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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FAIRCHILD
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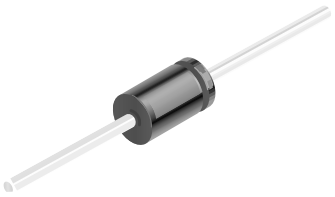
Transient Voltage Suppressors
SA5V0(C)A - SA170(C)A

Features

- Glass passivated junction.
- 500W 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.



DO-15

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.

500 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	500	W
I_{PPM}	Peak Pulse Current on 10/1000 μs waveform	see table	A
P_D	Power Dissipation .375 " lead length @ T_A = 75°C	1.0	W
I_{FSM}	Non-repetitive Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1)	70	A
T_{stg}	Storage Temperature Range	-65 to +175	°C
T_J	Operating Junction Temperature	+ 175	°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.

Electrical Characteristics

T_A = 25°C unless otherwise noted

Uni-directional Bi-directional (C) Device	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				
SA5V0(C)A	5.0	6.40	7.00	10	9.2	54.3	600
SA6V0(C)A	6.0	6.67	7.37	10	10.3	48.5	600
SA6V5(C)A	6.5	7.22	7.98	10	11.2	44.7	400
SA7V0(C)A	7.0	7.78	8.60	10	12.0	41.7	150
SA7V5(C)A	7.5	8.33	9.21	1.0	12.9	38.8	50
SA8V0(C)A	8.0	8.89	9.83	1.0	13.6	36.7	25
SA8V5(C)A	8.5	9.44	10.4	1.0	14.4	34.7	10
SA9V0(C)A	9.0	10.0	11.1	1.0	15.4	32.5	5
SA10(C)A	10	11.1	12.3	1.0	17.0	29.4	1
SA11(C)A	11	12.2	13.5	1.0	18.2	27.4	1
SA12(C)A	12	13.3	14.7	1.0	19.9	25.1	1
SA13(C)A	13	14.4	15.9	1.0	21.5	23.2	1
SA14(C)A	14	15.6	17.2	1.0	23.2	21.5	1
SA15(C)A	15	16.7	18.5	1.0	24.4	20.6	1
SA16(C)A	16	17.8	19.7	1.0	26.0	19.2	1
SA17(C)A	17	18.9	20.9	1.0	27.6	18.1	1
SA18(C)A	18	20.0	22.1	1.0	29.2	17.2	1
SA20(C)A	20	22.2	24.5	1.0	32.4	15.4	1
SA22(C)A	22	24.4	26.9	1.0	35.5	14.1	1
SA24(C)A	24	26.7	29.5	1.0	38.9	12.8	1
SA26(C)A	26	28.9	31.9	1.0	42.1	11.9	1
SA28(C)A	28	31.1	34.4	1.0	45.4	11.0	1
SA30(C)A	30	33.3	36.8	1.0	48.4	10.3	1
SA33(C)A	33	36.7	40.6	1.0	53.3	9.4	1
SA36(C)A	36	40.0	44.2	1.0	58.1	8.6	1
SA40(C)A	40	44.4	49.1	1.0	64.5	7.8	1
SA43(C)A	43	47.8	52.8	1.0	69.4	7.2	1
SA45(C)A	45	50.0	55.3	1.0	72.7	6.9	1
SA48(C)A	48	53.3	58.9	1.0	77.4	6.5	1
SA51(C)A	51	56.7	62.7	1.0	82.4	6.1	1
SA54(C)A	54	60.0	66.3	1.0	87.1	5.7	1
SA58(C)A	58	64.4	71.2	1.0	93.6	5.3	1
SA60(C)A	60	66.7	73.7	1.0	96.8	5.2	1
SA64(C)A	64	71.1	78.6	1.0	103.0	4.9	1
SA70(C)A	70	77.8	86.0	1.0	113.0	4.4	1
SA75(C)A	75	83.3	92.1	1.0	121.0	4.1	1
SA78(C)A	78	86.7	95.8	1.0	126.0	4.0	1
SA85(C)A	85	94.4	104.0	1.0	137.0	3.6	1
SA90(C)A	90	100.0	111.0	1.0	146.0	3.4	1
SA100(C)A	100	111.0	123.0	1.0	162.0	3.1	1
SA110(C)A	110	122.0	135.0	1.0	177.0	2.8	1
SA120(C)A	120	133.0	147.0	1.0	193.0	2.7	1
SA130(C)A	130	144.0	159.0	1.0	209.0	2.4	1
SA150(C)A	150	167.0	185.0	1.0	243.0	2.1	1
SA160(C)A	160	178.0	197.0	1.0	259.0	1.9	1
SA170(C)A	170	189.0	209.0	1.0	275.0	1.8	1

