

5A, 50V - 60V Trench Schottky Surface Mount Rectifier

FEATURES

- Patented Trench Schottky technology
- Low power loss, high efficiency
- Ideal for automated placement
- High forward surge capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Trench Schottky barrier rectifier is designed for high frequency miniature switched mode power supplies such as adapters, lighting and on-board DC/DC converters.

MECHANICAL DATA

- Case: DO-214AC (SMA)
- 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: Indicated by cathode band
- Weight: 0.060g (approximately)

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 5 | A |
| V_{RRM} | 50 - 60 | V |
| I_{FSM} | 75 | A |
| T_{JMAX} | 150 | °C |
| Package | DO-214AC (SMA) | |
| Configuration | Single die | |



DO-214AC (SMA)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | |
|--|--------------|--------------|----------|------|
| PARAMETER | SYMBOL | TSSA5U50 | TSSA5U60 | UNIT |
| Marking code on the device | | 5U50 | 5U60 | |
| Repetitive peak reverse voltage | V_{RRM} | 50 | 60 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 35 | 42 | V |
| Forward current | I_F | 5 | | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 75 | | A |
| Junction temperature | T_J | - 55 to +150 | | °C |
| Storage temperature | T_{STG} | - 55 to +150 | | °C |

| THERMAL PERFORMANCE | | | | |
|--|----------|-----------------|------------|-------------|
| PARAMETER | | SYMBOL | TYP | UNIT |
| Junction-to-lead thermal resistance | TSSA5U50 | $R_{\theta JL}$ | 25 | °C/W |
| | TSSA5U60 | | 28 | °C/W |
| Junction-to-ambient thermal resistance | | $R_{\theta JA}$ | 70 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|----------|--|---------------|------------|------------|---------------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | TSSA5U50 | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$ | V_F | 0.44 | 0.54 | V |
| | TSSA5U60 | | | 0.48 | 0.56 | V |
| | TSSA5U50 | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$ | | 0.39 | 0.49 | V |
| | TSSA5U60 | | | 0.44 | 0.52 | V |
| Reverse current @ rated V_R ⁽²⁾ | | $T_J = 25^\circ\text{C}$ | I_R | - | 300 | μA |
| | | $T_J = 125^\circ\text{C}$ | | - | 50 | mA |

Notes:

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

| ORDERING INFORMATION | | |
|-------------------------------------|----------------|---------------------|
| ORDERING CODE ⁽¹⁾ | PACKAGE | PACKING |
| TSSA5Ux | DO-214AC (SMA) | 7,500 / Tape & Reel |

Notes:

1. "x" defines voltage from 50V(TSSA5U50) to 60V(TSSA5U60)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

