

## 10A, 20V - 150V Schottky Barrier Surface Mount Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for overvoltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

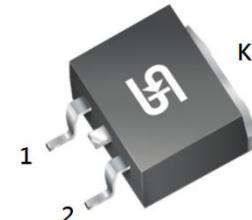
### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

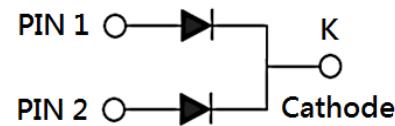
### MECHANICAL DATA

- Case: TO-263AB (D<sup>2</sup>PAK)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.37g (approximately)

| KEY PARAMETERS     |                               |      |
|--------------------|-------------------------------|------|
| PARAMETER          | VALUE                         | UNIT |
| I <sub>F</sub>     | 10                            | A    |
| V <sub>RRM</sub>   | 20 - 150                      | V    |
| I <sub>FSM</sub>   | 120                           | A    |
| T <sub>J MAX</sub> | 125, 150                      | °C   |
| Package            | TO-263AB (D <sup>2</sup> PAK) |      |
| Configuration      | Dual dies                     |      |



TO-263AB (D<sup>2</sup>PAK)



| ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)            |                     |             |             |             |             |             |             |              |              |              |      |
|--|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|------|
| PARAMETER  | SYMBOL              | SRS<br>1020 | SRS<br>1030 | SRS<br>1040 | SRS<br>1050 | SRS<br>1060 | SRS<br>1090 | SRS<br>10100 | SRS<br>10150 | SRS<br>10150 | UNIT |
| Marking code on the device   |                     | SRS<br>1020 | SRS<br>1030 | SRS<br>1040 | SRS<br>1050 | SRS<br>1060 | SRS<br>1090 | SRS<br>10100 | SRS<br>10150 | SRS<br>10150 |      |
| Repetitive peak reverse voltage  | V <sub>RRM</sub>    | 20          | 30          | 40          | 50          | 60          | 90          | 100          | 150          |              | V    |
| Reverse voltage, total rms value   | V <sub>R(RMS)</sub> | 14          | 21          | 28          | 35          | 42          | 63          | 70           | 105          |              | V    |
| Forward current  | I <sub>F</sub>      |             |             |             |             |             | 10          |              |              |              | A    |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | I <sub>FSM</sub>    |             |             |             |             |             | 120         |              |              |              | A    |
| Junction temperature   | T <sub>J</sub>      | -55 to +125 |             |             | -55 to +150 |             |             | °C           |              |              |      |
| Storage temperature  | T <sub>STG</sub>    |             |             |             | -55 to +150 |             |             | °C           |              |              |      |

**THERMAL PERFORMANCE**

| PARAMETER                           | SYMBOL          | TYP | UNIT |
|-------------------------------------|-----------------|-----|------|
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 2   | °C/W |

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ C$  unless otherwise noted)

| PARAMETER  | CONDITIONS                   | SYMBOL | TYP | MAX  | UNIT    |
|--|------------------------------|--------|-----|------|---------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 5A, T_J = 25^\circ C$ | $V_F$  | -   | 0.55 | V       |
|  |                              |        | -   | 0.70 | V       |
|  |                              |        | -   | 0.90 | V       |
|  |                              |        | -   | 1.00 | V       |
|  |                              |        | -   | 500  | $\mu A$ |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $T_J = 25^\circ C$           | $I_R$  | -   | 100  | $\mu A$ |
|  |                              |        | -   | 15   | mA      |
|  |                              |        | -   | 10   | mA      |
|  |                              |        | -   | -    | mA      |
|  |                              |        | -   | -    | mA      |
|  | $T_J = 100^\circ C$          | $I_R$  | -   | 5    | mA      |
|  |                              |        | -   | -    | mA      |
|  |                              |        | -   | -    | mA      |
|  |                              |        | -   | -    | mA      |
|  |                              |        | -   | -    | mA      |

