



## Transient Voltage Suppressors

### SMCJ5V0(C)A - SMCJ170(C)A

#### Features

- Glass passivated junction.
- 1500 W Peak Pulse Power capability on 10/1000  $\mu$ s 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  $\mu$ A above 10V.
- UL certified, UL #E210467.



SMC/DO-214AB

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.

## 1500 Watt Transient Voltage Suppressors

#### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Value	Units
$P_{PPM}$	Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform	1500	W
$I_{PPM}$	Peak Pulse Current on 10/1000 $\mu$ s waveform	see table	A
$I_{FSM}$	Non-repetitive Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1)	200	A
$T_{stg}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	+ 150	$^\circ\text{C}$

\* 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 Suppressors**

(continued)

**Electrical Characteristics**

$T_A = 25^\circ\text{C}$  unless otherwise noted

Uni-directional Bi-directional (C) Device	Part Marking*	Reverse Stand-off Voltage $V_{RWM}$ (V)	Breakdown Voltage $V_{BR}$ (V)		Test Current $I_T$ (mA)	Clamping Voltage @ $I_{PPM}$ $V_c$ (V)	Peak Pulse Current $I_{PPM}$ (A)	Reverse Leakage @ $V_{RWM}$ $I_R$ (uA)**
			min	max				
SMCJ5V0(C)A	GDE	5.0	6.40	7.0	10	9.2	163.0	1000
SMCJ6V0(C)A	GDG	6.0	6.67	7.37	10	10.3	145.6	1000
SMCJ6V5(C)A	GDK	6.5	7.22	7.98	10	11.2	133.9	500
SMCJ7V0(C)A	GDM	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7V5(C)A	GDP	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8V0(C)A	GDR	8.0	8.89	9.83	1	13.6	110.3	50
SMCJ8V5(C)A	GDT	8.5	9.44	10.4	1	14.4	104.2	20
SMCJ9V0(C)A	GDV	9.0	10.0	11.1	1	15.4	97.4	10
SMCJ10(C)A	GDX	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	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	14	15.6	17.2	1	23.2	64.7	5
SMCJ15(C)A	GEM	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	18	20.0	22.1	1	29.2	51.4	5
SMCJ20(C)A	GEV	20	22.2	24.5	1	32.4	46.3	5
SMCJ22(C)A	GEX	22	24.4	26.9	1	35.5	42.3	5
SMCJ24(C)A	GEZ	24	26.7	29.5	1	38.9	38.6	5
SMCJ26(C)A	GFE	26	28.9	31.9	1	42.1	35.6	5
SMCJ28(C)A	GFG	28	31.1	34.4	1	45.4	33.0	5
SMCJ30(C)A	GFK	30	33.3	36.8	1	48.4	31.0	5
SMCJ33(C)A	GFM	33	36.7	40.6	1	53.3	28.1	5
SMCJ36(C)A	GFP	36	40.0	44.2	1	58.1	25.8	5
SMCJ40(C)A	GFR	40	44.4	49.1	1	64.5	23.3	5
SMCJ43(C)A	GFT	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	111.0	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

\* Color band denotes cathode on unidirectional devices only. No color band on bidirectional devices.

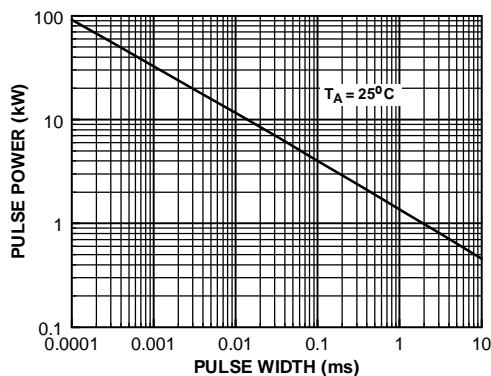
\*\* For bidirectional parts with  $V_{RWM} < 10\text{V}$ , the  $I_R$  max limit is doubled.

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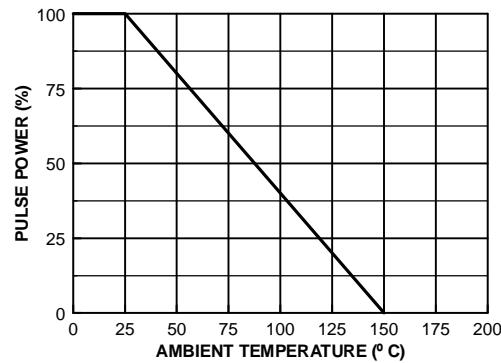
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### Typical Characteristics

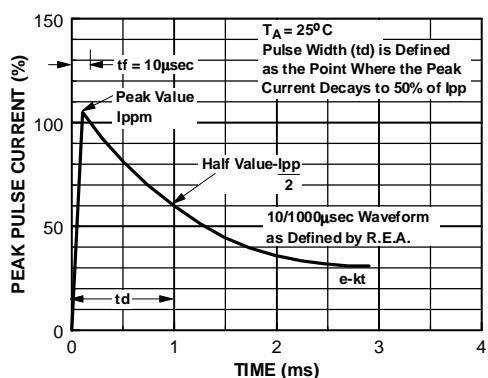
**Peak Pulse Power Rating Curve**



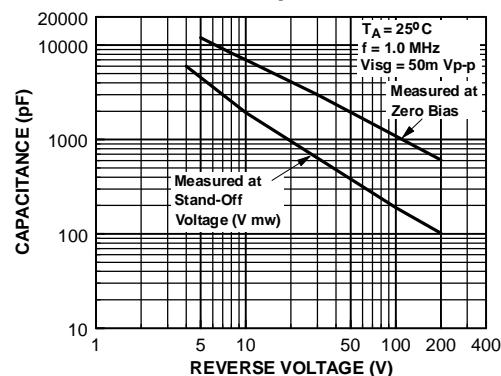
**Pulse Derating Curve**



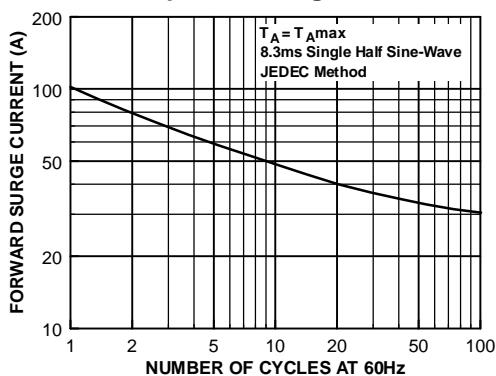
**Pulse Waveform**



**Junction Capacitance**



**Non-Repetitive Surge Current**



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