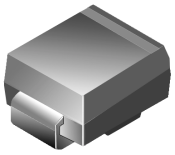
FAIRCHILD SEMICONDUCTOR TM

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

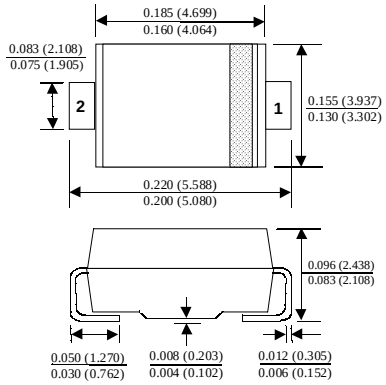
Features

- Glass passivated junction.
- 600W Peak Pulse Power capability on 10/1000 µs waveform.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time; typically less than 1.0 ps from 0 volts to BV for unidirectional and 5.0 ns for bidirectional.
- Typical I_R less than 1.0 µA above 10V.



SMB/DO-214AA

COLOR BAND DENOTES CATHODE ON UNIDIRECTIONAL DEVICES ONLY. NO COLOR BAND ON BIDIRECTIONAL DEVICES.



DEVICES FOR BIPOLAR APPLICATIONS

- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

600 Watt Transient Voltage Suppressors

Absolute Maximum Ratings*

T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_{PPM}	Peak Pulse Power Dissipation on 10/1000 µs waveform	minimum 600	W
I_{PPM}	Peak Pulse Current on 10/1000 µs waveform	see table	A
$i_{f(surge)}$	Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1)	100	A
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Junction Temperature	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Note 1: Measured on 8.3 ms single half-sine wave or equivalent square wave; Duty cycle = 4 pulses per minute maximum.

Transient Voltage Supressors
(continued)

