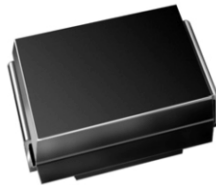


Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

| MAJOR RATINGS AND CHARACTERISTICS | |
|-----------------------------------|--------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 300 V, 400 V |
| I_{FSM} | 50 A |
| t_{rr} | 35 ns |
| V_F | 1.1 V |
| $T_j \text{ max.}$ | 150 °C |

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|---------------|------|------|
| PARAMETER | SYMBOL | ES2F | ES2G | UNIT |
| Device marking code | | EF | EG | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 300 | 400 | V |
| Working peak reverse voltage | V_{RWM} | 225 | 300 | V |
| Maximum RMS voltage | V_{RMS} | 210 | 280 | V |
| Maximum average forward rectified current at $T_L = 110\text{ °C}$ | $I_{F(AV)}$ | 2.0 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | °C |



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|---|----------|-----------|------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | ES2F | ES2G | UNIT |
| Maximum instantaneous forward voltage ⁽¹⁾ | at 2.0 A | V_F | 1.1 | | V |
| Maximum reverse current at V_{RRM} | $T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$ | I_R | 10 200 | | μA |
| Maximum reverse recovery time | at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | 35 | | ns |
| Maximum reverse recovery time | at $I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | t_{rr} | 50 | | ns |
| Maximum reverse recovery current | at $I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | I_{RM} | 3.0 | | A |
| Maximum stored charge | at $I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | Q_{rr} | 50 | | nC |
| Typical junction capacitance | at 4.0 V, 1 MHz | C_J | 15 | | pF |

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------|------|------|---------------------------|
| PARAMETER | SYMBOL | ES2F | ES2G | UNIT |
| Maximum thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | 75 | | $^\circ\text{C}/\text{W}$ |
| | $R_{\theta JL}$ | 25 | | |

Note:

(1) Units mounted on P.C.B. 5.0 x 5.0 mm (0.013 mm thick) land areas

| ORDERING INFORMATION | | | | |
|-----------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| ES2G-E3/52T | 0.096 | 52T | 750 | 7" Diameter Plastic Tape & Reel |
| ES2G-E3/5BT | 0.096 | 5BT | 3200 | 13" Diameter Plastic Tape & Reel |

RATINGS AND CHARACTERISTICS CURVES

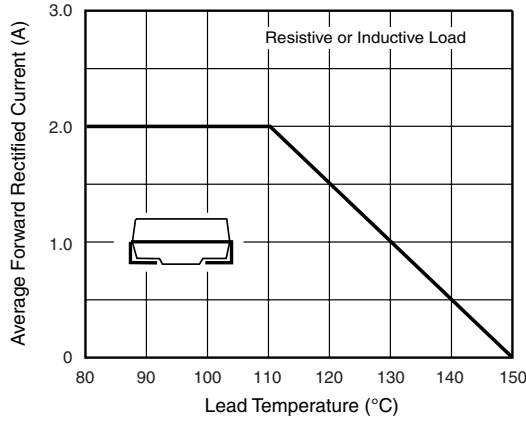
 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Figure 1. Maximum Forward Current Derating Curve

