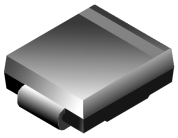
FAIRCHILD SEMICONDUCTOR™

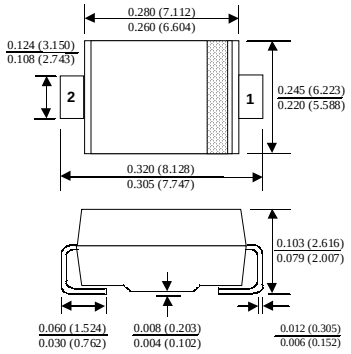
SMCJ5.0(C)A - SMCJ170(C)A

Features

- Glass passivated junction.
- 1500 W 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.



SMC/DO-214AB
COLOR BAND DENOTES CATHODE
EXCEPT BIPOLAR



DEVICES FOR BIPOLAR APPLICATIONS
- Bidirectional types use CA suffix.
- Electrical Characteristics apply in both directions.

1500 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 1500	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)	200	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.

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Transient Voltage Supressors
(continued)

Electrical Characteristics

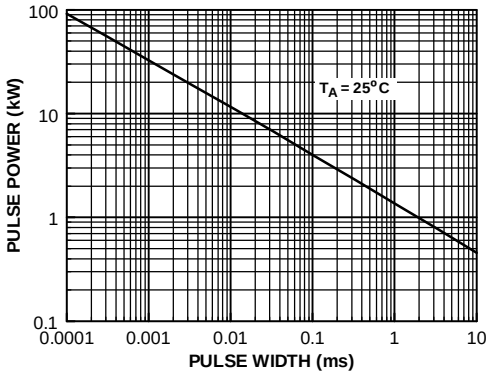
T_A = 25°C unless otherwise noted

Uni-directional Bi-directional (C) Device	Part Marking	Reverse Stand-off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) min	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)*
SMCJ5.0(C)A	GDE	5.0	6.40	7.0	10	9.2	163.0	1000
SMCJ6.0(C)A	GDG	6.0	6.67	7.37	10	10.3	145.6	1000
SMCJ6.5(C)A	GDK(BDK)	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7.0(C)A	GDM	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7.5(C)A	GDP(BDP)	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8.0(C)A	GDR(BDR)	8.0	8.89	9.83	1	13.6	110.3	50
SMCJ8.5(C)A	GDT(BDT)	8.5	9.44	10.4	1	14.4	104.2	20
SMCJ9.0(C)A	GDV(BDV)	9.0	10.0	11.1	1	15.4	97.4	10
SMCJ10(C)A	GDX(BDX)	10	11.1	12.3	1	17.0	88.2	5
SMCJ11(C)A	GDZ	11	12.2	13.5	1	18.2	82.4	5
SMCJ12(C)A	GEE(BEE)	12	13.3	14.7	1	19.9	75.3	5
SMCJ13(C)A	GEG	13	14.4	15.9	1	21.5	69.8	5
