# 8A, 20V - 150V Schottky Barrier Rectifier

## FEATURES

- AEC-Q101 qualified available
- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

## APPLICATIONS

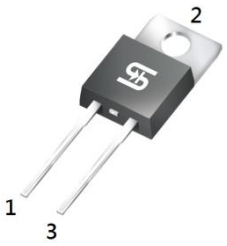
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

## MECHANICAL DATA

- Case: TO-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: 1.85g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 8 | A |
| $V_{RRM}$ | 20 - 150 | V |
| $I_{FSM}$ | 150 | A |
| $T_{J\ MAX}$ | 125, 150 | °C |
| Package | TO-220AC | |
| Configuration | Single die | |

Pb-Free RoHS COMPLIANT HALOGEN FREE




**TO-220AC**


| **ABSOLUTE MAXIMUM RATINGS** ($T_A$ = 25°C unless otherwise noted) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **SRA 820** | **SRA 830** | **SRA 840** | **SRA 850** | **SRA 860** | **SRA 890** | **SRA 8100** | **SRA 8150** | **UNIT** |
| Marking code on the device | | SRA 820 | SRA 830 | SRA 840 | SRA 850 | SRA 860 | SRA 890 | SRA 8100 | SRA 8150 | |
| Repetitive peak reverse voltage | $V_{RRM}$ | 20 | 30 | 40 | 50 | 60 | 90 | 100 | 150 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 14 | 21 | 28 | 35 | 42 | 63 | 70 | 105 | V |
| Forward current | $I_F$ | 8 | | | | | | | | A |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | $I_{FSM}$ | 150 | | | | | | | | A |
| Critical rate of rise of off-state voltage | dv/dt | 10,000 | | | | | | | | V/μs |
| Junction temperature | $T_J$ | -55 to +125 | | | -55 to +150 | | | | | °C |
| Storage temperature | $T_{STG}$ | -55 to +150 | | | | | | | | °C |

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-case resistance | $R_{\Theta JC}$ | 4 | °C/W |

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Forward voltage[1] | SRA820<br>SRA830<br>SRA840 | $I_F$ = 8A, $T_J$ = 25°C | $V_F$ | - | 0.55 | V |
| | SRA850<br>SRA860 | | | - | 0.70 | V |
| | SRA890<br>SRA8100 | | | - | 0.85 | V |
| | SRA8150 | | | - | 0.95 | V |
| Reverse current @ rated $V_R$[2] | SRA820<br>SRA830<br>SRA840<br>SRA850<br>SRA860 | $T_J$ = 25°C | $I_R$ | - | 500 | μA |
| | SRA890<br>SRA8100<br>SRA8150 | | | - | 100 | μA |
| | SRA820<br>SRA830<br>SRA840 | $T_J$ = 100°C | | - | 15 | mA |
| | SRA850<br>SRA860 | | | - | 10 | mA |
| | SRA890<br>SRA8100<br>SRA8150 | | | - | - | mA |
| | SRA820<br>SRA830<br>SRA840<br>SRA850<br>SRA860 | $T_J$ = 125°C | | - | - | mA |
| | SRA890<br>SRA8100<br>SRA8150 | | | - | 5 | mA |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE[1][2] | PACKAGE | PACKING |
|---|---|---|
| SRA8x | TO-220AC | 50 / Tube |
| SRA8xH | TO-220AC | 50 / Tube |

**Notes:**

1. “x” defines voltage from 20V(SRA820) to 150V(SRA8150)
2. “H” means AEC-Q101 qualified

