

## 16A, 20V - 100V Schottky Barrier Rectifier

### FEATURES

- AEC-Q101 qualified available
- Low power loss, high efficiency
- Guard ring for over-voltage protection
- High surge current capability
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

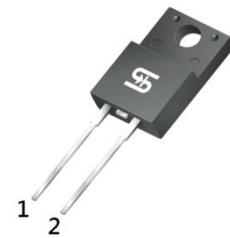
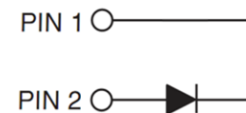
### APPLICATIONS

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

### MECHANICAL DATA

- Case: ITO-220AC
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

| KEY PARAMETERS |            |      |
|----------------|------------|------|
| PARAMETER      | VALUE      | UNIT |
| $I_F$          | 16         | A    |
| $V_{RRM}$      | 20 - 100   | V    |
| $I_{FSM}$      | 275        | A    |
| $T_{JMAX}$     | 125, 150   | °C   |
| Package        | ITO-220AC  |      |
| Configuration  | Single die |      |


**ITO-220AC**


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

| PARAMETER  | SYMBOL       | SRAF<br>1620 | SRAF<br>1630 | SRAF<br>1640 | SRAF<br>1650 | SRAF<br>1660 | SRAF<br>1690 | SRAF<br>16100 | UNIT             |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|------------------|
| Marking code on the device   |              | SRAF<br>1620 | SRAF<br>1630 | SRAF<br>1640 | SRAF<br>1650 | SRAF<br>1660 | SRAF<br>1690 | SRAF<br>16100 |                  |
| Repetitive peak revers voltage   | $V_{RRM}$    | 20           | 30           | 40           | 50           | 60           | 90           | 100           | V                |
| Reverse voltage total rms value  | $V_{R(RMS)}$ | 14           | 21           | 28           | 35           | 42           | 63           | 70            | V                |
| Forward current  | $I_F$        | 16           |              |              |              |              |              |               | A                |
| Surge peak forward current,<br>8.3ms single half sine wave<br>superimposed on rated load | $I_{FSM}$    | 275          |              |              |              |              |              |               | A                |
| Critical rate of rise of off-state<br>voltage  | dv/dt        | 10,000       |              |              |              |              |              |               | V/ $\mu\text{s}$ |
| Junction temperature   | $T_J$        | -55 to +125  |              |              | -55 to +150  |              |              |               | °C               |
| Storage temperature  | $T_{STG}$    | -55 to +150  |              |              |              |              |              |               | °C               |

| <b>THERMAL PERFORMANCE</b>  |                 |            |             |
|-----------------------------|-----------------|------------|-------------|
| <b>PARAMETER</b>            | <b>SYMBOL</b>   | <b>TYP</b> | <b>UNIT</b> |
| Junction-to-case resistance | $R_{\theta JC}$ | 4          | °C/W        |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |  |  |               |                           |            |               |    |
|---|--|--|---------------|---------------------------|------------|---------------|----|
| <b>PARAMETER</b>  |  | <b>CONDITIONS</b>                          | <b>SYMBOL</b> | <b>TYP</b>                | <b>MAX</b> | <b>UNIT</b>   |    |
| Forward voltage <sup>(1)</sup>  | SRAF1620<br>SRAF1630<br>SRAF1640                         | $I_F = 16\text{A}, T_J = 25^\circ\text{C}$ | $V_F$         | -                         | 0.55       | V             |    |
|   | SRAF1650<br>SRAF1660                                     |  |               | -                         | 0.70       | V             |    |
|   | SRAF1690<br>SRAF16100                                    |  |               | -                         | 0.92       | V             |    |
| Reverse current @ rated $V_R$ <sup>(2)</sup>  | SRAF1620<br>SRAF1630<br>SRAF1640<br>SRAF1650<br>SRAF1660 | $T_J = 25^\circ\text{C}$                   | $I_R$         | -                         | 500        | $\mu\text{A}$ |    |
|   | SRAF1690<br>SRAF16100                                    |  |               | -                         | 100        | $\mu\text{A}$ |    |
|   | SRAF1620<br>SRAF1630<br>SRAF1640                         | $T_J = 100^\circ\text{C}$                  |               | -                         | 15         | mA            |    |
|   | SRAF1650<br>SRAF1660                                     |  |               | -                         | 10         | mA            |    |
|   | SRAF1690<br>SRAF16100                                    |  |               | -                         | -          | mA            |    |
|   | SRAF1620<br>SRAF1630<br>SRAF1640<br>SRAF1650<br>SRAF1660 |  |               | $T_J = 125^\circ\text{C}$ | -          | -             | mA |
|   | SRAF1690<br>SRAF16100                                    |  |               |                           | -          | 5             | mA |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

