

SA5.0(C)A - SA170(C)A

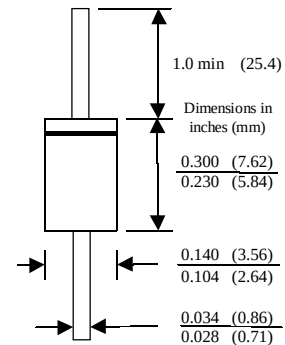
Features

- Glass passivated junction.
- 500W 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.



DO-15

COLOR BAND DENOTES CATHODE
EXCEPT BIPOLAR



DEVICES FOR BIPOLAR APPLICATIONS

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

500 Watt Transient Voltage Suppressors

Absolute Maximum Ratings*

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

Symbol	Parameter	Value	Units
P_{PPM}	Peak Pulse Power Dissipation on 10/1000 μ s waveform	minimum 500	W
I_{PPM}	Peak Pulse Current on 10/1000 μ s waveform	see table	A
$P_{M(AV)}$	Steady State Power Dissipation .375" lead length @ $T_A = 75^\circ\text{C}$	1.0	W
$i_{f(surge)}$	Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1)	70	A
T_{stg}	Storage Temperature Range	-65 to +175	$^\circ\text{C}$
T_J	Operating Junction Temperature	-65 to +175	$^\circ\text{C}$

*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)

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Electrical Characteristics

$T_A = 25^\circ\text{C}$ 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)	Max Clamping Voltage @IPPM V_C (V)	Max Peak Pulse Surge Current I_{PPM} (A)	Max Reverse Leakage V_{RWM} I_R (uA)*
		min	max				
SA5.0(C)A	5.0	6.40	7.00	10	9.2	54.3	600
SA6.0(C)A	6.0	6.67	7.37	10	10.3	48.5	600
SA6.5(C)A	6.5	7.22	7.98	10	11.2	44.7	400
SA7.0(C)A	7.0	7.78	8.60	10	12.0	41.7	150
SA7.5(C)A	7.5	8.33	9.21	1.0	12.9	38.8	50
SA8.0(C)A	8.0	8.89	9.83	1.0	13.6	36.7	25
SA8.5(C)A	8.5	9.44	10.4	1.0	14.4	34.7	10
SA9.0(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

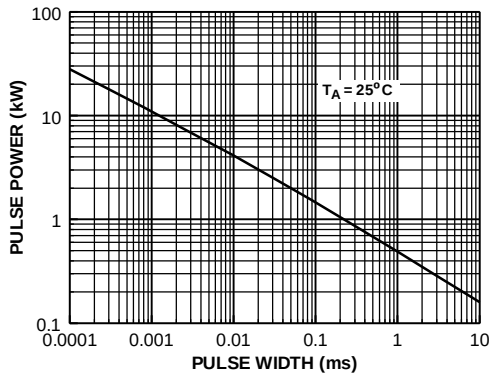
* For bidirectional parts with $V_{RWM} < 10\text{V}$, the I_R max limit is doubled.

Transient Voltage Suppressors (continued)

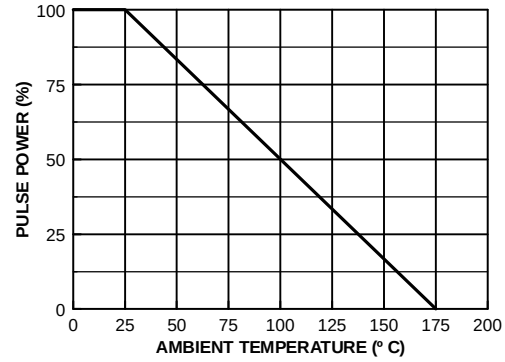
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Typical Characteristics