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

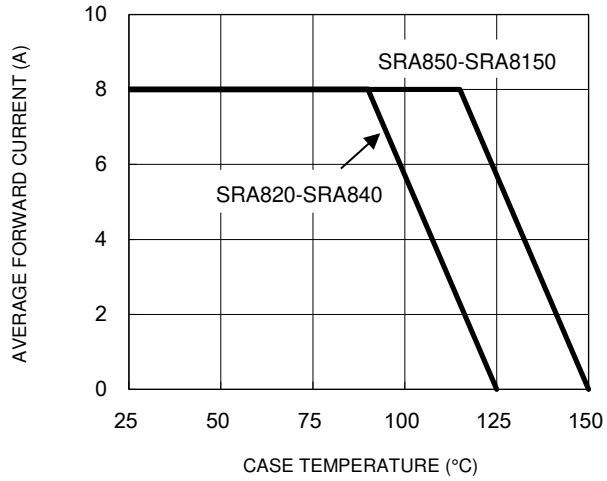



**Fig.2 Typical Junction Capacitance**

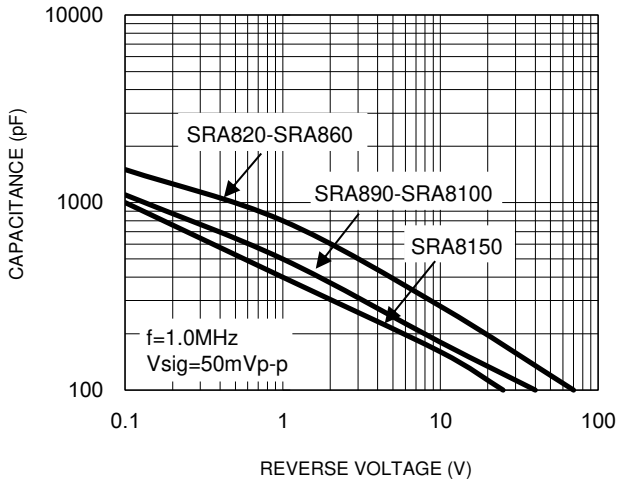



**Fig.3 Typical Reverse Characteristics**

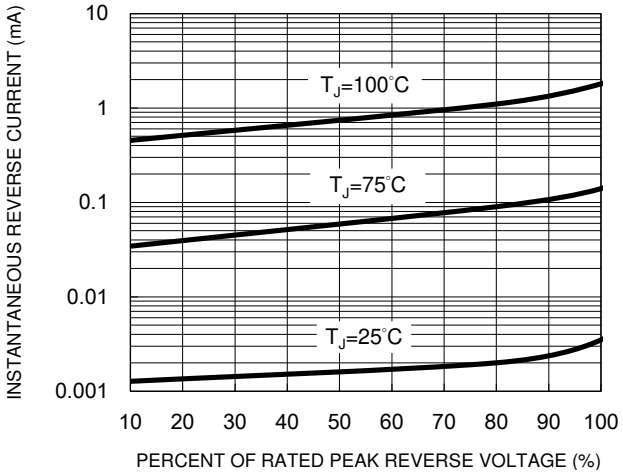



**Fig.4 Typical Forward Characteristics**

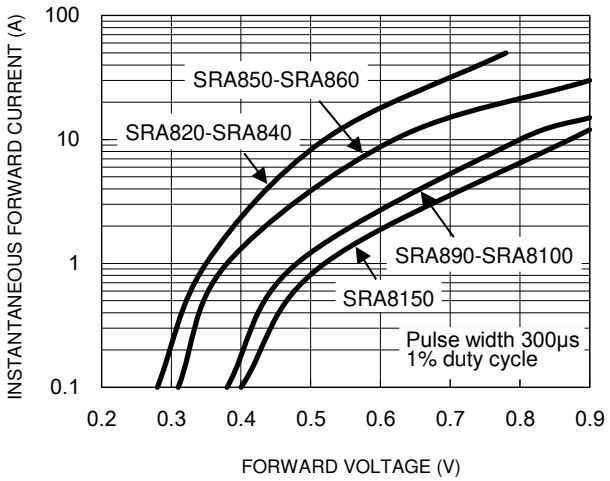
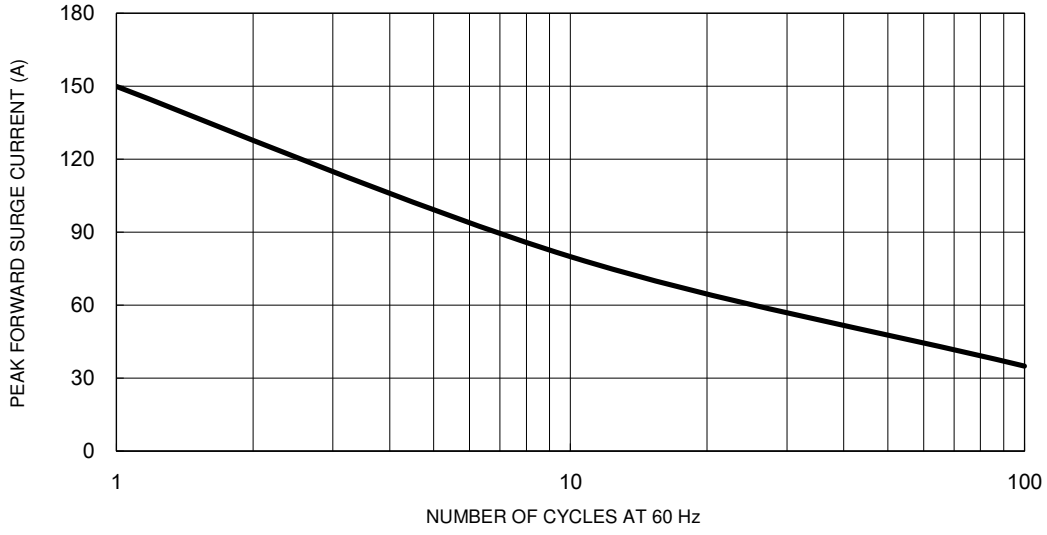


