

## 阅读申明

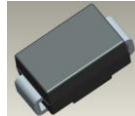
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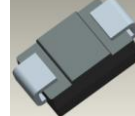
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## Features

- 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)**



Top View



Bottom View

## 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
- Polarity Indicator: Cathode Band (Note: Bi-directional Devices Have No Polarity Indicator.)
- Weight: 0.1 grams (Approximate)

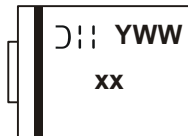
## Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
SMBJXXX(C)A-13-F	Commercial	SMB	3000/Tape & Reel
SMBJ24CAQ-13-F	Automotive	SMB	3000/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



xx = Product Type Marking Code (See Page 2)  
 D11 = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 4 for 2014)  
 WW = Week Code 01 to 52

## Maximum Ratings @T<sub>A</sub> = +25°C, unless otherwise specified.

Characteristic	Symbol	Value	Unit	
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated above T <sub>A</sub> = +25°C) (Note 5)	P <sub>PK</sub>	600	W	
Peak Power Derating Above +25°C	P <sub>DER</sub>	4.8	W/°C	
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 5, 6 & 7)	I <sub>FSM</sub>	100	A	
Steady State Power Dissipation @ T <sub>L</sub> = +75°C	PM <sub>(AV)</sub>	5.0	W	
Instantaneous Forward Voltage @ I <sub>PP</sub> = 35A (Notes 5, 6 & 7)	V <sub>F</sub>	V <sub>BR&lt;100V</sub>	3.5	V
		V <sub>BR&gt;100V</sub>	5.0	V

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +175	°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** @ $T_A = +25^\circ\text{C}$ , unless otherwise specified.

Part Number Add C For Bi- Directional (Note 8)	Reverse Standoff Voltage	Breakdown Voltage $V_{BR}$ @ $I_T$ (Note 9)		Test Current	Max. Reverse Leakage @ $V_{RWM}$ (Note 10)	Max. Clamping Voltage @ $I_{pp}$	Max. Peak Pulse Current $I_{pp}$	Marking Code	
		Min (V)	Max (V)					BI-	UNI-
See Note 6	$V_{RWM}$ (V)	Min (V)	Max (V)	$I_T$ (mA)	$I_R$ ( $\mu\text{A}$ )	$V_C$ (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
SMBJ24CAQ	24.0	26.70	30.70	1.0	5.0	38.9	15.4	BZ	-

- Notes:
8. Suffix C denotes Bi-directional device.
  9.  $V_{BR}$  measured with  $I_T$  current pulse = 10 ~ 15ms.
  10. For Bi-Directional devices having  $V_{RWM}$  of 10V and under, the  $I_R$  is doubled.