| <b>ORDERING INFORMATION</b>            |                |                |
|--|----------------|----------------|
| <b>ORDERING CODE</b> <sup>(1)(2)</sup> | <b>PACKAGE</b> | <b>PACKING</b> |
| SRAF16x                                | ITO-220AC      | 50 / Tube      |
| SRAF16xH                               | ITO-220AC      | 50 / Tube      |

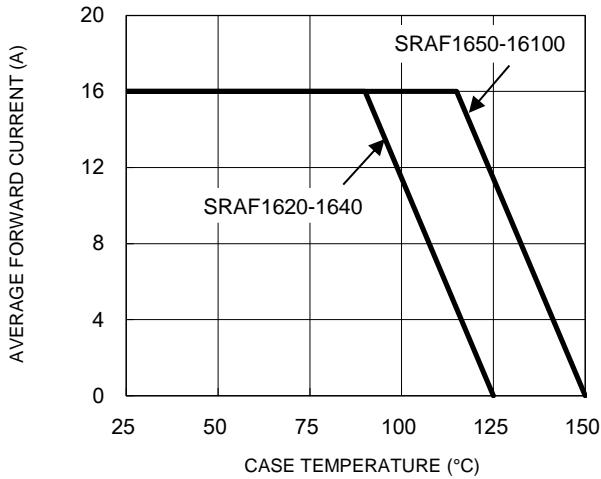
**Notes:**

1. "x" defines voltage from 20V(SRAF1620) to 100V(SRAF16100)
2. "H" means AEC-Q101 qualified

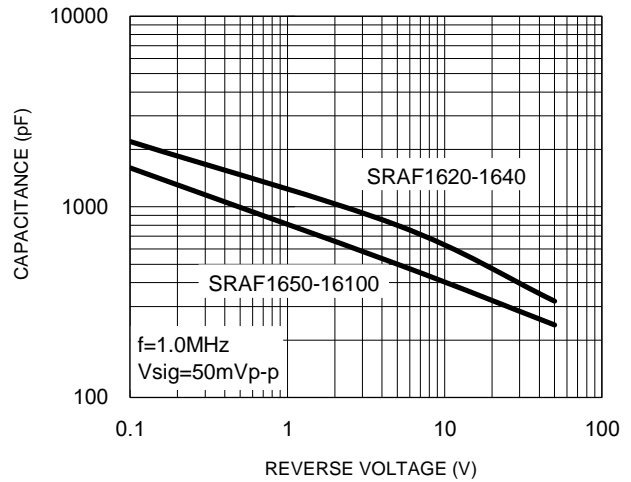
**CHARACTERISTICS CURVES**

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

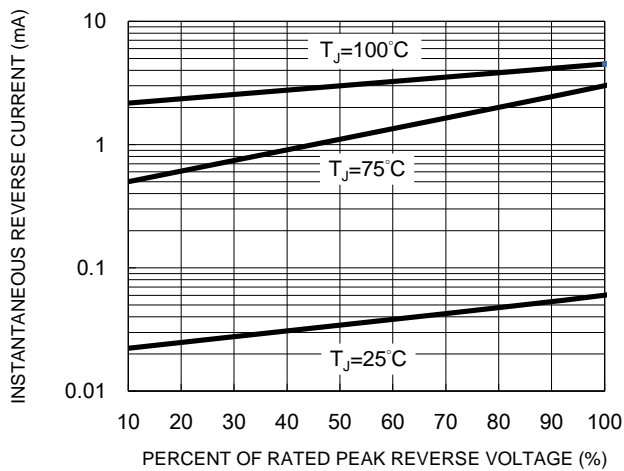
**Fig.1 Forward Current Derating Curve**