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)</sup> | PACKAGE                       | PACKING           |
|------------------------------|-------------------------------|-------------------|
| SRS10x                       | TO-263AB (D <sup>2</sup> PAK) | 800 / Tape & Reel |

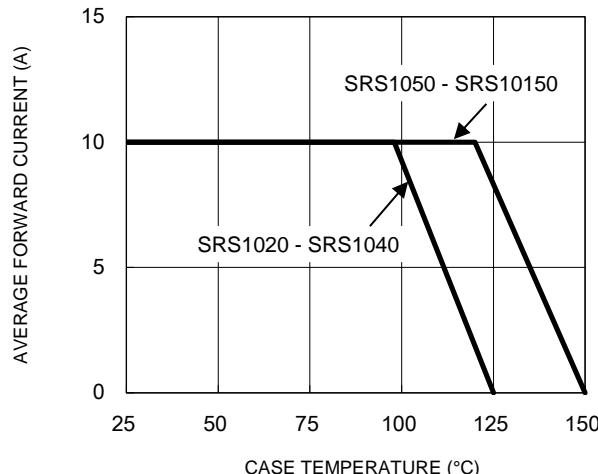
**Notes:**

1. "x" defines voltage from 20V(SRS1020) to 150V(SRS10150)

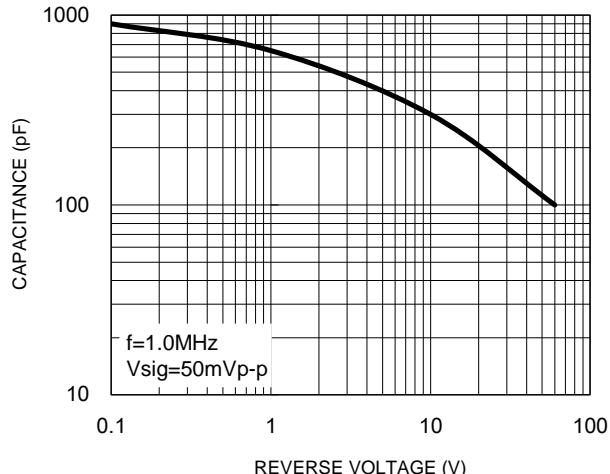
## CHARACTERISTICS CURVES

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

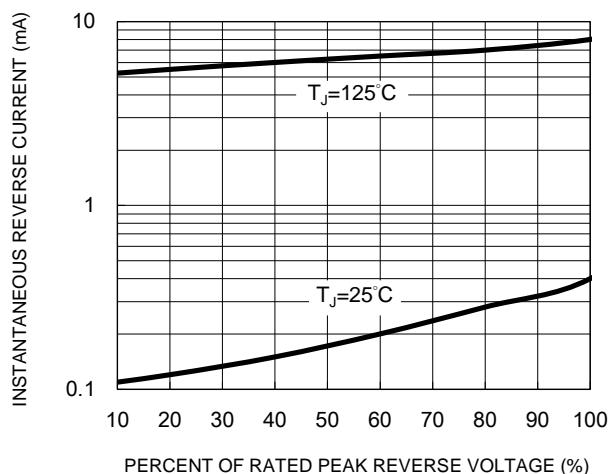
**Fig.1 Forward Current Derating Curve**