SMCJ14(C)A	GEK(BEK)	14	15.6	17.2	1	23.2	64.7	5
SMCJ15(C)A	GEM(BEM)	15	16.7	18.5	1	24.4	61.5	5
SMCJ16(C)A	GEP	16	17.8	19.7	1	26.0	57.7	5
SMCJ17(C)A	GER	17	18.9	20.9	1	27.6	54.3	5
SMCJ18(C)A	GET(BET)	18	20.0	22.1	1	29.2	51.4	5
SMCJ20(C)A	GEV(BEV)	20	22.2	24.5	1	32.4	46.3	5
SMCJ22(C)A	GEX(BEX)	22	24.4	26.9	1	35.5	42.3	5
SMCJ24(C)A	GEZ(BEZ)	24	26.7	29.5	1	38.9	38.6	5
SMCJ26(C)A	GFE(BFE)	26	28.9	31.9	1	42.1	35.6	5
SMCJ28(C)A	GFG(BFG)	28	31.1	34.4	1	45.4	33.0	5
SMCJ30(C)A	GFK(BFK)	30	33.3	36.8	1	48.4	31.0	5
SMCJ33(C)A	GFM(BFM)	33	36.7	40.6	1	53.3	28.1	5
SMCJ36(C)A	GFP(BFP)	36	40.0	44.2	1	58.1	25.8	5
SMCJ40(C)A	GFR(BFR)	40	44.4	49.1	1	64.5	23.3	5
SMCJ43(C)A	GFT(BFT)	43	47.8	52.8	1	69.4	21.6	5
SMCJ45(C)A	GFV	45	50.0	55.3	1	72.7	20.6	5
SMCJ48(C)A	GFX	48	53.3	58.9	1	77.4	19.4	5
SMCJ51(C)A	GFZ	51	56.7	62.7	1	82.4	18.2	5
SMCJ54(C)A	GGE	54	60.0	66.3	1	87.1	17.2	5
SMCJ58(C)A	GGG	58	64.4	71.2	1	93.6	16.0	5
SMCJ60(C)A	GGK	60	66.7	73.7	1	96.8	15.5	5
SMCJ64(C)A	GGM	64	71.1	78.6	1	103.0	14.6	5
SMCJ70(C)A	GGP	70	77.8	86.0	1	113.0	13.3	5
SMCJ75(C)A	GGR	75	83.3	92.1	1	121.0	12.4	5
SMCJ78(C)A	GGT	78	86.7	95.8	1	126.0	11.9	5
SMCJ85(C)A	GGV	85	94.4	104.0	1	137.0	10.9	5
SMCJ90(C)A	GGX	90	100.0	111.1	1	146.0	10.3	5
SMCJ100(C)A	GGZ	100	111.0	123.0	1	162.0	9.3	5
SMCJ110(C)A	GHE	110	122.0	135.0	1	177.0	8.5	5
SMCJ120(C)A	GHG	120	133.0	147.0	1	193.0	7.8	5
SMCJ130(C)A	GHK	130	144.0	159.0	1	209.0	7.2	5
SMCJ150(C)A	GHM	150	167.0	185.0	1	243.0	6.2	5
SMCJ160(C)A	GHP	160	178.0	197.0	1	259.0	5.8	5
SMCJ170(C)A	GHR	170	189.0	209.0	1	275.0	5.5	5

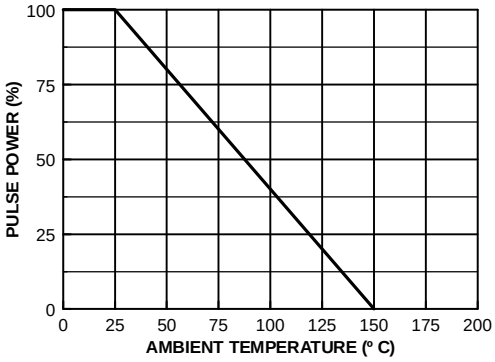
* For bidirectional parts with V_{RWM}<10V, the I_R max limit is doubled.

