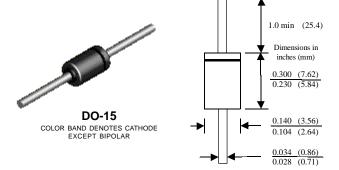


## **SA5.0(C)A - SA170(C)A**

#### **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<sub>R</sub> less than 1.0 μA above 10V.



#### **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 <sub>PPM</sub>	Peak Pulse Power Dissipation on 10/1000 μs waveform	minimum 500	W
I <sub>PPM</sub>	Peak Pulse Current on 10/1000 μs waveform	see table	Α
P <sub>M(AV)</sub>	Steady State Power Dissipation .375 " lead length @ T <sub>A</sub> = 75°C	1.0	W
i <sub>f(surge)</sub>	Peak Forward Surge Current superimposed on rated load (JEDEC method) (Note 1)	70	A
T <sub>stg</sub>	Storage Temperature Range	-65 to +175	°C
TJ	Operating Junction Temperature	-65 to +175	°C

<sup>\*</sup>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 Supressors (continued)

## **Electrical Characteristics**

T<sub>A</sub> = 25°C unless otherwise noted

Uni-directional Bi-directional (C) Device	Reverse Stand-off Voltage V <sub>RWM</sub> (V)		vn Voltage BR (V) max	Test Current I <sub>T</sub> (mA)	Max Clamping Voltage @IPPM V <sub>C</sub> (V)	Max Peak Pulse Surge Current I <sub>PPM</sub> (A)	Max Reverse Leakage V <sub>RWM</sub> I <sub>R</sub> (uA)*
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

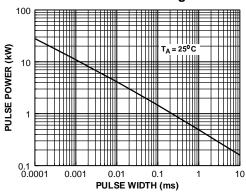
 $<sup>^{\</sup>star}$  For bidirectional parts with V $_{\rm RWM}{<}10{\rm V},$  the I $_{\rm R}$  max limit is doubled.

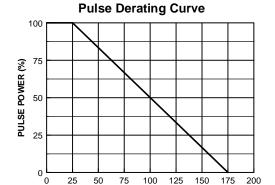
## **Transient Voltage Supressors**

(continued)

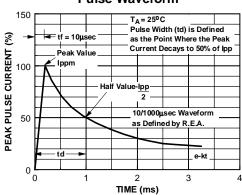
## **Typical Characteristics**

#### **Peak Pulse Power Rating Curve**



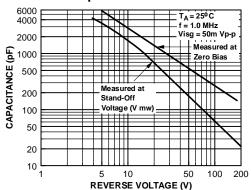


#### **Pulse Waveform**

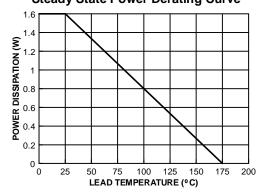


#### **Junction Capacitance - Unidirectional**

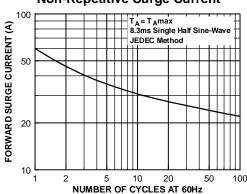
AMBIENT TEMPERATURE (° C)



## **Steady State Power Derating Curve**



#### **Non-Repetitive Surge Current**

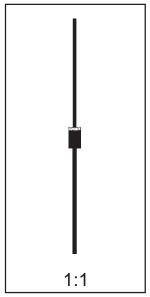


## **DO-15 Package Dimensions**



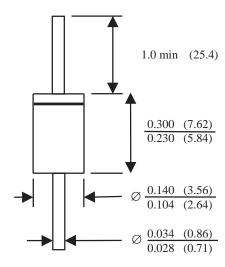
# DO-15 (FS PKG Code P2)





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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 $\begin{array}{lll} \mathsf{FACT} \ \mathsf{Quiet} \ \mathsf{Series^{\mathsf{TM}}} & \mathsf{Quiet} \ \mathsf{Series^{\mathsf{TM}}} \\ \mathsf{FAST}^{\otimes} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}3 \\ \mathsf{FASTr^{\mathsf{TM}}} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}6 \\ \mathsf{GTO^{\mathsf{TM}}} & \mathsf{SuperSOT^{\mathsf{TM}}}\text{-}8 \\ \mathsf{HiSeC^{\mathsf{TM}}} & \mathsf{TinyLogic^{\mathsf{TM}}} \\ \end{array}$ 

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