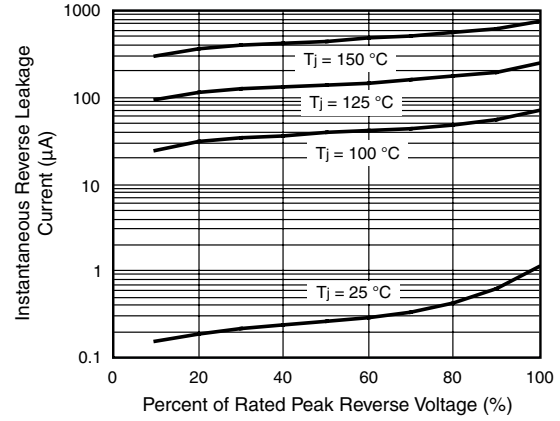


Figure 4. Typical Reverse Leakage Characteristics

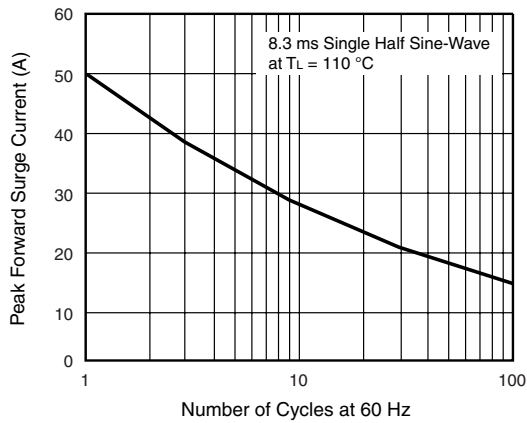


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

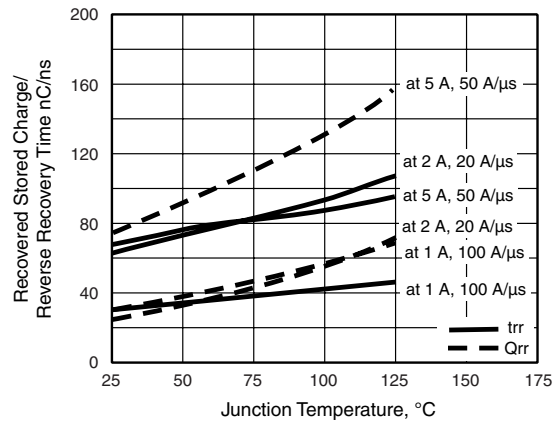


Figure 5. Reverse Switching Characteristics

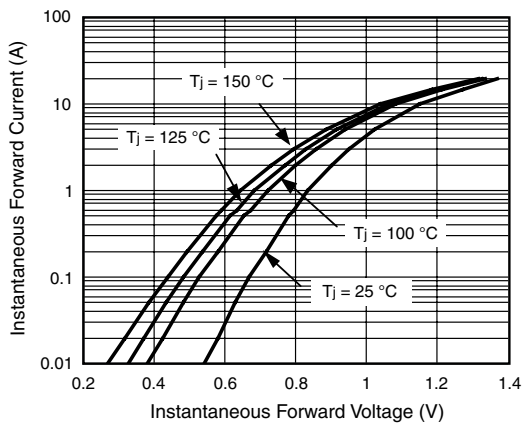


Figure 3. Typical Instantaneous Forward Characteristics

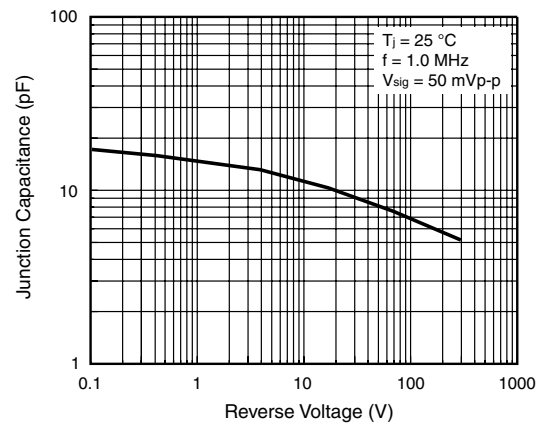
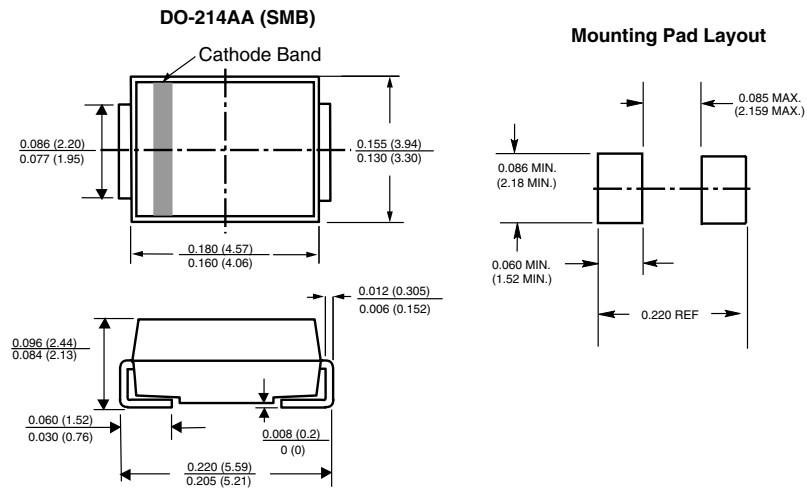


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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