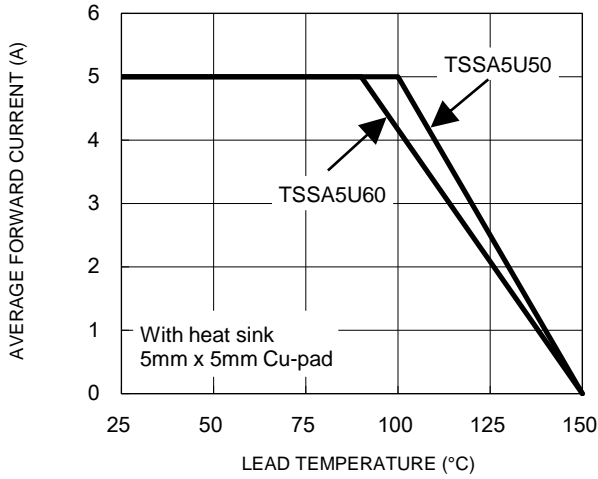


Fig.2 Typical Junction Capacitance

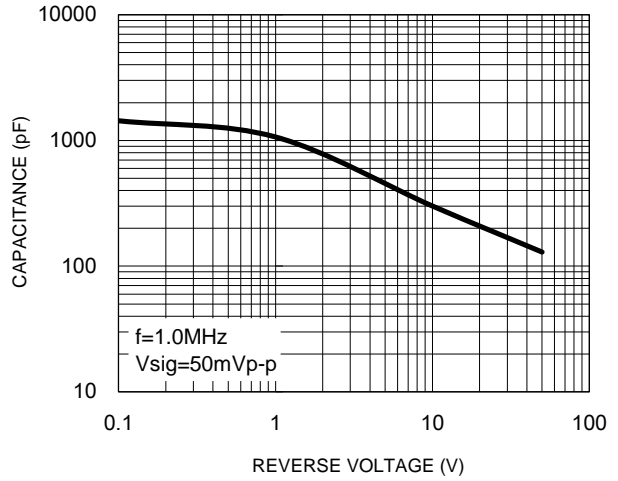


Fig.3 Typical Reverse Characteristics

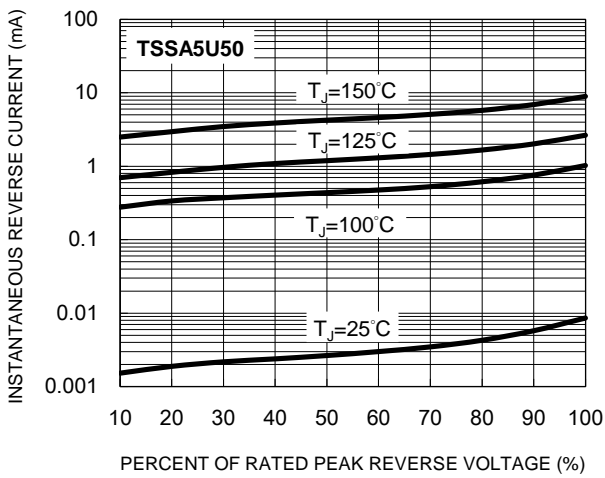


Fig.4 Typical Forward Characteristics

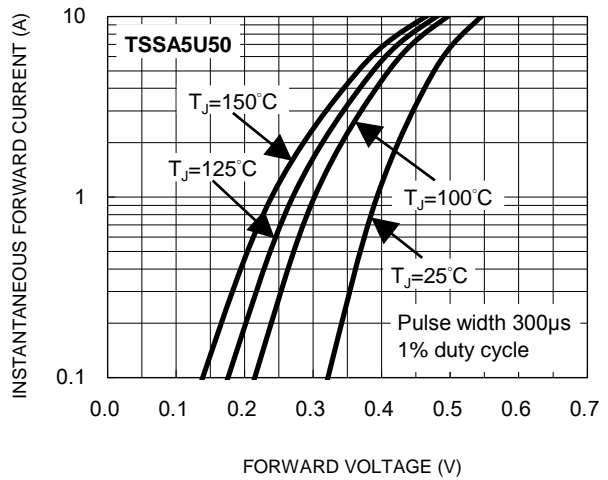


Fig.5 Typical Reverse Characteristics

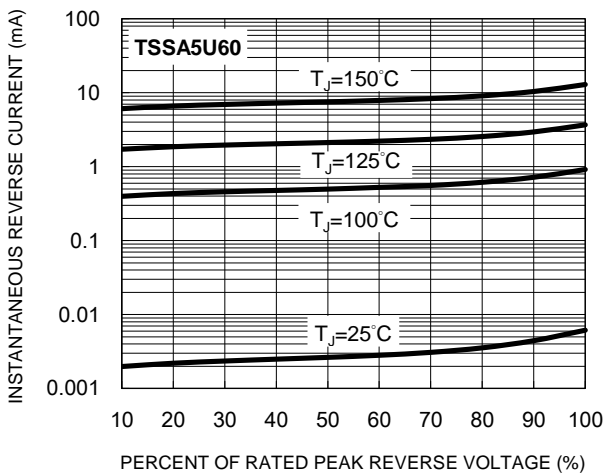
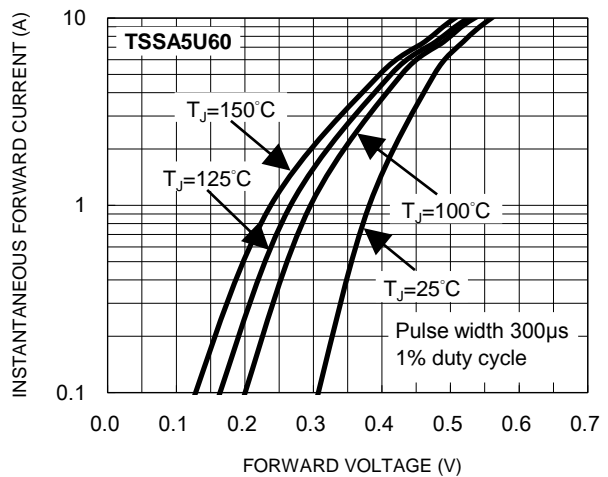


