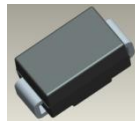


## Features

- 600W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SMB
- Case Material: Molded Plastic.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish).  
Solderable per MIL-STD-202, Method 208
- Weight: 0.1 grams (Approximate)



Top View



Bottom View

## Ordering Information (Note 4)

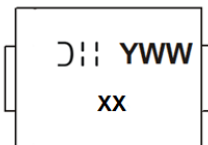
Part Number	Qualification	Case	Packaging
SMBJXXX(C)A-13-F	Commercial	SMB	3,000/Tape & Reel

\*x = Device Voltage, e.g., SMBJ170A-13-F.

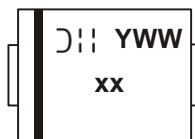
- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information

Bi-directional device



Cathode Band for Uni-directional device



xx = Product Type Marking Code (See Page 2)  
= Manufacturers' Code Marking  
YWW = Date Code Marking  
Y = Last Digit of Year (ex: 6 for 2016)  
WW = Week Code 01 to 53

### Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated above $T_A = +25^\circ\text{C}$ ) (Note 5)	$P_{PK}$	600	W	
Peak Power Derating Above $+25^\circ\text{C}$	$P_{DER}$	4.8	W/ $^\circ\text{C}$	
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 5, 6 & 7)	$I_{FSM}$	100	A	
Steady State Power Dissipation @ $T_L = +75^\circ\text{C}$	$PM_{(AV)}$	5.0	W	
Instantaneous Forward Voltage @ $I_{PP} = 35\text{A}$ (Notes 5, 6 & 7)	$V_F$	$V_{BR} < 100\text{V}$	3.5	V
		$V_{BR} \geq 100\text{V}$	5.0	V