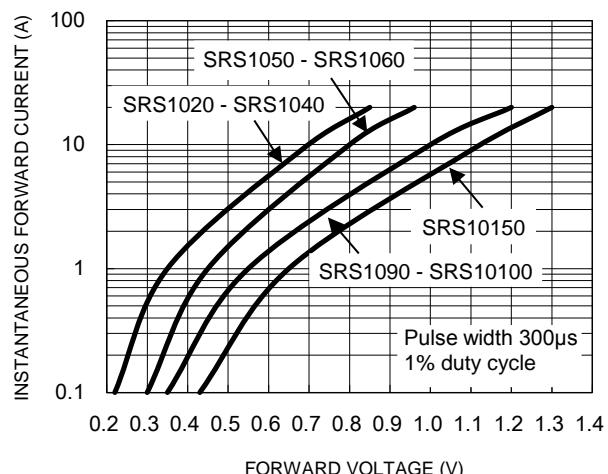
**Fig.2 Typical Junction Capacitance**



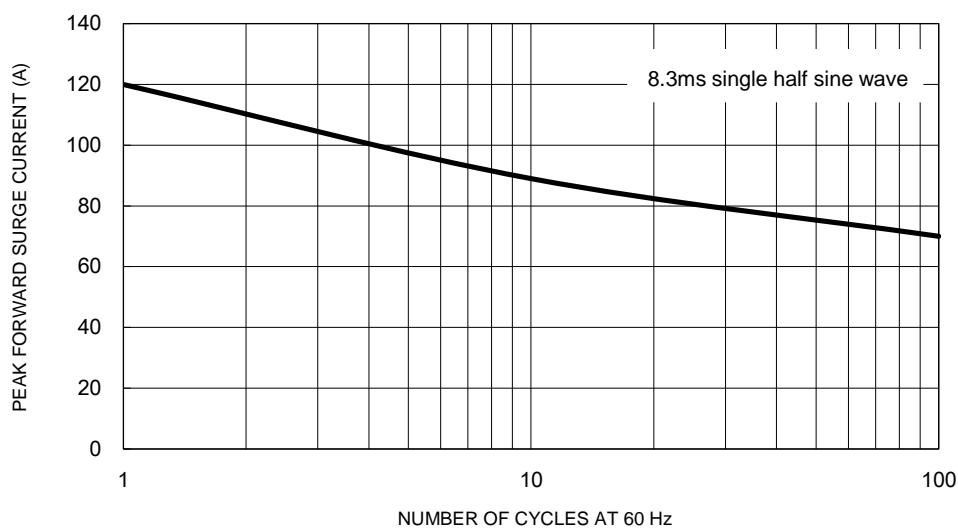
**Fig.3 Typical Reverse Characteristics**