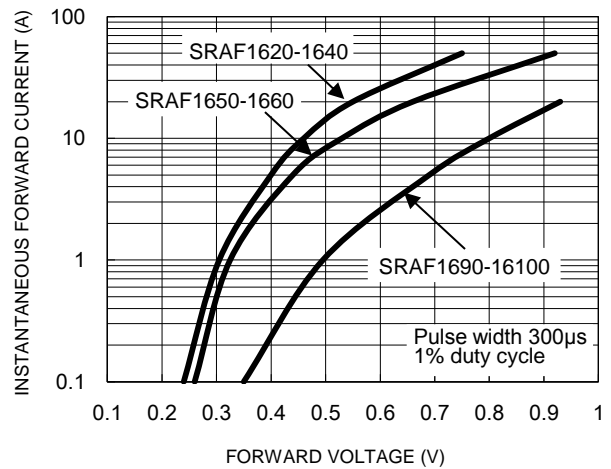
**Fig.2 Typical Junction Capacitance**



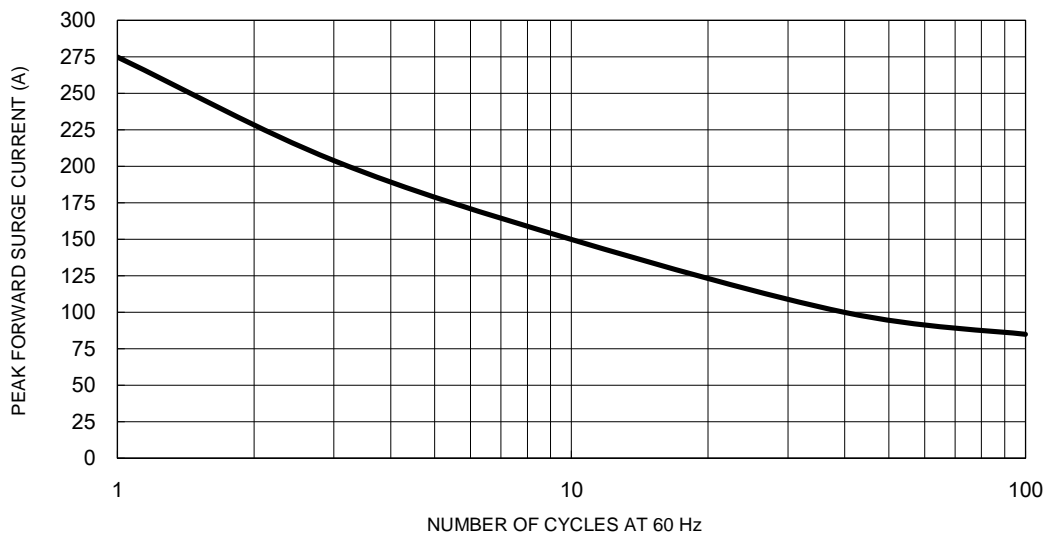
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



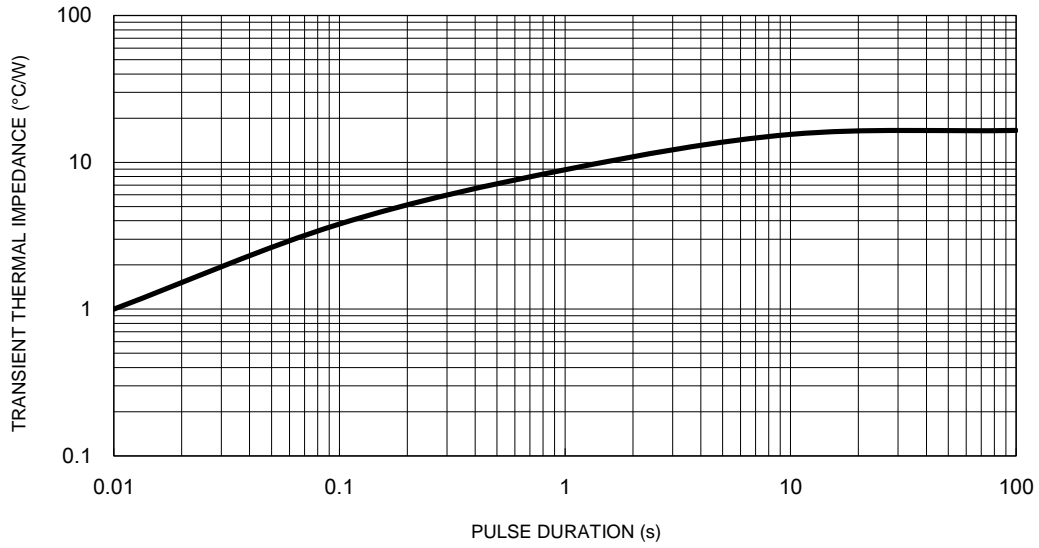
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



