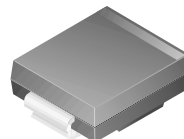


Transient Voltage Suppressors SMCJ5V0(C)A - SMCJ170(C)A

Features

- Glass passivated junction.
- 1500 W Peak Pulse Power capability on 10/1000 μ 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 μ A above 10V.
- UL certificate #E326243 and E210467.
- UL94V-0 Flammability Classification.



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 μ s waveform	1500	W
I_{PPM}	Peak Pulse Current on 10/1000 μ 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°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	GDY	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.

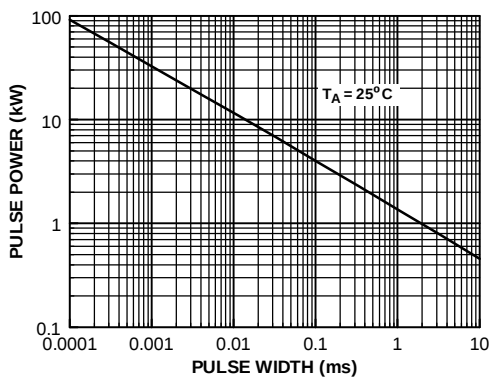
** For bidirectional parts with V_{RWM} < 10V, the I_R max limit is doubled.

SMCJ5V0(C)A - SMCJ170(C)A

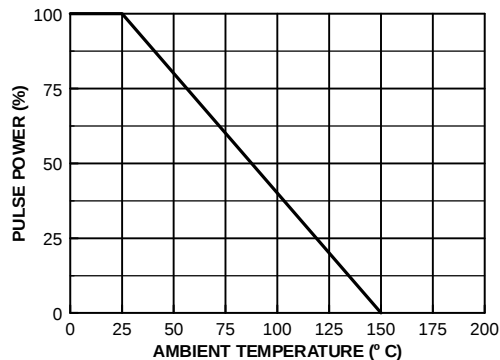
Transient Voltage Suppressors (continued)

Typical Characteristics

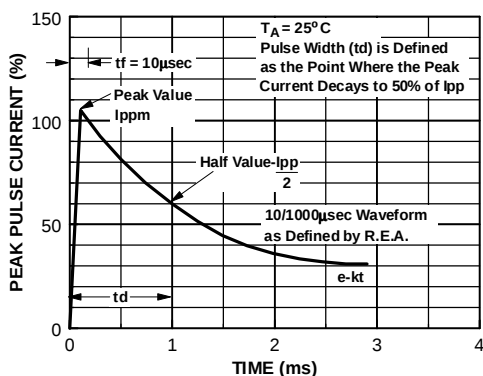
Peak Pulse Power Rating Curve



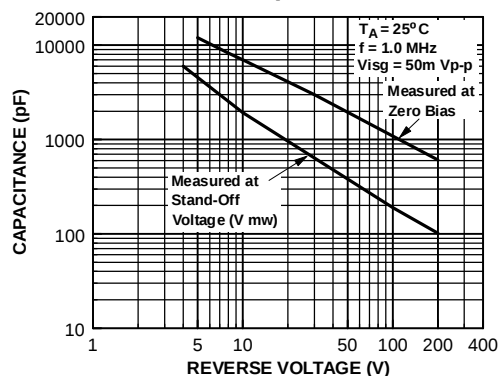
Pulse Derating Curve



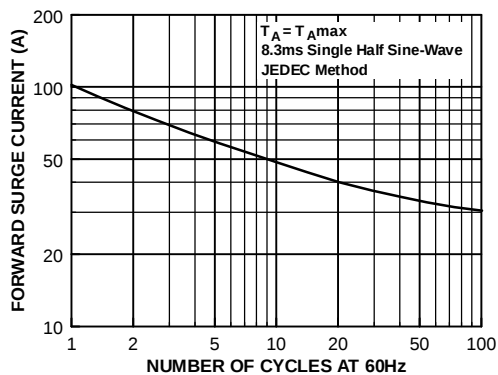
Pulse Waveform



Junction Capacitance



Non-Repetitive Surge Current



TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	FACT™	ImpliedDisconnect™	PACMAN™	SPM™
ActiveArray™	FACT Quiet Series™	ISOPLANAR™	POP™	Stealth™
Bottomless™	FAST®	LittleFET™	Power247™	SuperSOT™-3
CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET®	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic®
E ² CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I ² C™	OCX™	RapidConfigure™	UHC™
Across the board. Around the world.™		OCXPro™	RapidConnect™	UltraFET®
The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.