Electrical Characteristics

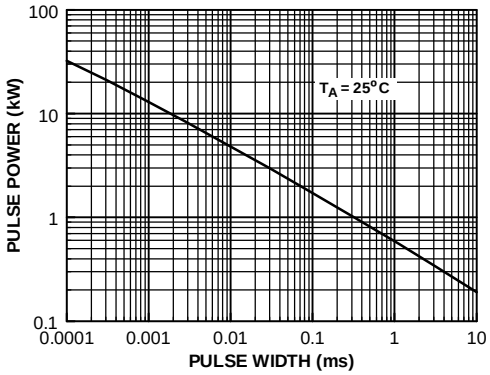
T_A = 25°C unless otherwise noted

Uni-directional Bi-directional (C) Device	Part Marking	Reverse Stand-off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) min	Breakdown Voltage V_{BR} (V) max	Test Current I_T (mA)	Max Clamping Voltage @IPPM V_C (V)	Max Peak Pulse Surge Current I_{PPM} (A)	Max Reverse Leakage V_{RWM} I_R (uA)*
SMBJ5.0(C)A	KE(AE)	5.0	6.40	7.0	10	9.2	65.2	800
SMBJ6.0(C)A	KG(AG)	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5(C)A	KK(AK)	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0(C)A	KM(AM)	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5(C)A	KP(AP)	7.5	8.33	9.21	1	12.9	46.5	100
SMBJ8.0(C)A	KR(AR)	8.0	8.89	9.83	1	13.6	44.1	50
SMBJ8.5(C)A	KT(AT)	8.5	9.44	10.4	1	14.4	41.7	20
SMBJ9.0(C)A	KV(AV)	9.0	10.0	11.1	1	15.4	39.0	10
SMBJ10(C)A	KX(AX)	10	11.1	12.8	1	17.0	35.3	5
SMBJ11(C)A	KZ(AZ)	11	12.2	13.5	1	18.2	33.0	5
SMBJ12(C)A	LE(BE)	12	13.3	14.7	1	19.9	30.2	5
SMBJ13(C)A	LG(BG)	13	14.4	15.9	1	21.5	27.9	5
SMBJ14(C)A	LK(BK)	14	15.6	17.2	1	23.2	25.9	5
SMBJ15(C)A	LM(BM)	15	16.7	18.5	1	24.4	24.6	5
SMBJ16(C)A	LP(LM)	16	17.8	19.7	1	26.0	23.1	5
SMBJ17(C)A	LR(BR)	17	18.9	20.9	1	27.6	21.7	5
SMBJ18(C)A	LT(BT)	18	20.0	22.1	1	29.2	20.5	5
SMBJ20(C)A	LV(BV)	20	22.2	24.5	1	32.4	18.5	5
SMBJ22(C)A	LX(BX)	22	24.4	26.9	1	35.5	16.9	5
SMBJ24(C)A	LZ(BZ)	24	26.7	29.5	1	38.9	15.4	5
SMBJ26(C)A	ME(CE)	26	28.9	31.9	1	42.1	14.3	5
SMBJ28(C)A	MG(CG)	28	31.1	34.4	1	45.4	13.2	5
SMBJ30(C)A	MK(CK)	30	33.3	36.8	1	48.4	12.4	5
SMBJ33(C)A	MM(CM)	33	36.7	40.6	1	53.3	11.3	5
SMBJ36(C)A	MP(CP)	36	40.0	44.2	1	58.1	10.3	5
SMBJ40(C)A	MR(CR)	40	44.4	49.1	1	64.5	9.3	5
SMBJ43(C)A	MT(CT)	43	47.8	52.8	1	69.4	8.6	5
SMBJ45(C)A	MV(CV)	45	50.0	55.3	1	72.7	8.3	5
SMBJ48(C)A	MX(CX)	48	53.3	58.9	1	77.4	7.8	5
SMBJ51(C)A	MZ(CZ)	51	56.7	62.7	1	82.4	7.3	5
SMBJ54(C)A	NE(DE)	54	60.0	66.3	1	87.1	6.9	5
SMBJ58(C)A	NG(DG)	58	64.4	71.2	1	93.6	6.4	5
SMBJ60(C)A	NK(DK)	60	66.7	73.7	1	96.8	6.2	5
SMBJ64(C)A	NM(DM)	64	71.1	78.6	1	103.0	5.8	5
SMBJ70(C)A	NP(DP)	70	77.8	86.0	1	113.0	5.3	5
SMBJ75(C)A	NR(DR)	75	83.3	92.1	1	121.0	5.0	5
SMBJ78(C)A	NT(DT)	78	86.7	95.8	1	126.0	4.8	5
SMBJ85(C)A	NV(DV)	85	94.4	104.0	1	137.0	4.4	5
SMBJ90(C)A	NX(DX)	90	100.0	111.0	1	146.0	4.1	5
SMBJ100(C)A	NZ(DZ)	100	111.0	123.0	1	162.0	3.7	5
SMBJ110(C)A	PE(EE)	110	122.0	135.0	1	177.0	3.4	5
SMBJ120(C)A	PG(EG)	120	133.0	147.0	1	193.0	3.1	5
SMBJ130(C)A	PK(EK)	130	144.0	159.0	1	209.0	2.9	5
SMBJ150(C)A	PM(EM)	150	167.0	185.0	1	243.0	2.5	5
SMBJ160(C)A	PP(EP)	160	178.0	197.0	1	259.0	2.3	5
SMBJ170(C)A	PR(ER)	170	189.0	209.0	1	275.0	2.2	5

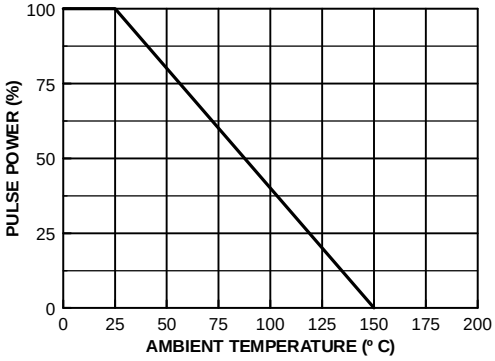
* For bidirectional parts with V_{RWM}<10V, the I_R max limit is doubled.

