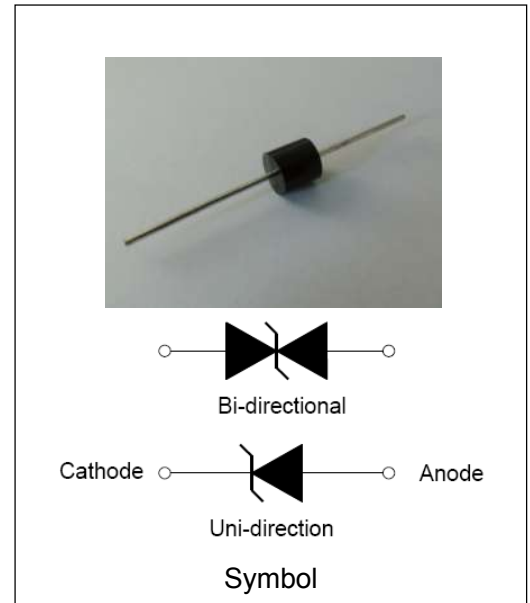


### DESCRIPTION:

The P8S series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 20 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

### FEATURES:

- ✧ Low zener impedance.
- ✧ Excellent clamping capability.
- ✧ JEDEC R-6/P-600 Molded Plastic.
- ✧ Repetition rate (duty cycle): 0.01%.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature soldering: 260°C/10s at terminals.
- ✧ Glass passivated chip junction in R-6/P600 package.
- ✧ 8000W Peak Pulse power capability at 10×1000µs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- ✧ AEC-Q101 qualified.



### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform	$P_{PP}$	8000	W
Peak pulse current of on 10/1000µs waveform	$I_{PP}$	See next table	A
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	8	W
Operating junction and Storage temperature range	$T_{STG}, T_J$	-55 to +150	°C
Peak forward surge current, 8.3ms single half sine-wave	$I_{FSM}$	500	A

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}\text{C}$ )

Part Number		$V_R$	$I_R@V_R$	$V_{BR}@I_T$		$I_T$	$V_C@I_{PP}$	$I_{PP}^{①}$
Uni-Polar	Bi-Polar	V	$\mu\text{A}$	min(V)	max(V)	mA	max(V)	A
P8S20A	P8S20CA	20	5	22.2	24.5	5	32.4	246.9
P8S22A	P8S22CA	22	5	24.4	26.9	5	35.5	225.3
P8S24A	P8S24CA	24	5	26.7	29.5	5	38.9	205.6
P8S26A	P8S26CA	26	5	28.9	31.9	5	42.1	190.1
P8S28A	P8S28CA	28	5	31.1	34.4	5	45.4	176.2
P8S30A	P8S30CA	30	5	33.3	36.8	5	48.4	165.3
P8S33A	P8S33CA	33	5	36.7	40.6	5	53.3	150.1
P8S36A	P8S36CA	36	5	40.0	44.2	5	58.1	137.7
P8S40A	P8S40CA	40	5	44.4	49.1	5	64.5	124.1
P8S43A	P8S43CA	43	5	47.8	52.8	5	69.4	115.3

① Surge waveform: 10/1000 $\mu\text{s}$

$V_R$  : Stand-off Voltage -- Maximum voltage that can be applied

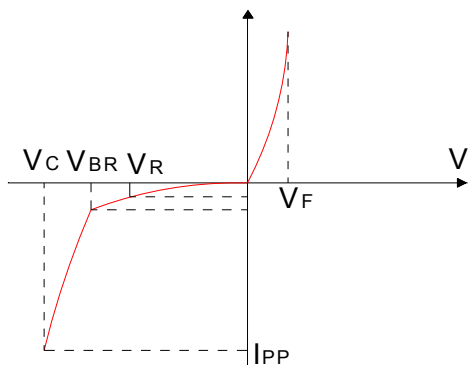
$V_{BR}$ : Breakdown Voltage

$V_C$ : Clamping Voltage -- Peak voltage measured across the suppressor at a specified  $I_{PP}$