Typical Characteristics

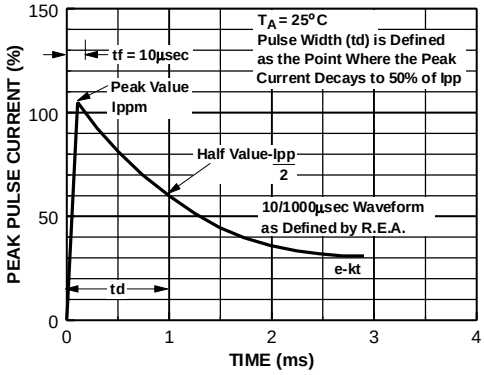
Peak Pulse Power Rating Curve



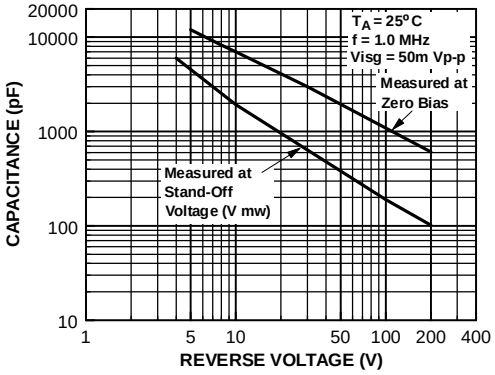
Pulse Derating Curve



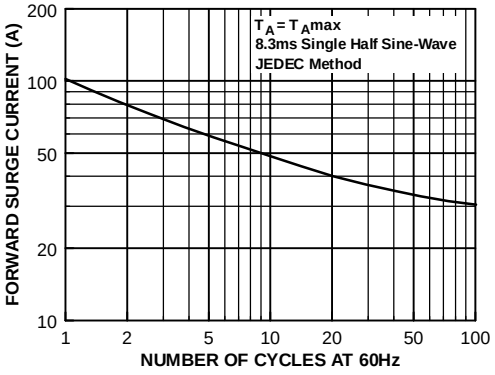
Pulse Waveform



Junction Capacitance



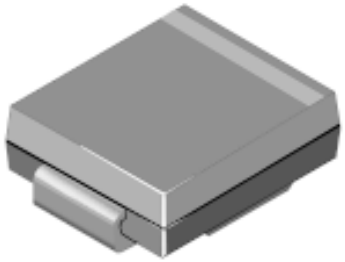
Non-Repetitive Surge Current

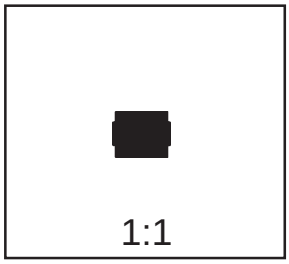


SMC/DO-214AB Package Dimensions

FAIRCHILD SEMICONDUCTOR™

SMC/DO-214AB (FS PKG Code P7)

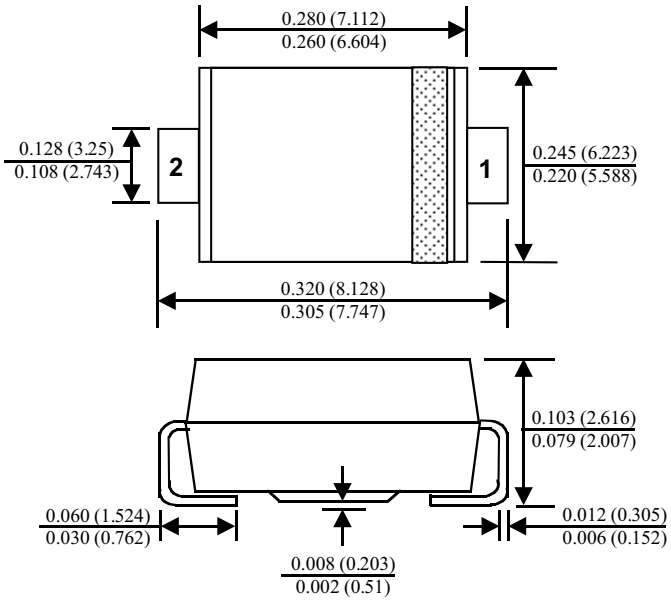


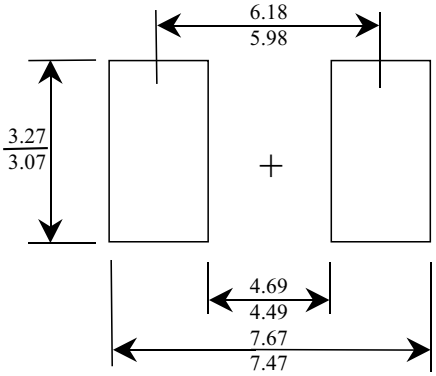


Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.21





Minimum Recommended
Land Pattern

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