

5A, 1200V Standard Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switch Mode Power Supply
- Inverters and Converters
- Freewheeling diode

MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.090g (approximately)

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 5 | A |
| V_{RRM} | 1200 | V |
| I_{FSM} | 170 | A |
| T_{JMAX} | 150 | °C |
| Package | DO-214AA (SMB) | |
| Configuration | Single die | |



DO-214AA (SMB)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | |
|---|--------------------|-------------|------|
| PARAMETER | SYMBOL | S5QB | UNIT |
| Marking code on the device | | S5QB | |
| Repetitive peak reverse voltage | V_{RRM} | 1200 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 840 | V |
| Forward current | I_F | 5 | A |
| Surge peak forward current single half sine-wave superimposed on rated load | $t = 8.3\text{ms}$ | 170 | A |
| | $t = 1.0\text{ms}$ | 430 | 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 | $R_{\theta JL}$ | 28 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 49 | °C/W |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 16 | °C/W |

Thermal Performance Note: Units mounted on PCB (10mm x 10mm Cu pad test board)

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|--|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | $I_F = 2.5\text{A}, T_J = 25^\circ\text{C}$ | V_F | 0.89 | - | V |
| | $I_F = 5.0\text{A}, T_J = 25^\circ\text{C}$ | | 0.94 | 1.1 | V |
| | $I_F = 2.5\text{A}, T_J = 125^\circ\text{C}$ | | 0.76 | - | V |
| | $I_F = 5.0\text{A}, T_J = 125^\circ\text{C}$ | | 0.83 | 0.95 | V |
| Reverse current @ rated V_R ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 10 | μA |
| | $T_J = 125^\circ\text{C}$ | | - | 75 | μA |
| Junction capacitance | 1MHz, $V_R = 4.0\text{V}$ | C_J | 36 | - | pF |

Notes:

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

| ORDERING INFORMATION | | |
|-----------------------------|----------------|---------------------|
| ORDERING CODE | PACKAGE | PACKING |
| S5QB | DO-214AA (SMB) | 3,000 / Tape & Reel |