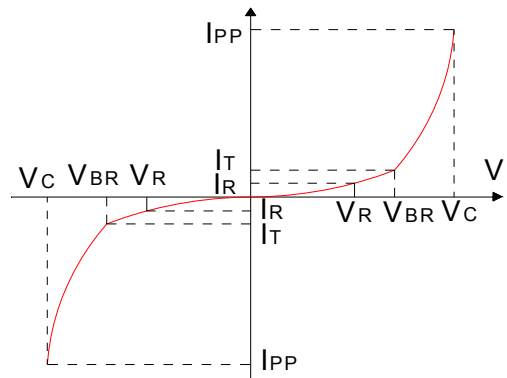
$I_R$ : Reverse Leakage Current

**RATINGS AND V-I CHARACTERISTICS CURVES** ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

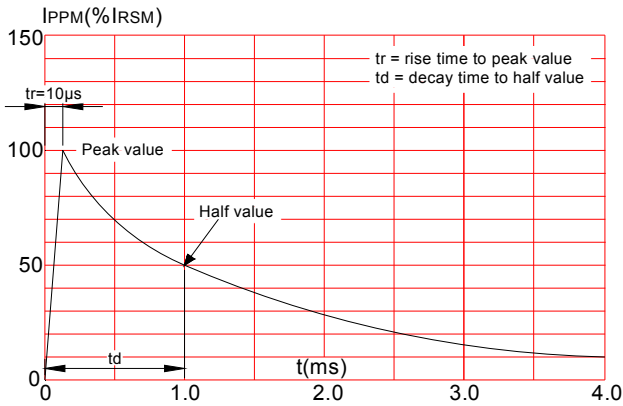
**FIG.1:V- I curve characteristics (Uni-directional)**



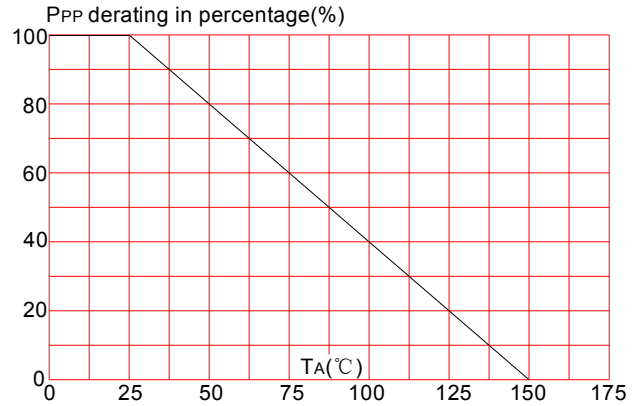
**FIG.2:V- I curve characteristics (Bi-directional)**



**FIG.3: Pulse waveform**

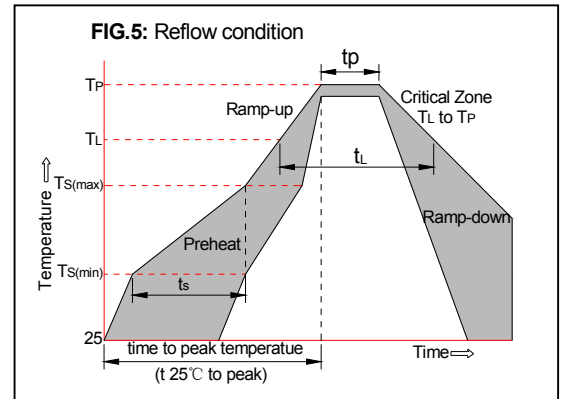


**FIG.4: Pulse derating curve**

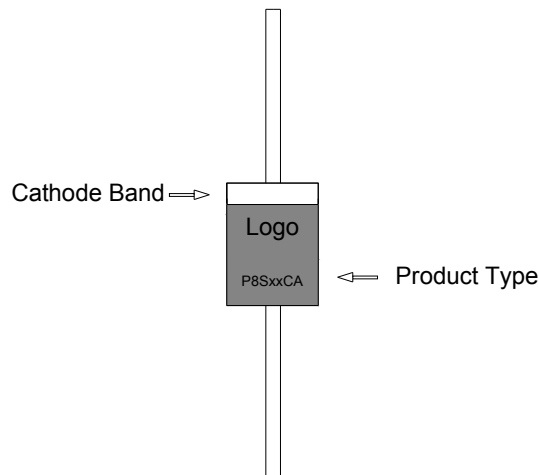


## SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C

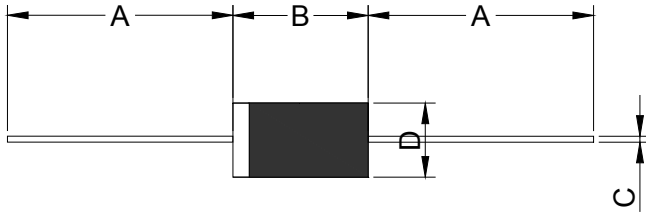


## MARKING & ORDERING INFORMATION



- P8S XX C A  
 (1) (2) (3) (4)
- (1) Series: 8000 watts series
  - (2) Reverse Stand-off Voltage
  - (3) Bi-directional
  - (4) 5%  $V_{BR}$  Voltage tolerance

## PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	-	25.40	-
B	0.339	0.370	8.60	9.40
C	0.048	0.052	1.20	1.40
D	0.340	0.360	8.60	9.10

Part Number	Case Type	Quantity	Packing Option
P8SXXCA/A	R6/P600	300	Box

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