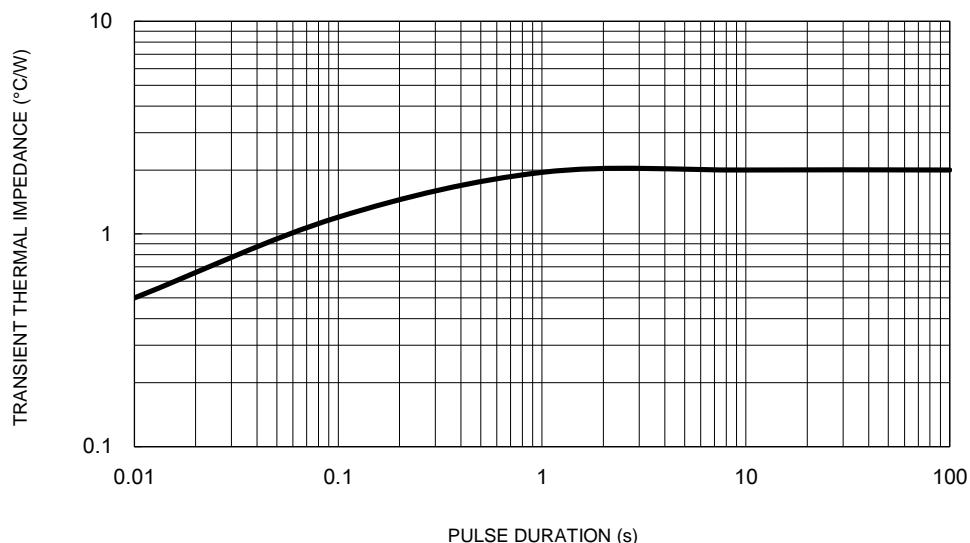


**Fig.4 Typical Forward Characteristics**

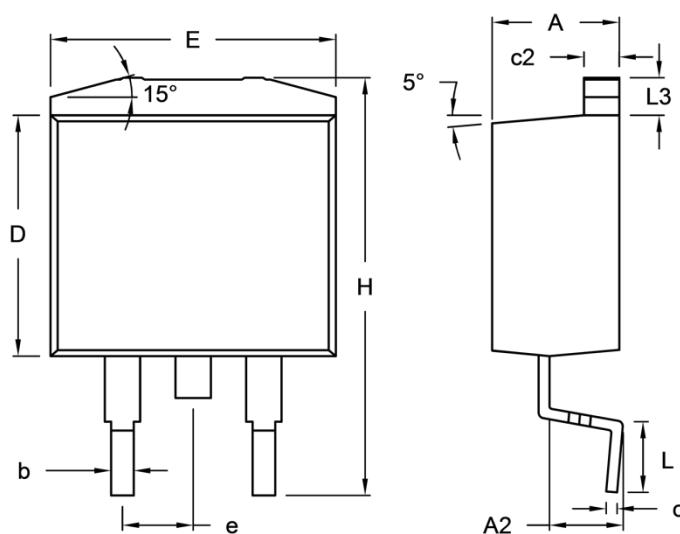


**Fig.5 Maximum Non-Repetitive Forward Surge Current**



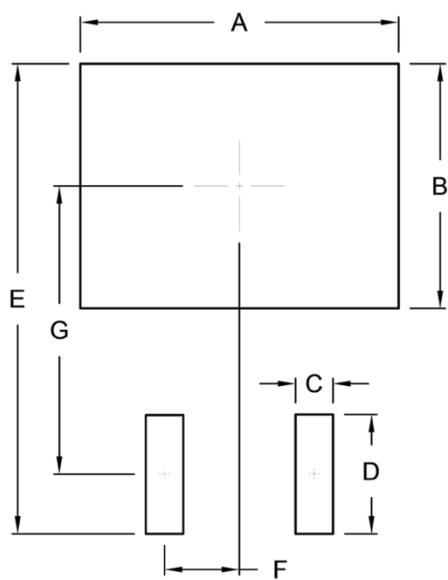
**CHARACTERISTICS CURVES** $(T_A = 25^\circ\text{C}$  unless otherwise noted)**Fig.6 Typical Transient Thermal Impedance**

## PACKAGE OUTLINE DIMENSIONS

**TO-263AB (D<sup>2</sup>PAK)**


| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min.      | Max.  | Min.        | Max.  |
| A    | 4.44      | 4.70  | 0.175       | 0.185 |
| A2   | 2.03      | 2.79  | 0.080       | 0.110 |
| b    | 0.68      | 0.94  | 0.027       | 0.037 |
| c    | 0.36      | 0.53  | 0.014       | 0.021 |
| c2   | 1.14      | 1.40  | 0.045       | 0.055 |
| D    | 8.25      | 9.25  | 0.325       | 0.364 |
| E    | -         | 10.50 | -           | 0.413 |
| e    | 2.41      | 2.67  | 0.095       | 0.105 |
| H    | 14.60     | 15.88 | 0.575       | 0.625 |
| L    | 2.29      | 2.79  | 0.090       | 0.110 |
| L3   | 1.14      | 1.40  | 0.045       | 0.055 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 10.80     | 0.425       |
| B      | 8.30      | 0.327       |
| C      | 1.27      | 0.050       |
| D      | 4.05      | 0.159       |
| E      | 15.95     | 0.628       |
| F      | 2.54      | 0.100       |
| G      | 9.775     | 0.385       |

## MARKING DIAGRAM



P/N = Marking Code  
 G = Green Compound  
 YWW = Date Code  
 F = Factory Code

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