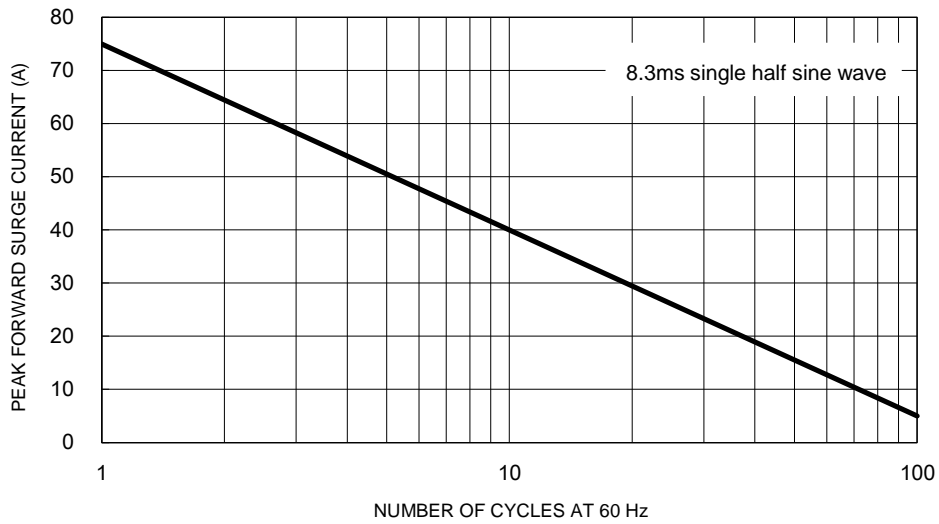
Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

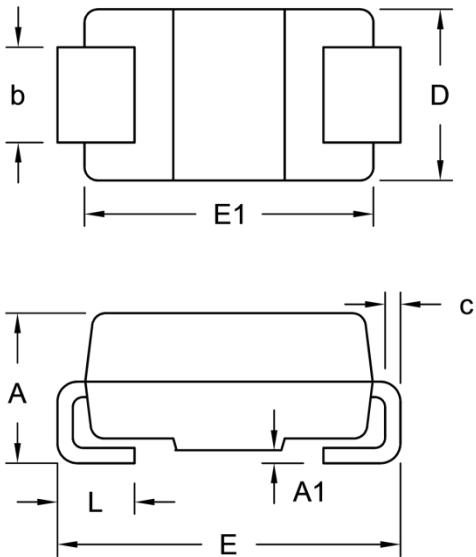
(T_A = 25°C unless otherwise noted)

Fig.7 Maximum Non-Repetitive Forward Surge Current



PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.99 | 2.50 | 0.078 | 0.098 |
| A1 | 0.10 | 0.20 | 0.004 | 0.008 |
| b | 1.27 | 1.58 | 0.050 | 0.062 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 2.29 | 2.83 | 0.090 | 0.111 |
| E | 4.95 | 5.33 | 0.195 | 0.210 |
| E1 | 4.06 | 4.60 | 0.160 | 0.181 |
| L | 0.90 | 1.41 | 0.035 | 0.056 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.68 | 0.066 |
| B | 1.52 | 0.060 |
| C | 3.93 | 0.155 |
| D | 2.41 | 0.095 |
| E | 5.45 | 0.215 |

MARKING DIAGRAM



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

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