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

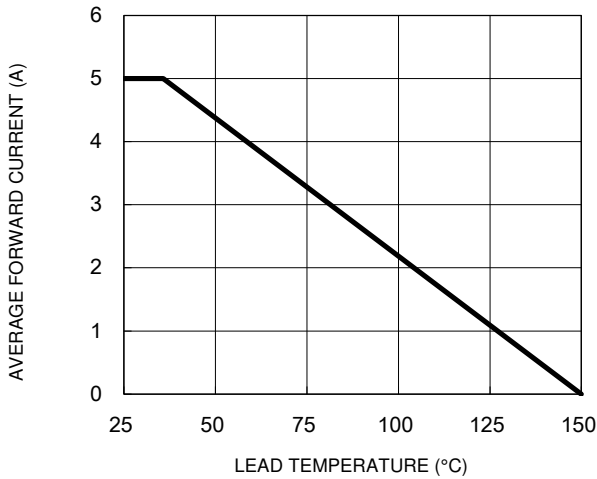


Fig.2 Typical Junction Capacitance

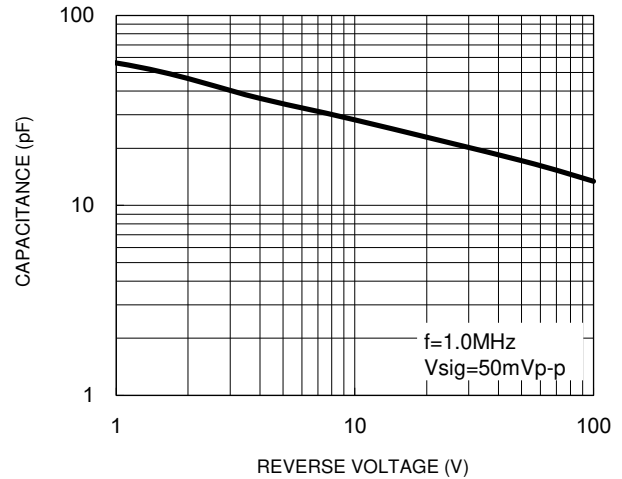


Fig.3 Typical Reverse Characteristics

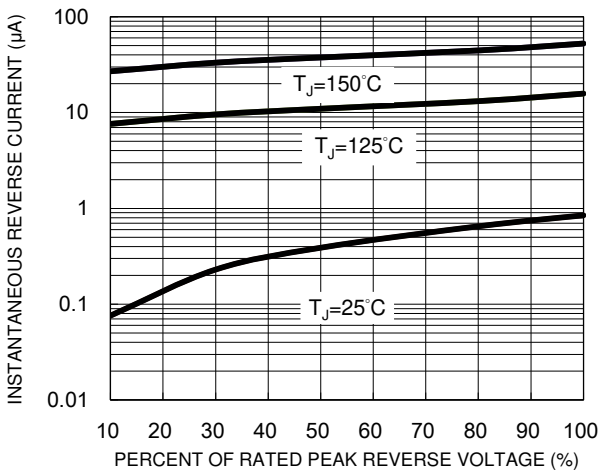


Fig.4 Typical Forward Characteristics

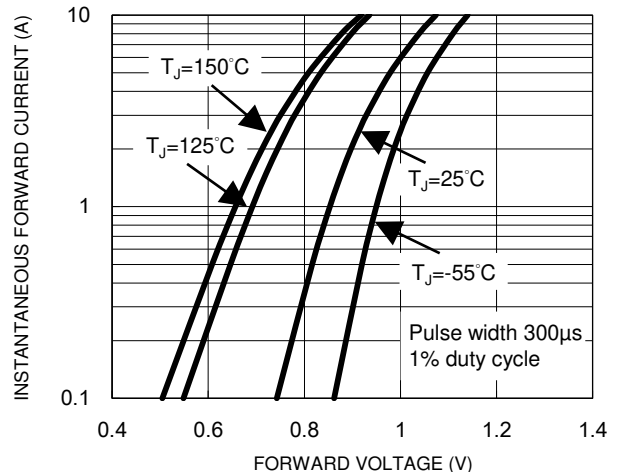
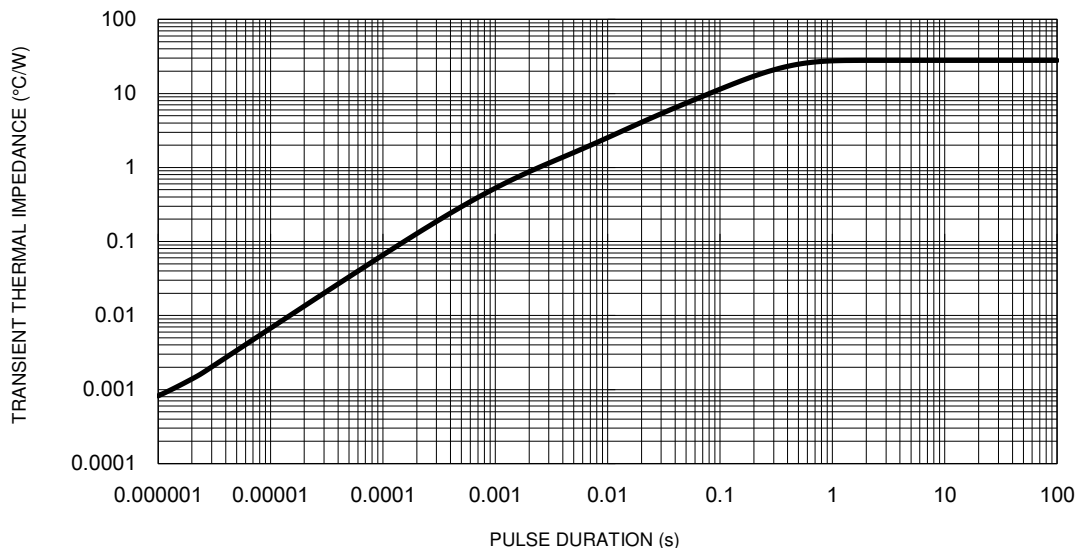
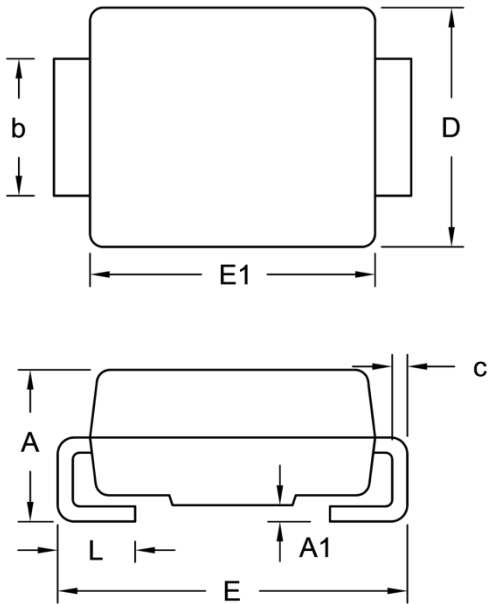


Fig.5 Typical Transient Thermal Impedance



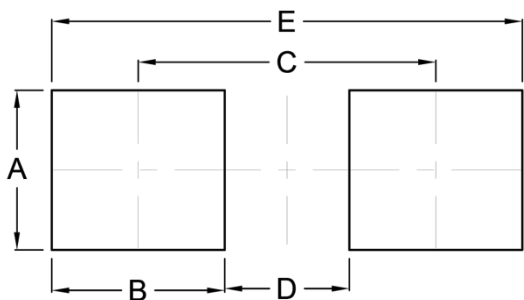
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.95 | 2.65 | 0.077 | 0.104 |
| A1 | 0.05 | 0.20 | 0.002 | 0.008 |
| b | 1.95 | 2.20 | 0.077 | 0.087 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 3.30 | 3.95 | 0.130 | 0.156 |
| E | 5.10 | 5.60 | 0.201 | 0.220 |
| E1 | 4.05 | 4.60 | 0.159 | 0.181 |
| L | 0.75 | 1.60 | 0.030 | 0.063 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 2.30 | 0.091 |
| B | 2.50 | 0.098 |
| C | 4.30 | 0.169 |
| D | 1.80 | 0.071 |
| E | 6.80 | 0.268 |

MARKING DIAGRAM



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

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