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

Typical Characteristics

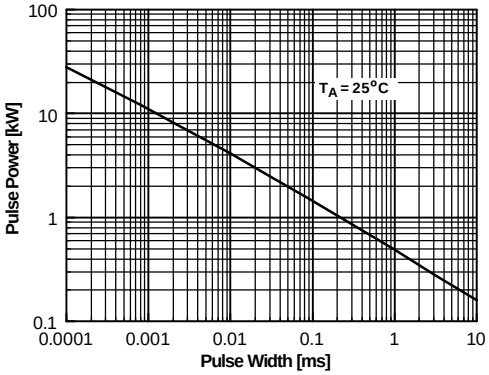


Figure 1. Peak Pulse Power Rating Curve

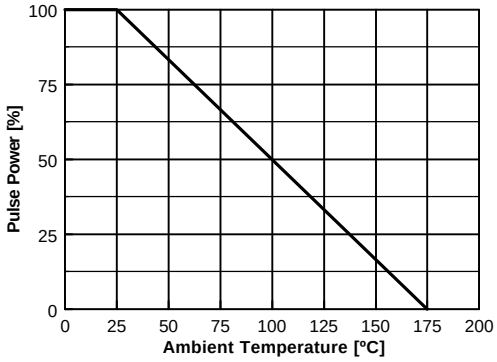


Figure 2. Pulse Derating Curve

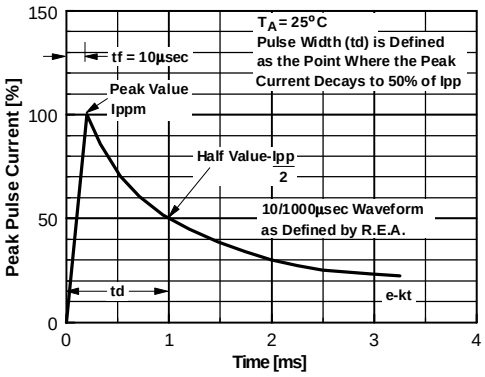


Figure 3. Pulse Waveform

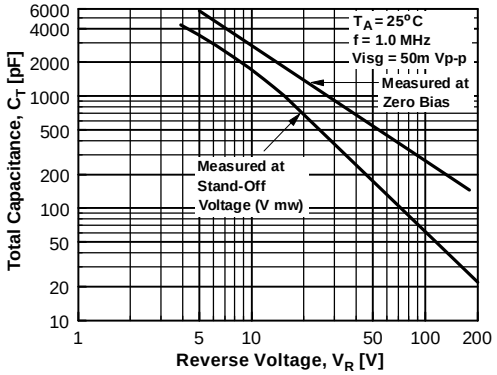


Figure 4. Total Capacitance - Unidirectional

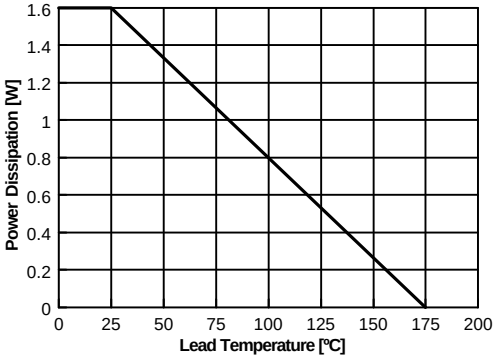


Figure 5. Steady State Power Derating Curve

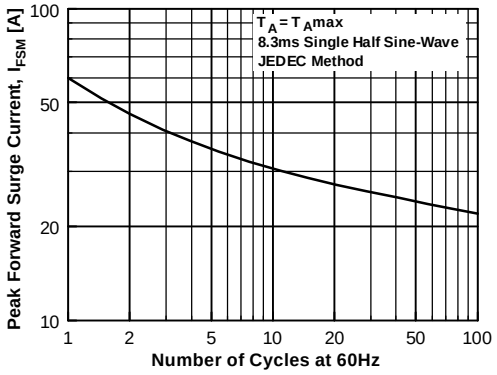


Figure 6. Non-Repetitive Surge Current

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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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