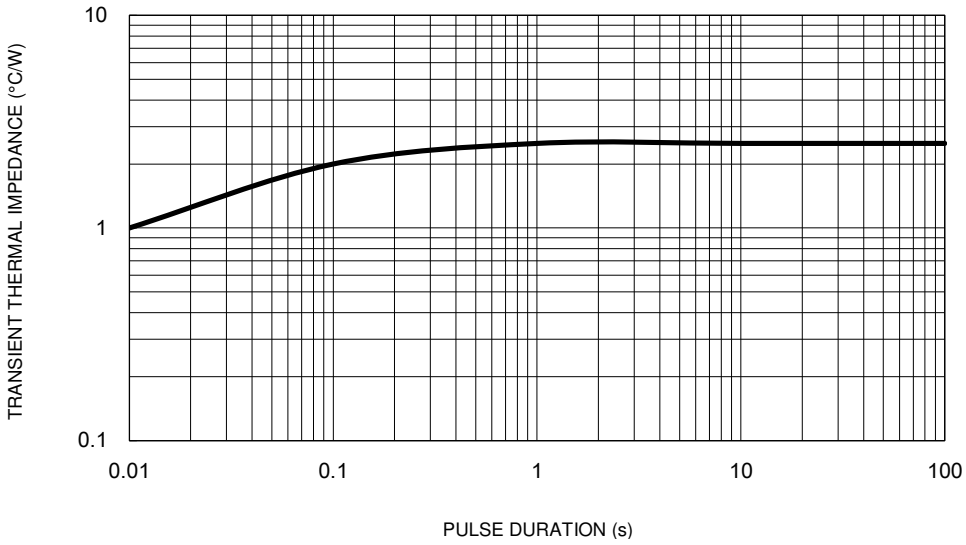

**Fig.5 Maximum Non-Repetitive Forward Surge Current**



## CHARACTERISTICS CURVES

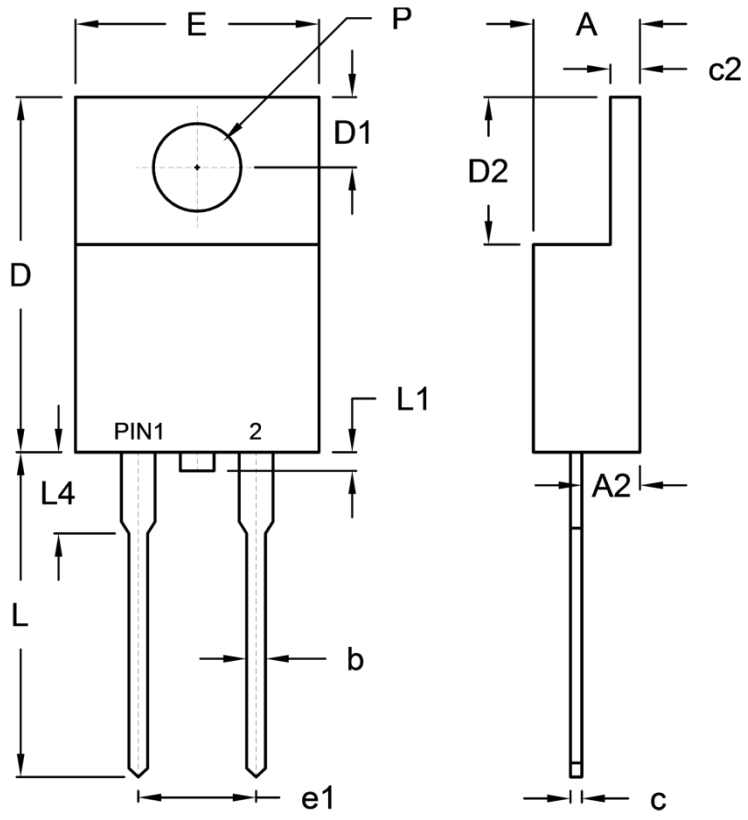
($T_A$ = 25°C unless otherwise noted)

**Fig.6 Typical Transient Thermal Impedance**



## PACKAGE OUTLINE DIMENSIONS

TO-220AC




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 4.42 | 4.76 | 0.174 | 0.187 |
| A2 | 2.20 | 2.80 | 0.087 | 0.110 |
| b | 0.68 | 0.94 | 0.027 | 0.037 |
| c | 0.35 | 0.64 | 0.014 | 0.025 |
| c2 | 1.14 | 1.40 | 0.045 | 0.055 |
| D | 14.60 | 16.00 | 0.575 | 0.630 |
| D1 | 2.62 | 3.44 | 0.103 | 0.135 |
| D2 | 5.84 | 6.86 | 0.230 | 0.270 |
| E | - | 10.50 | - | 0.413 |
| e1 | 4.95 | 5.20 | 0.195 | 0.205 |
| L | 13.19 | 14.79 | 0.519 | 0.582 |
| L1 | 0.00 | 1.60 | 0.000 | 0.063 |
| L4 | 2.80 | 4.20 | 0.110 | 0.165 |
| P | 3.54 | 4.00 | 0.139 | 0.157 |

## MARKING DIAGRAM


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

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