

## SM8S SERIES

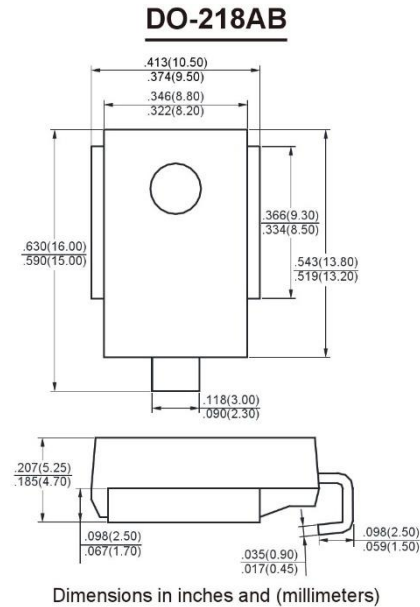
### FEATURES

- 6600W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycles):0.01%
- High surge capability
- Low leakage current
- Low forward voltage drop
- Excellent clamping capability
- Very fast response time
- Halogen free and RoHS compliant
- Meets ISO7637-2 surge specification
- AEC-Q101 qualified

### MECHANICAL DATA

- Case: Molded plastic, DO-218AB
- Epoxy: UL 94V-0 rate flame retardant
- Terminals: Solderable per MIL-STD-750, method 2026
- Polarity: Heatsink is anode

**Working Voltage 10 to 64 V**  
**Peak Pulse Power 6600W**



### MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

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

| Parameter                                                               | Symbol                            | Value       | Unit |
|-------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Peak power dissipation @10/1000 $\mu$ s waveform                        | P <sub>PPM</sub>                  | 6600        | W    |
| @10/10000 $\mu$ s waveform                                              |                                   | 5200        |      |
| Peak forward surge current, 8.3 ms single half sine-wave (Note 1)       | I <sub>FSM</sub>                  | 700         | A    |
| Power dissipation on infinite heatsink at T <sub>C</sub> =25°C (Fig. 1) | P <sub>D</sub>                    | 8.0         | W    |
| Maximum instantaneous forward voltage at 100A for unidirectional only   | V <sub>F</sub>                    | 1.8         | V    |
| Operating junction and storage temperature range                        | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175 | °C   |

NOTES : (1) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| Part Number<br>(Uni) | Part Number<br>(Bi) | Breakdown Voltage<br>$V_{BR}@I_T$ |         |           | Maximum<br>Reverse Leakage<br>$I_R@V_{RWM}(\mu A)$ | Working Peak<br>Reverse Voltage<br>$V_{RWM}(V)$ | Maximum Reverse<br>Surge Current<br>$I_{PP}(A)$ | Maximum<br>Clamping Voltage<br>$V_C@I_{PP}(V)$ |
|----------------------|---------------------|-----------------------------------|---------|-----------|----------------------------------------------------|-------------------------------------------------|-------------------------------------------------|------------------------------------------------|
|                      |                     | Min (V)                           | Max (V) | $I_T(mA)$ |                                                    |                                                 |                                                 |                                                |
| SM8S10A              |                     | 11.1                              | 12.3    | 5         | 5                                                  | 10                                              | 388                                             | 17.0                                           |
| SM8S11A              |                     | 12.2                              | 13.5    | 5         | 5                                                  | 11                                              | 363                                             | 18.2                                           |
| SM8S12A              | SM8S12CA            | 13.3                              | 14.7    | 5         | 5                                                  | 12                                              | 332                                             | 19.9                                           |
| SM8S13A              | SM8S13CA            | 14.4                              | 15.9    | 5         | 5                                                  | 13                                              | 307                                             | 21.5                                           |
| SM8S14A              | SM8S14CA            | 15.6                              | 17.2    | 5         | 5                                                  | 14                                              | 284                                             | 23.2                                           |
| SM8S15A              | SM8S15CA            | 16.7                              | 18.5    | 5         | 5                                                  | 15                                              | 270                                             | 24.4                                           |
| SM8S16A              | SM8S16CA            | 17.8                              | 19.7    | 5         | 5                                                  | 16                                              | 253                                             | 26.0                                           |
| SM8S17A              | SM8S17CA            | 18.9                              | 20.9    | 5         | 5                                                  | 17                                              | 239                                             | 27.6                                           |
| SM8S18A              | SM8S18CA            | 20.0                              | 22.1    | 5         | 5                                                  | 18                                              | 226                                             | 29.2                                           |
| SM8S20A              | SM8S20CA            | 22.2                              | 24.5    | 5         | 5                                                  | 20                                              | 204                                             | 32.4                                           |
| SM8S22A              | SM8S22CA            | 24.4                              | 26.9    | 5         | 5                                                  | 22                                              | 186                                             | 35.5                                           |
| SM8S24A              | SM8S24CA            | 26.7                              | 29.5    | 5         | 5                                                  | 24                                              | 170                                             | 38.9                                           |
| SM8S26A              | SM8S26CA            | 28.9                              | 31.9    | 5         | 5                                                  | 26                                              | 157                                             | 42.1                                           |
| SM8S28A              | SM8S28CA            | 31.1                              | 34.4    | 5         | 5                                                  | 28                                              | 145                                             | 45.4                                           |
| SM8S30A              | SM8S30CA            | 33.3                              | 36.8    | 5         | 5                                                  | 30                                              | 136                                             | 48.4                                           |
| SM8S33A              | SM8S33CA            | 36.7                              | 40.6    | 5         | 5                                                  | 33                                              | 124                                             | 53.3                                           |
| SM8S36A              | SM8S36CA            | 40.0                              | 44.2    | 5         | 5                                                  | 36                                              | 114                                             | 58.1                                           |
| SM8S40A              |                     | 44.4                              | 49.1    | 5         | 5                                                  | 40                                              | 102                                             | 64.5                                           |
| SM8S43A              |                     | 47.8                              | 52.8    | 5         | 5                                                  | 43                                              | 95.1                                            | 69.4                                           |
| SM8S48A              |                     | 53.3                              | 58.9    | 5         | 5                                                  | 48                                              | 85.3                                            | 77.4                                           |
| SM8S58A              |                     | 64.4                              | 71.2    | 5         | 5                                                  | 58                                              | 70.5                                            | 93.6                                           |
| SM8S64A              |                     | 71.1                              | 78.6    | 5         | 5                                                  | 64                                              | 64.1                                            | 103                                            |

