

4A, 100V - 200V Ultra Fast Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Planar technology
- Low power loss, high efficiency
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency switching
- DC/DC
- Snubber

MECHANICAL DATA

- Case: DO-214AB (SMC)
- 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: 0.200g (approximately)

| KEY PARAMETERS | | |
|----------------|----------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 4 | A |
| V_{RRM} | 100 - 200 | V |
| I_{FSM} | 130 | A |
| T_{JMAX} | 175 | °C |
| Package | DO-214AB (SMC) | |
| Configuration | Single die | |



DO-214AB (SMC)



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | |
|---|--------------------|-------------|--------|------|
| PARAMETER | SYMBOL | PE4BCH | PE4DCH | UNIT |
| Marking code on the device | | PE4BC | PE4DC | |
| Repetitive peak reverse voltage | V_{RRM} | 100 | 200 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 70 | 140 | V |
| Forward current | I_F | 4 | | A |
| Surge peak forward current single half sine-wave superimposed on rated load | $t = 8.3\text{ms}$ | 130 | | A |
| | $t = 1.0\text{ms}$ | 300 | | |
| Junction temperature | T_J | -55 to +175 | | °C |
| Storage temperature | T_{STG} | -55 to +175 | | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|-------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 15 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 56 | °C/W |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 15 | °C/W |

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|---|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | $I_F = 2\text{A}, T_J = 25^\circ\text{C}$ | V_F | 0.80 | - | V |
| | $I_F = 3\text{A}, T_J = 25^\circ\text{C}$ | | 0.83 | 0.90 | V |
| | $I_F = 4\text{A}, T_J = 25^\circ\text{C}$ | | 0.86 | 0.93 | V |
| | $I_F = 2\text{A}, T_J = 125^\circ\text{C}$ | | 0.63 | - | V |
| | $I_F = 3\text{A}, T_J = 125^\circ\text{C}$ | | 0.67 | - | V |
| | $I_F = 4\text{A}, T_J = 125^\circ\text{C}$ | | 0.71 | - | V |
| Reverse current @ rated V_R ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 2 | μA |
| | $T_J = 125^\circ\text{C}$ | | - | 10 | μA |
| Junction capacitance | 1MHz, $V_R = 4.0\text{V}$ | C_J | 72 | - | pF |
| Reverse recovery time | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$ | t_{rr} | - | 20 | ns |
| | $I_F = 1.0\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$ | | 22 | - | |
| Reverse recovery current | $I_F = 4.0\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 100\text{V}$ | I_{RM} | 2.9 | - | A |
| Reverse recovery charge | | Q_{rr} | 25.4 | - | nC |
| Reverse recovery time | | t_{rr} | 16.4 | - | ns |

Notes:

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

| ORDERING INFORMATION | | |
|------------------------------------|----------------|--------------------|
| ORDERING CODE⁽¹⁾ | PACKAGE | PACKING |
| PE4xCH | DO-214AB (SMC) | 3,000/ Tape & Reel |

Notes:

1. "x" defines voltage from 100V(PE4BCH) to 200V(PE4DCH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

