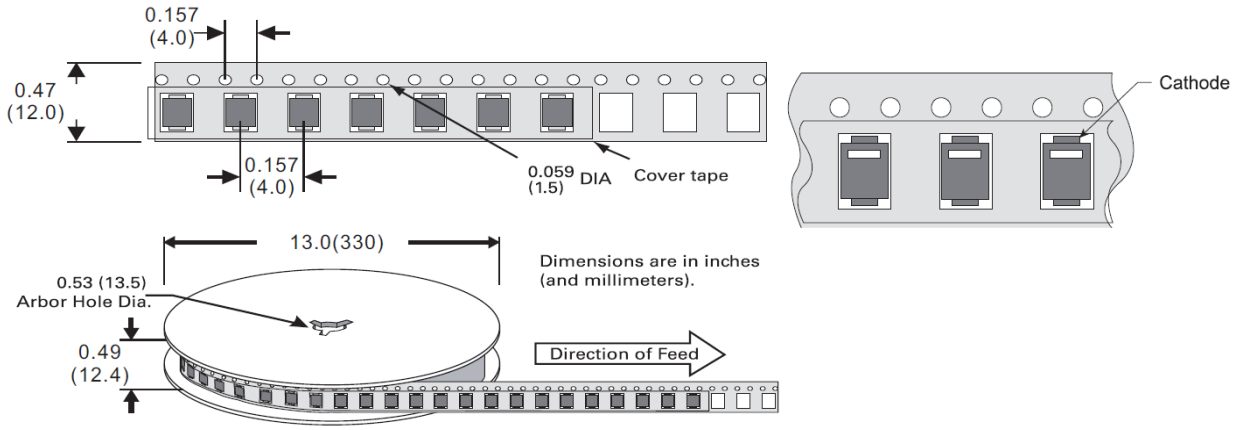
Package Outline Dimensions(DO-214AA)



Dimensions in inches and(millimeters)

Tape And Reel Specification

Symbol	Ea Per Reel	REEL DIA(mm)	Industry Standard
SMBJ***	500/3000	178/330	EIA RS-481



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