## RATINGS AND CHARACTERISTICS CURVES SM8S SERIES

Fig.1 - Steady State Power Derating Curve

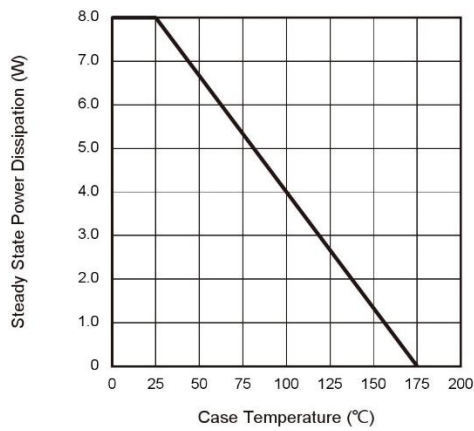


Fig.2 - Load Dump Power Characteristics  
(10ms Exponential Waveform)

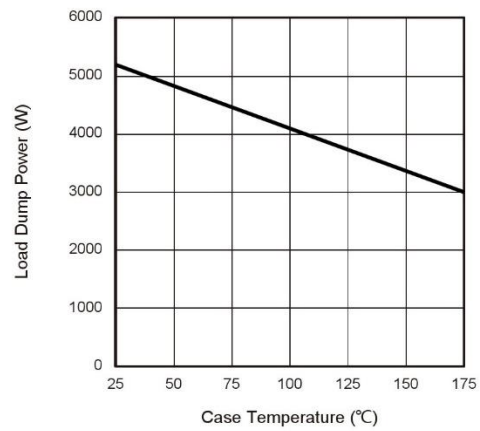


Fig.3 - Pulse Waveform

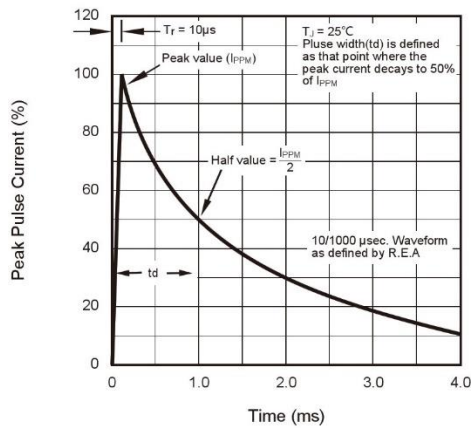


Fig.4 - Peak Pulse Power Rating Curve

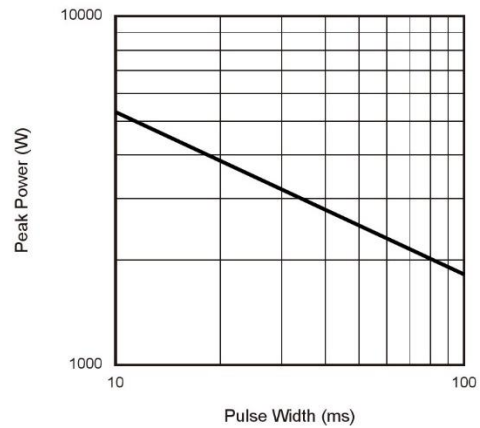
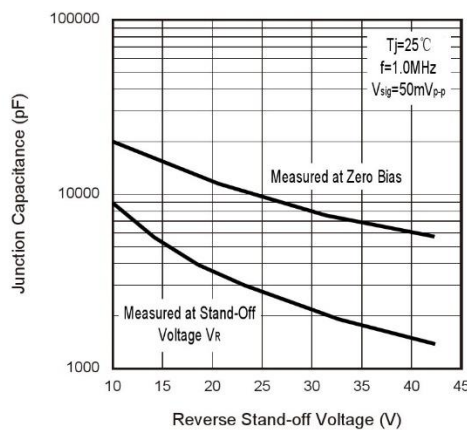


Fig.5 - Typical Junction Capacitance



All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.