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +175	$^\circ\text{C}$

- Notes:
- 5. Valid provided that terminals are kept at ambient temperature.
  - 6. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  - 7. Unidirectional units only.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Part Number Add C For Bi- Directional (Note 8)	Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 9)		Test Current I <sub>T</sub> (mA)	Max. Reverse Leakage @ V <sub>RWM</sub> (Note 10)	Max. Clamping Voltage @ I <sub>pp</sub>	Max. Peak Pulse Current I <sub>pp</sub>	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
See Note 6	V <sub>RWM</sub> (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (μA)	V <sub>C</sub> (V)	(A)	BI-	UNI-
SMBJ5.0(C)A	5.0	6.40	7.23	10	800	9.2	65.2	AE	KE
SMBJ6.0(C)A	6.0	6.67	7.67	10	800	10.3	58.3	AG	KG
SMBJ6.5(C)A	6.5	7.22	8.30	10	500	11.2	53.6	AK	KK
SMBJ7.0(C)A	7.0	7.78	8.95	10	200	12.0	50.0	AM	KM
SMBJ7.5(C)A	7.5	8.33	9.58	1.0	100	12.9	46.5	AP	KP
SMBJ8.0(C)A	8.0	8.89	10.23	1.0	50	13.6	44.1	AR	KR
SMBJ8.5(C)A	8.5	9.44	10.82	1.0	10	14.4	41.7	AT	KT
SMBJ9.0(C)A	9.0	10.00	11.50	1.0	5.0	15.4	39.0	AV	KV
SMBJ10(C)A	10.0	11.10	12.80	1.0	5.0	17.0	35.3	AX	KX
SMBJ11(C)A	11.0	12.20	14.40	1.0	5.0	18.2	33.0	AZ	KZ
SMBJ12(C)A	12.0	13.30	15.30	1.0	5.0	19.9	30.2	BE	LE
SMBJ13(C)A	13.0	14.40	16.50	1.0	5.0	21.5	27.9	BG	LG
SMBJ14(C)A	14.0	15.60	17.90	1.0	5.0	23.2	25.8	BK	LK
SMBJ15(C)A	15.0	16.70	19.20	1.0	5.0	24.4	24.0	BM	LM
SMBJ16(C)A	16.0	17.80	20.50	1.0	5.0	26.0	23.1	BP	LP
SMBJ17(C)A	17.0	18.90	21.70	1.0	5.0	27.6	21.7	BR	LR
SMBJ18(C)A	18.0	20.00	23.30	1.0	5.0	29.2	20.5	BT	LT
SMBJ20(C)A	20.0	22.20	25.50	1.0	5.0	32.4	18.5	BV	LV
SMBJ22(C)A	22.0	24.40	28.00	1.0	5.0	35.5	16.9	BX	LX
SMBJ24(C)A	24.0	26.70	30.70	1.0	5.0	38.9	15.4	BZ	LZ
SMBJ26(C)A	26.0	28.90	33.20	1.0	5.0	42.1	14.2	CE	ME
SMBJ28(C)A	28.0	31.10	35.80	1.0	5.0	45.4	13.2	CG	MG
SMBJ30(C)A	30.0	33.30	38.30	1.0	5.0	48.4	12.4	CK	MK
SMBJ33(C)A	33.0	36.70	42.20	1.0	5.0	53.3	11.3	CM	MM
SMBJ36(C)A	36.0	40.00	46.00	1.0	5.0	58.1	10.3	CP	MP
SMBJ40(C)A	40.0	44.40	51.10	1.0	5.0	64.5	9.3	CR	MR
SMBJ43(C)A	43.0	47.80	54.90	1.0	5.0	69.4	8.6	CT	MT
SMBJ45(C)A	45.0	50.00	57.50	1.0	5.0	72.7	8.3	CV	MV
SMBJ48(C)A	48.0	53.30	61.30	1.0	5.0	77.4	7.7	CX	MX
SMBJ51(C)A	51.0	56.70	65.20	1.0	5.0	82.4	7.3	CZ	MZ
SMBJ54(C)A	54.0	60.00	69.00	1.0	5.0	87.1	6.9	DE	NE
SMBJ58(C)A	58.0	64.40	74.60	1.0	5.0	93.6	6.4	DG	NG
SMBJ60(C)A	60.0	66.70	76.70	1.0	5.0	96.8	6.2	DK	NK
SMBJ64(C)A	64.0	71.10	81.80	1.0	5.0	103.0	5.8	DM	NM
SMBJ70(C)A	70.0	77.80	89.50	1.0	5.0	113.0	5.3	DP	NP
SMBJ75(C)A	75.0	83.30	95.80	1.0	5.0	121.0	4.9	DR	NR
SMBJ78(C)A	78.0	86.70	99.70	1.0	5.0	126.0	4.7	DT	NT
SMBJ85(C)A	85.0	94.40	108.20	1.0	5.0	137.0	4.4	DV	NV
SMBJ90(C)A	90.0	100.0	115.50	1.0	5.0	146.0	4.1	DX	NX
SMBJ100(C)A	100.0	111.0	128.00	1.0	5.0	162.0	3.7	DZ	NZ
SMBJ110(C)A	110.0	122.0	140.00	1.0	5.0	177.0	3.4	EE	PE
SMBJ120(C)A	120.0	133.0	153.00	1.0	5.0	193.0	3.1	EG	PG
SMBJ130(C)A	130.0	144.0	165.50	1.0	5.0	209.0	2.9	EK	PK
SMBJ150(C)A	150.0	167.0	192.50	1.0	5.0	243.0	2.5	EM	PM
SMBJ160(C)A	160.0	178.0	205.00	1.0	5.0	259.0	2.3	EP	PP
SMBJ170(C)A	170.0	189.0	217.50	1.0	5.0	275.0	2.2	ER	PR

- Notes:
- Suffix C denotes Bi-directional device.
  - V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10 ~ 15ms.
  - For Bi-Directional devices having V<sub>RWM</sub> of 10V and under, the I<sub>R</sub> is doubled.