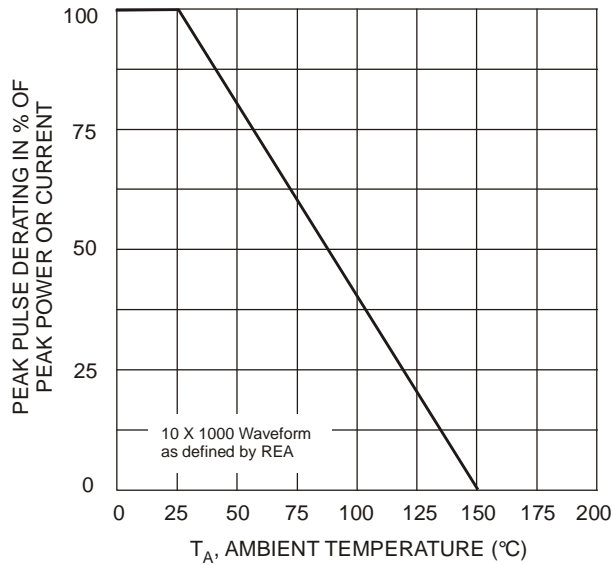


Fig. 1 Pulse Derating Curve

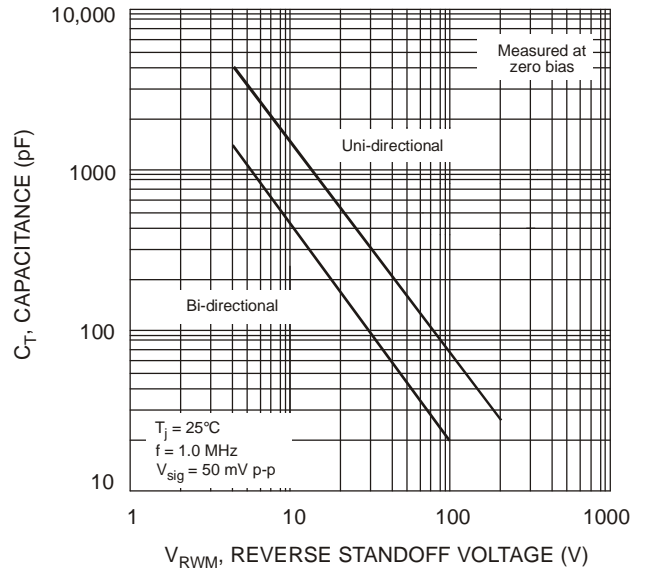


Fig. 2 Typical Total Capacitance

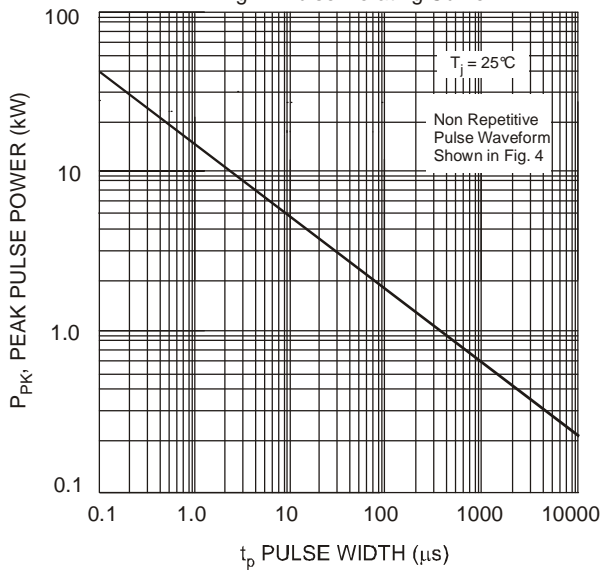


Fig. 3 Pulse Rating Curve

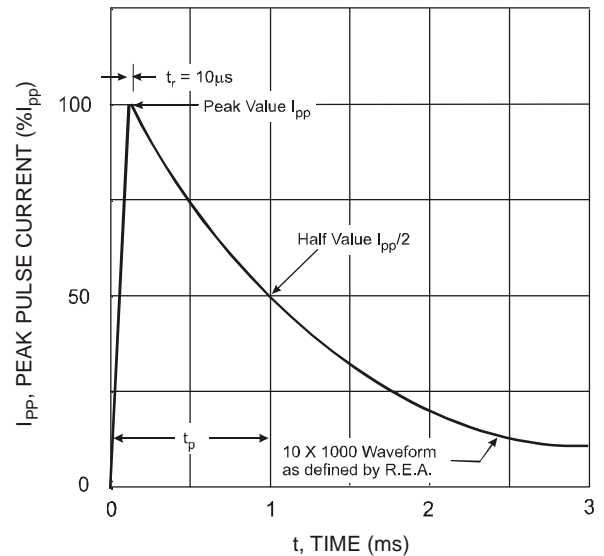


Fig. 4 Pulse Waveform

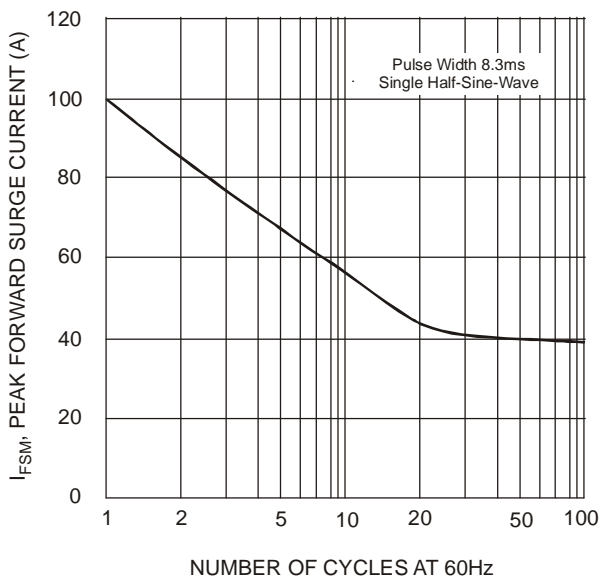


Fig. 5 Maximum Non-Repetitive Surge Current

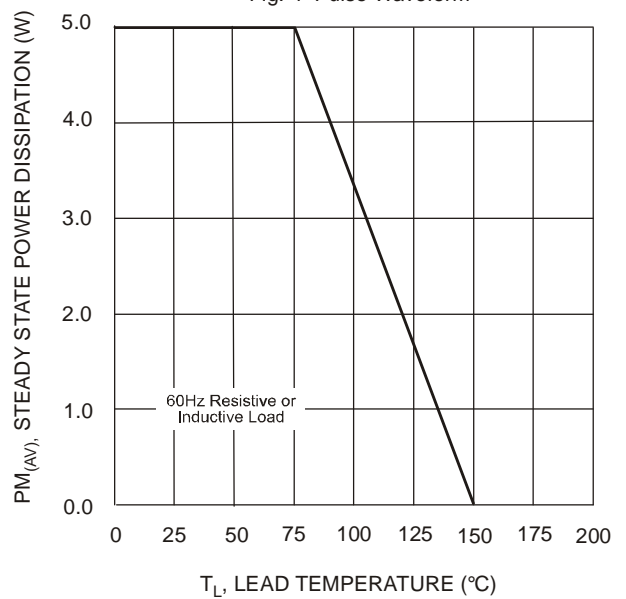
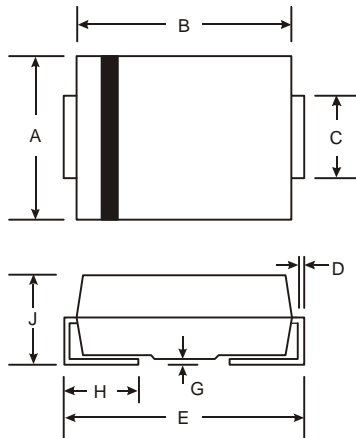


Fig. 6 Steady State Power Derating Curve

**Package Outline Dimensions**

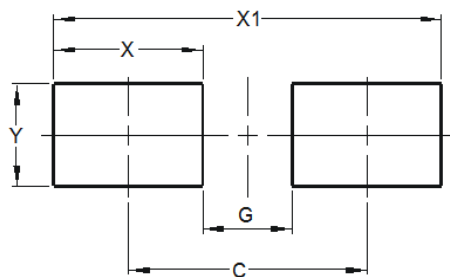
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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
<b>All Dimensions in mm</b>		

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> 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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