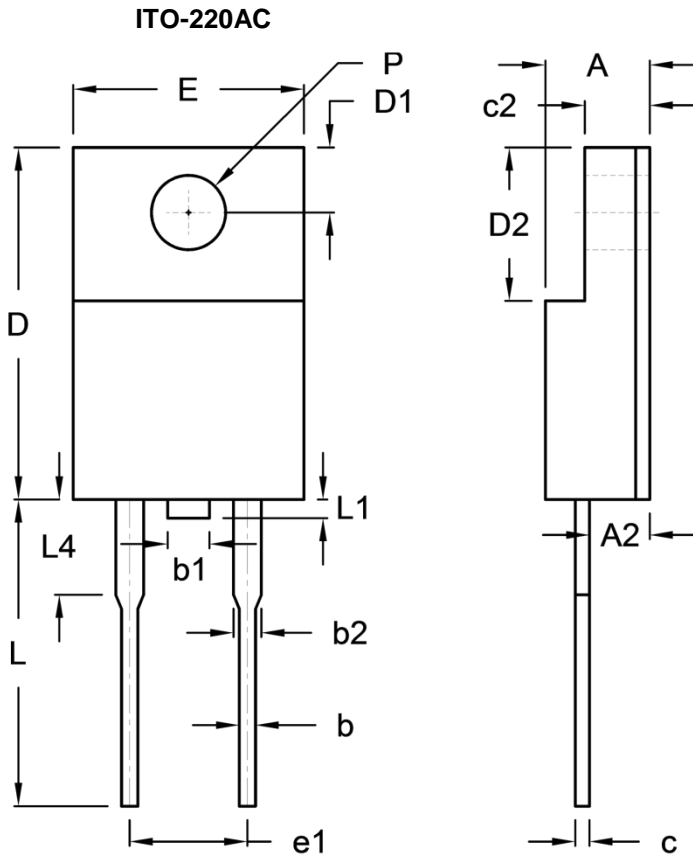
**CHARACTERISTICS CURVES**

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

**Fig.6 Typical Transient Thermal Characteristics**



**PACKAGE OUTLINE DIMENSIONS**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min.      | Max.  | Min.        | Max.  |
| A    | 4.30      | 4.70  | 0.169       | 0.185 |
| A2   | 2.30      | 2.90  | 0.091       | 0.114 |
| b    | 0.50      | 0.90  | 0.020       | 0.035 |
| b1   | -         | 1.80  | -           | 0.071 |
| b2   | 0.95      | 1.45  | 0.037       | 0.057 |
| c    | 0.46      | 0.76  | 0.018       | 0.030 |
| c2   | 2.50      | 3.10  | 0.098       | 0.114 |
| D    | 14.80     | 15.50 | 0.583       | 0.610 |
| D1   | 2.40      | 3.20  | 0.094       | 0.126 |
| D2   | 6.30      | 6.90  | 0.248       | 0.272 |
| E    | 9.60      | 10.30 | 0.378       | 0.406 |
| e1   | 4.95      | 5.20  | 0.195       | 0.205 |
| L    | 12.60     | 13.80 | 0.496       | 0.543 |
| L1   | 0.00      | 1.60  | 0.000       | 0.063 |
| L4   | -         | 4.10  | -           | 0.161 |
| P    | 3.00      | 3.40  | 0.118       | 0.134 |

**MARKING DIAGRAM**



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

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