**SMBJ5.0(C)A - SMBJ170(C)A**

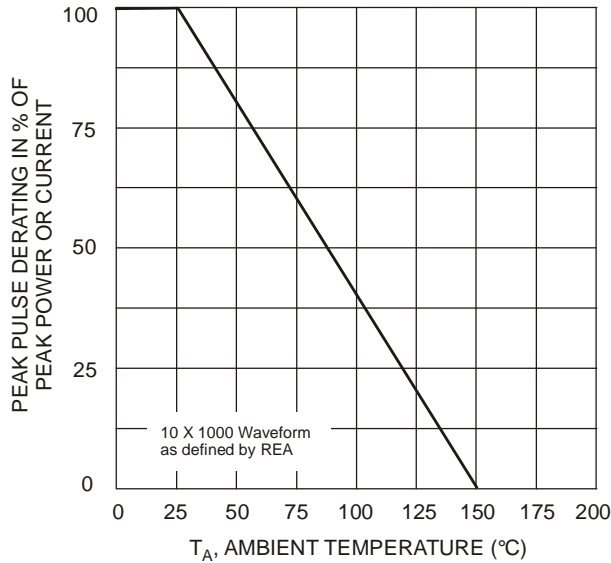


Fig. 1 Pulse Derating Curve

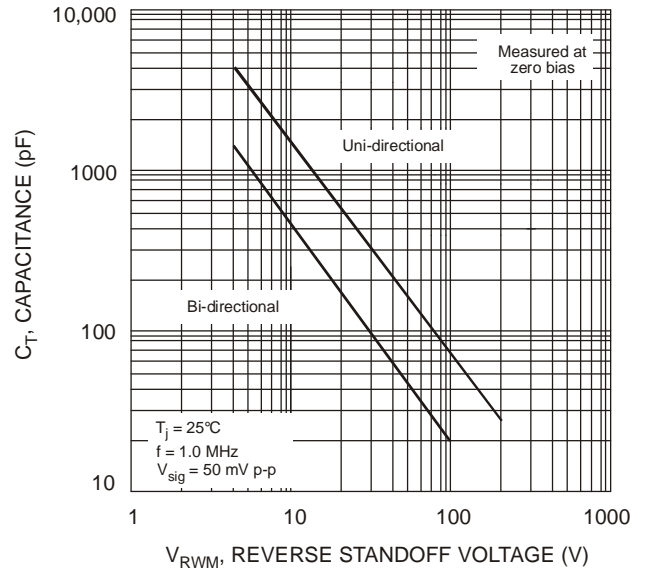


Fig. 2 Typical Total Capacitance

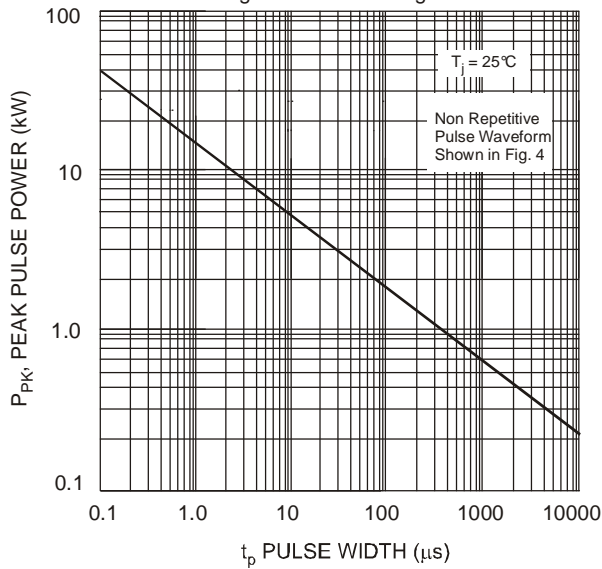


Fig. 3 Pulse Rating Curve

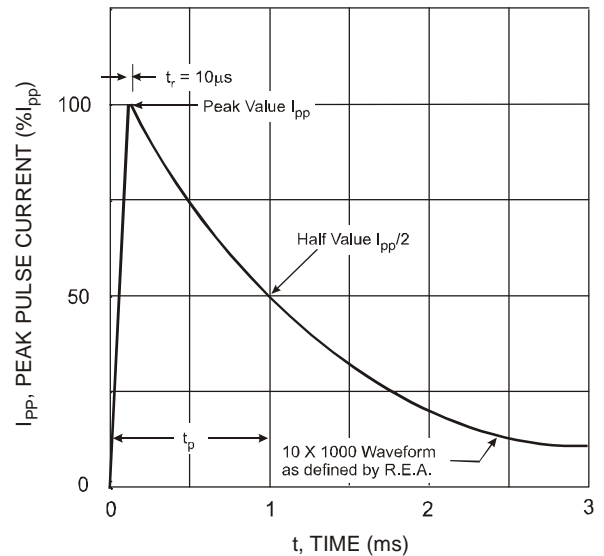


Fig. 4 Pulse Waveform

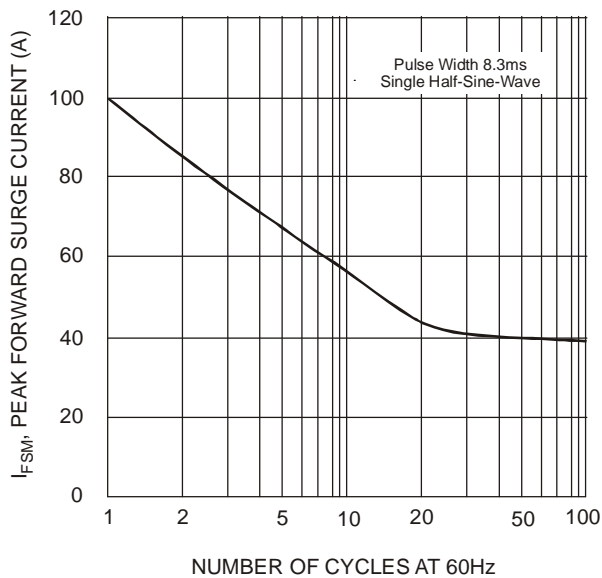


Fig. 5 Maximum Non-Repetitive Surge Current

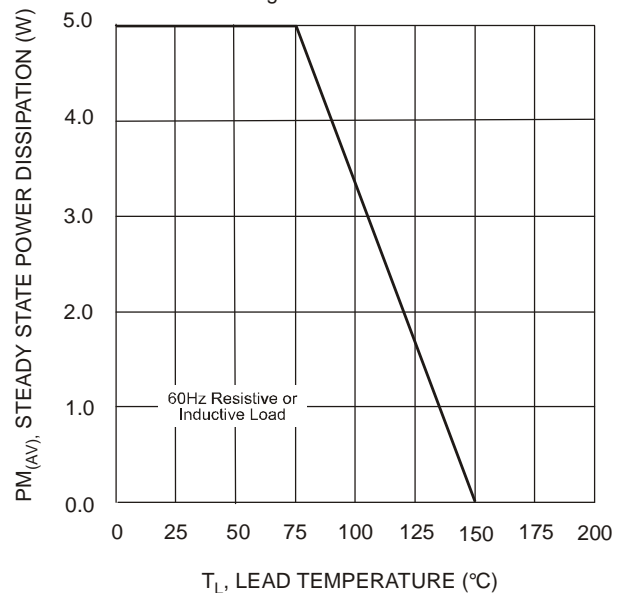
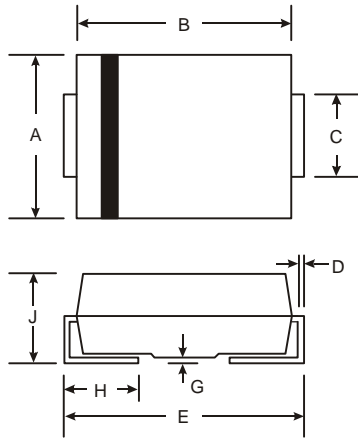


Fig. 6 Steady State Power Derating Curve

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

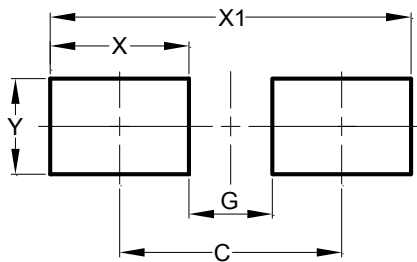


SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Note: 11. The bar in the upper drawing is polarity indicator for Cathode Band. It is for Uni-directional devices only. Bi-directional devices have no polarity Indicator.

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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