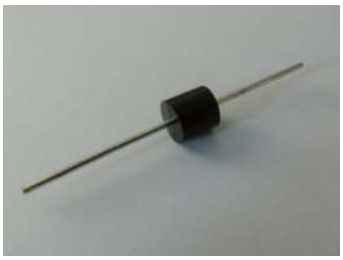
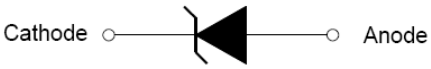
## DESCRIPTION:

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.





Bi-directional




Uni-direction

Symbol

## 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℃/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 ($T_A$=25ºC, 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℃ | $P_{M(AV)}$ | 8 | W |
| Operating junction and Storage temperature range | $T_{STG}$, $T_J$ | -55 to +150 | ℃ |
| Peak forward surge current, 8.3ms single half sine-wave | $I_{FSM}$ | 500 | A |

## ELECTRICAL CHARACTERISTICS ($T_A$=25℃)

| 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 | μA | 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: 10/1000μs

$V_R$ ： 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 Ipp

$I_R$：Reverse Leakage Current

## RATINGS AND V-I CHARACTERISTICS CURVES ($T_A$=25ºC, unless otherwise noted)

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

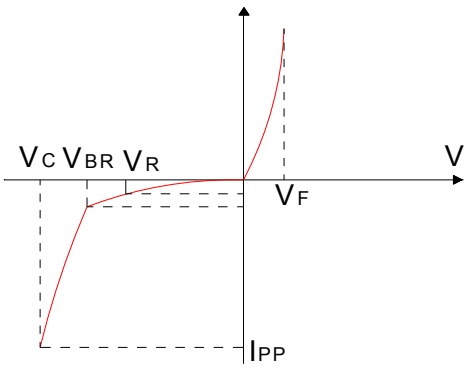



**FIG.2:V- I curve characteristics (Bi-directional)**

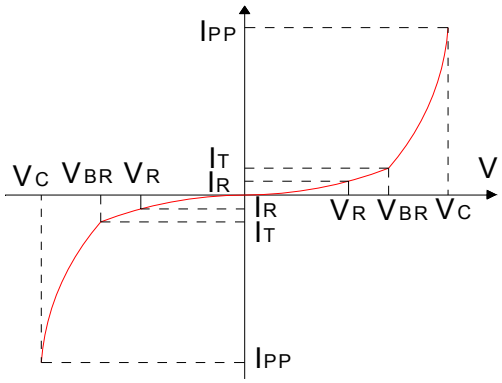


**FIG.3: Pulse waveform**

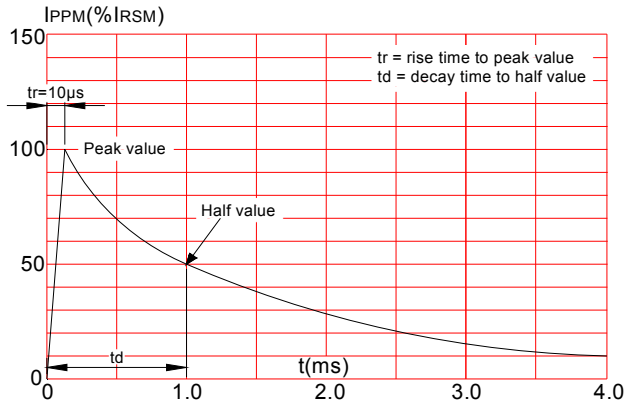
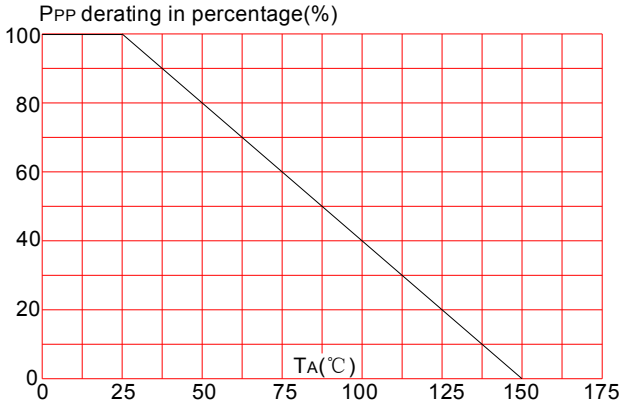


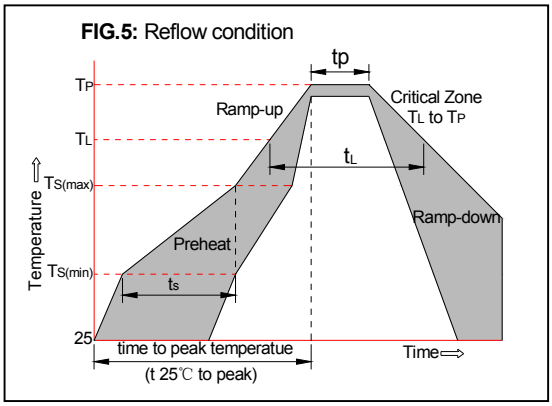

**FIG.4: Pulse derating curve**



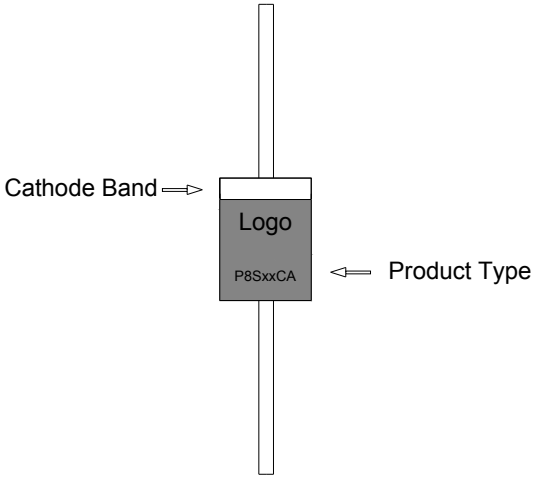

## SOLDERING PARAMETERS

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

**FIG.5:** Reflow condition



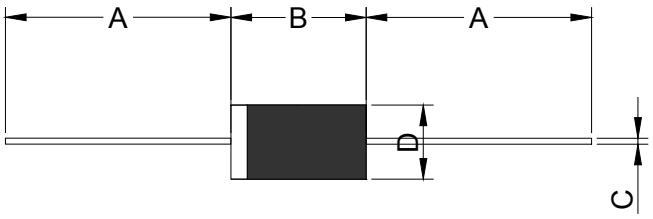

## MARKING & ORDERING INFORMATION




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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