Typical Characteristics

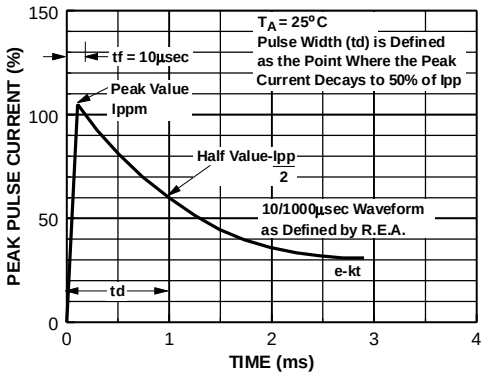
Peak Pulse Power Rating Curve



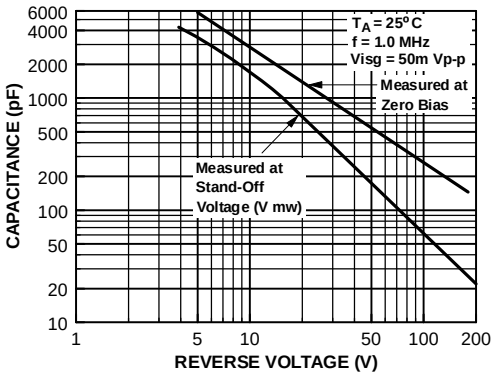
Pulse Derating Curve



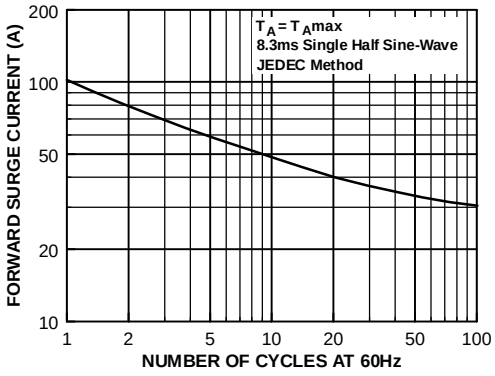
Pulse Waveform



Junction Capacitance



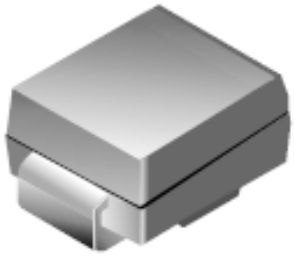
Non-Repetitive Surge Current

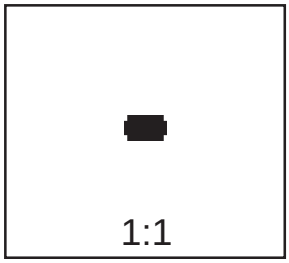


SMB/DO-214AA Package Dimensions

FAIRCHILD SEMICONDUCTOR™

SMB/DO-214AA (FS PKG Code P6)

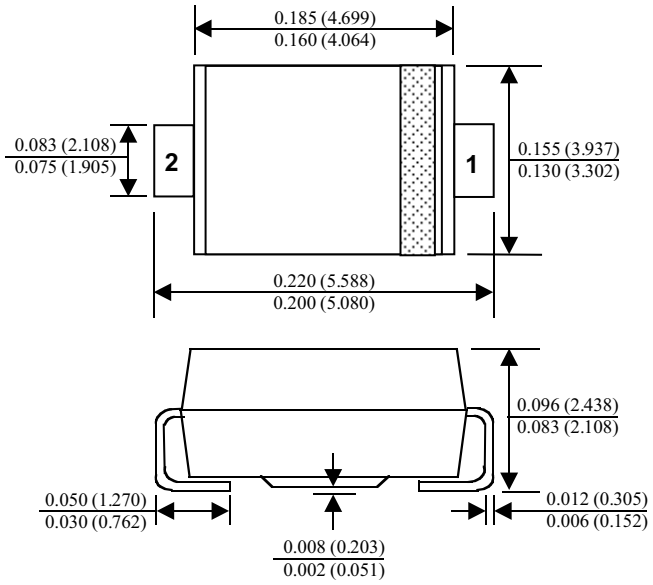


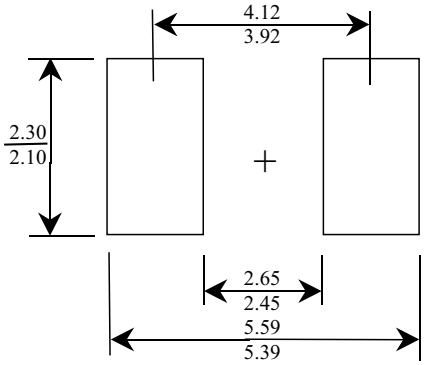


Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.093





Minimum Recommended
Land Pattern

August 1999, Rev. A

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