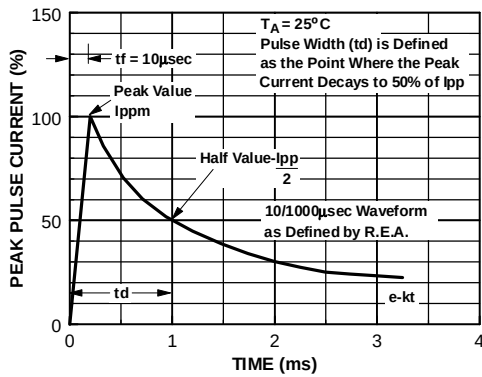
Peak Pulse Power Rating Curve



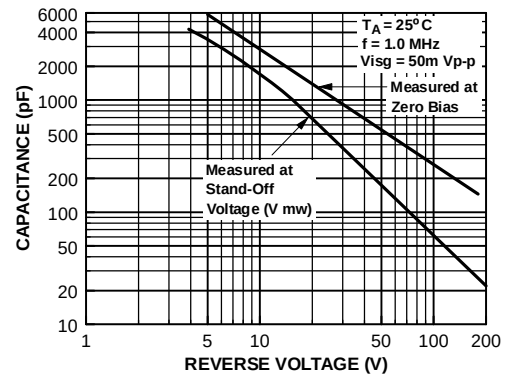
Pulse Derating Curve



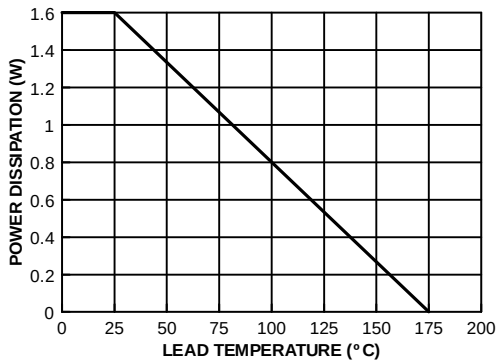
Pulse Waveform



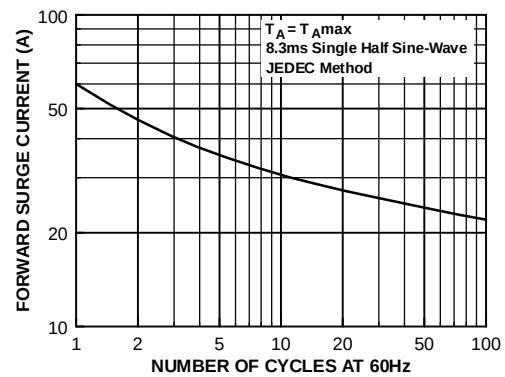
Junction Capacitance - Unidirectional



Steady State Power Derating Curve



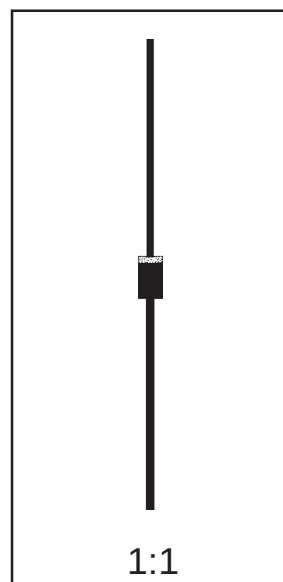
Non-Repetitive Surge Current



DO-15 Package Dimensions



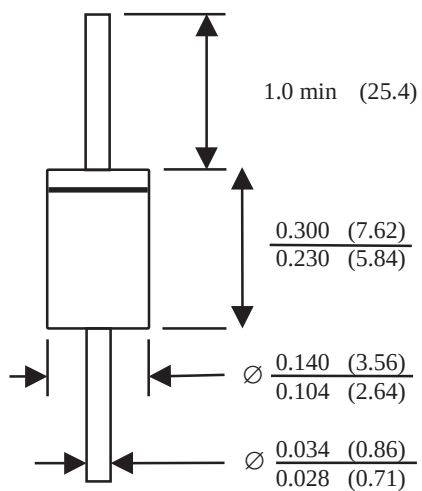
DO-15 (FS PKG Code P2)



Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.4



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