

## 3A, 45V Trench Schottky Surface Mount Rectifier

### FEATURES

- Patented Trench Schottky technology
- Low power loss, high efficiency
- High surge current 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 are designed for high frequency miniature switched mode power supplies such as adapters, lighting

### 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 |
| $I_F$          | 3              | A    |
| $V_{RRM}$      | 45             | V    |
| $I_{FSM}$      | 50             | 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       | TSSA3U45     | UNIT |
| Marking code on the device   |              | 3U45         |      |
| Repetitive peak reverse voltage  | $V_{RRM}$    | 45           | V    |
| Reverse voltage, total rms value   | $V_{R(RMS)}$ | 31           | V    |
| Forward current  | $I_F$        | 3            | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$    | 50           | 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    | $R_{\theta JL}$ | 10  | °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 <sup>(1)</sup>               | $I_F = 3\text{A}, T_J = 25^\circ\text{C}$  | $V_F$  | 0.42 | 0.48 | V             |
|  | $I_F = 3\text{A}, T_J = 125^\circ\text{C}$ |        | 0.30 | 0.40 | V             |
| Reverse current @ rated $V_R$ <sup>(2)</sup> | $T_J = 25^\circ\text{C}$                   | $I_R$  | -    | 500  | $\mu\text{A}$ |
|  | $T_J = 125^\circ\text{C}$                  |        | 50   | 100  | mA            |

**Notes:**

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

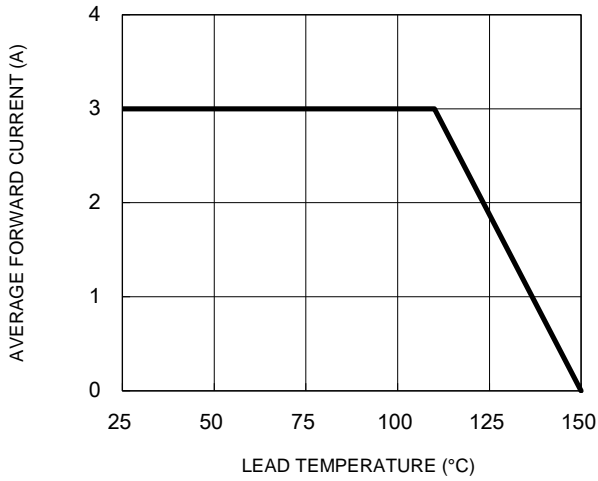
**ORDERING INFORMATION**

| ORDERING CODE | PACKAGE        | PACKING             |
|---------------|----------------|---------------------|
| TSSA3U45      | DO-214AC (SMA) | 7,500 / Tape & Reel |

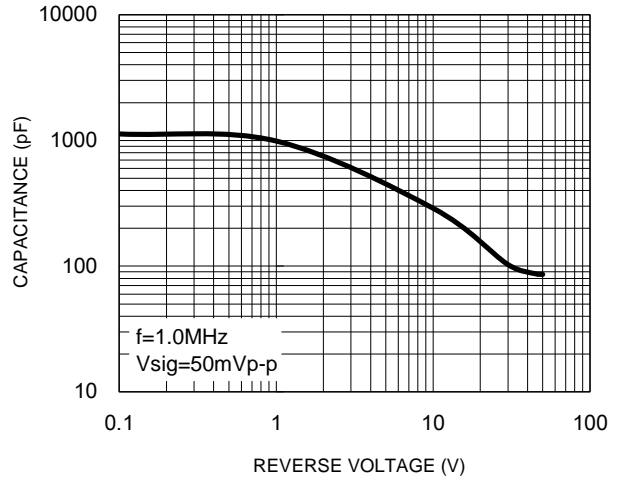
**CHARACTERISTICS CURVES**

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

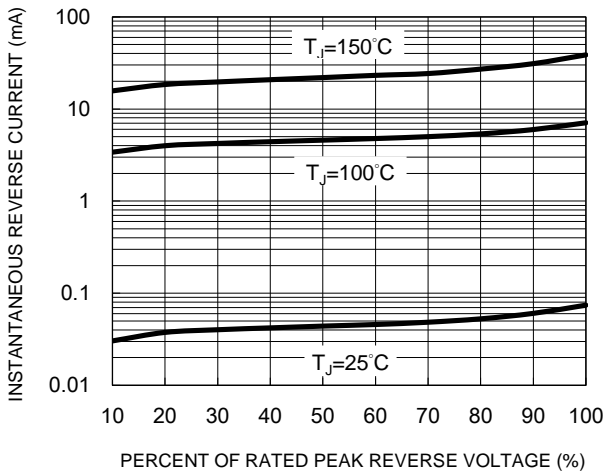
**Fig.1 Forward Current Derating Curve**



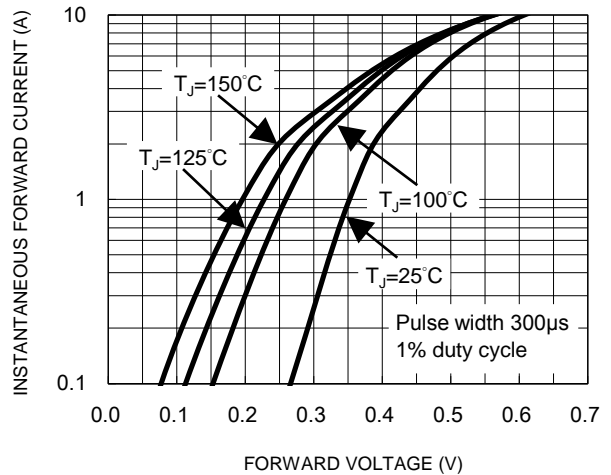
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

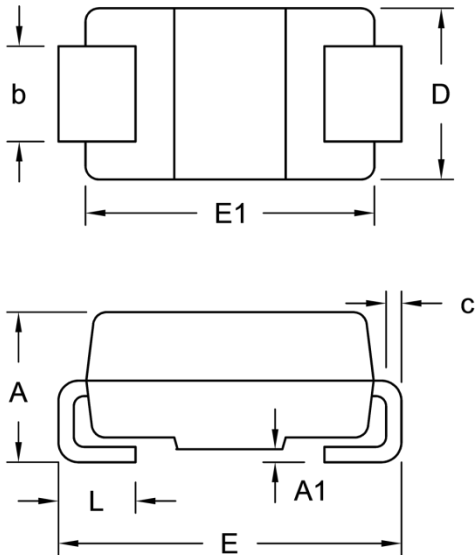


**Fig.4 Typical Forward Characteristics**



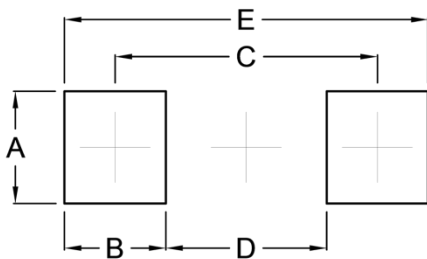
**PACKAGE OUTLINE DIMENSIONS**

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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