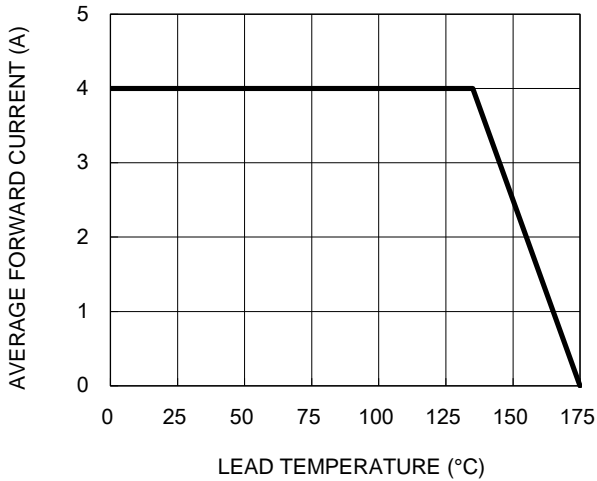


Fig.2 Typical Junction Capacitance

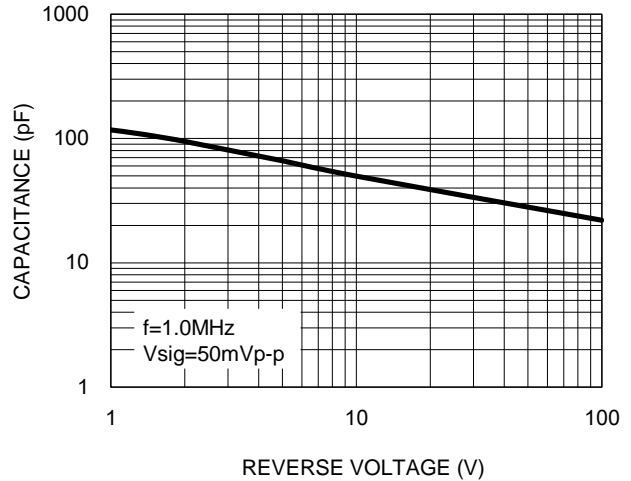


Fig.3 Typical Reverse Characteristics

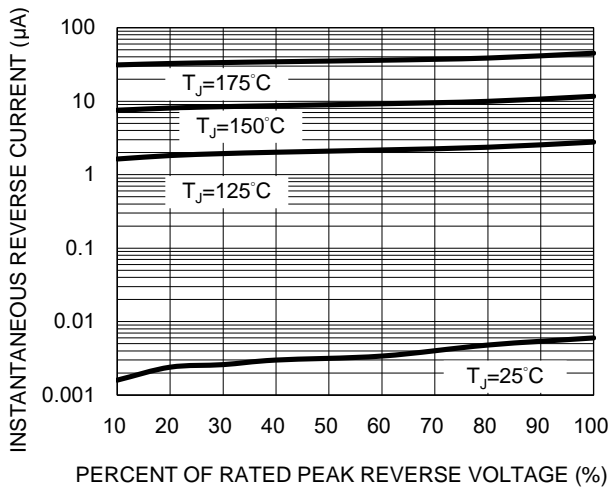


Fig.4 Typical Forward Characteristics

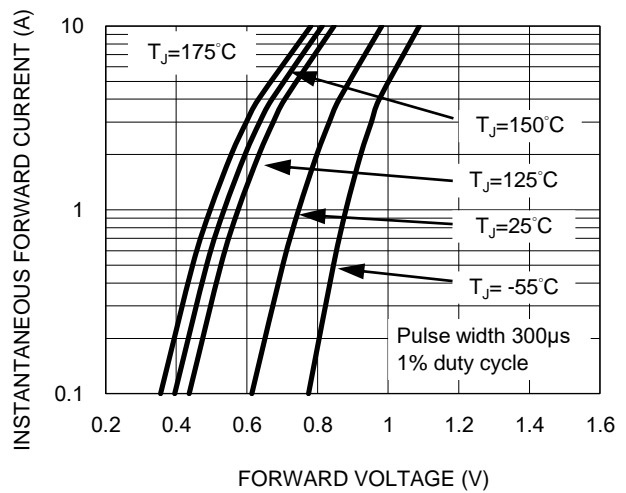
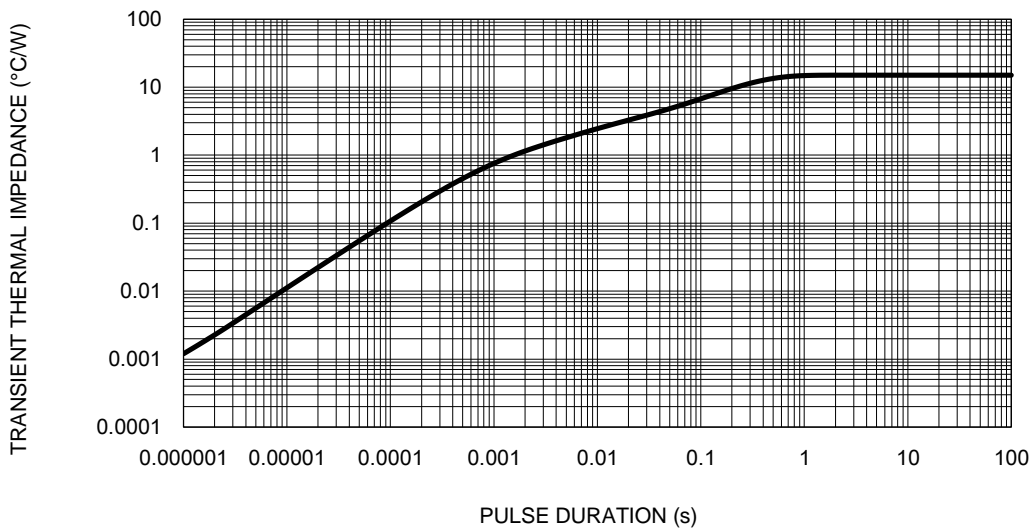
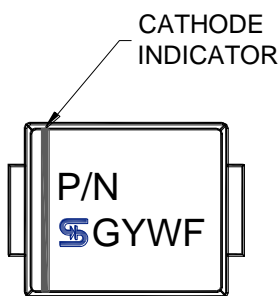
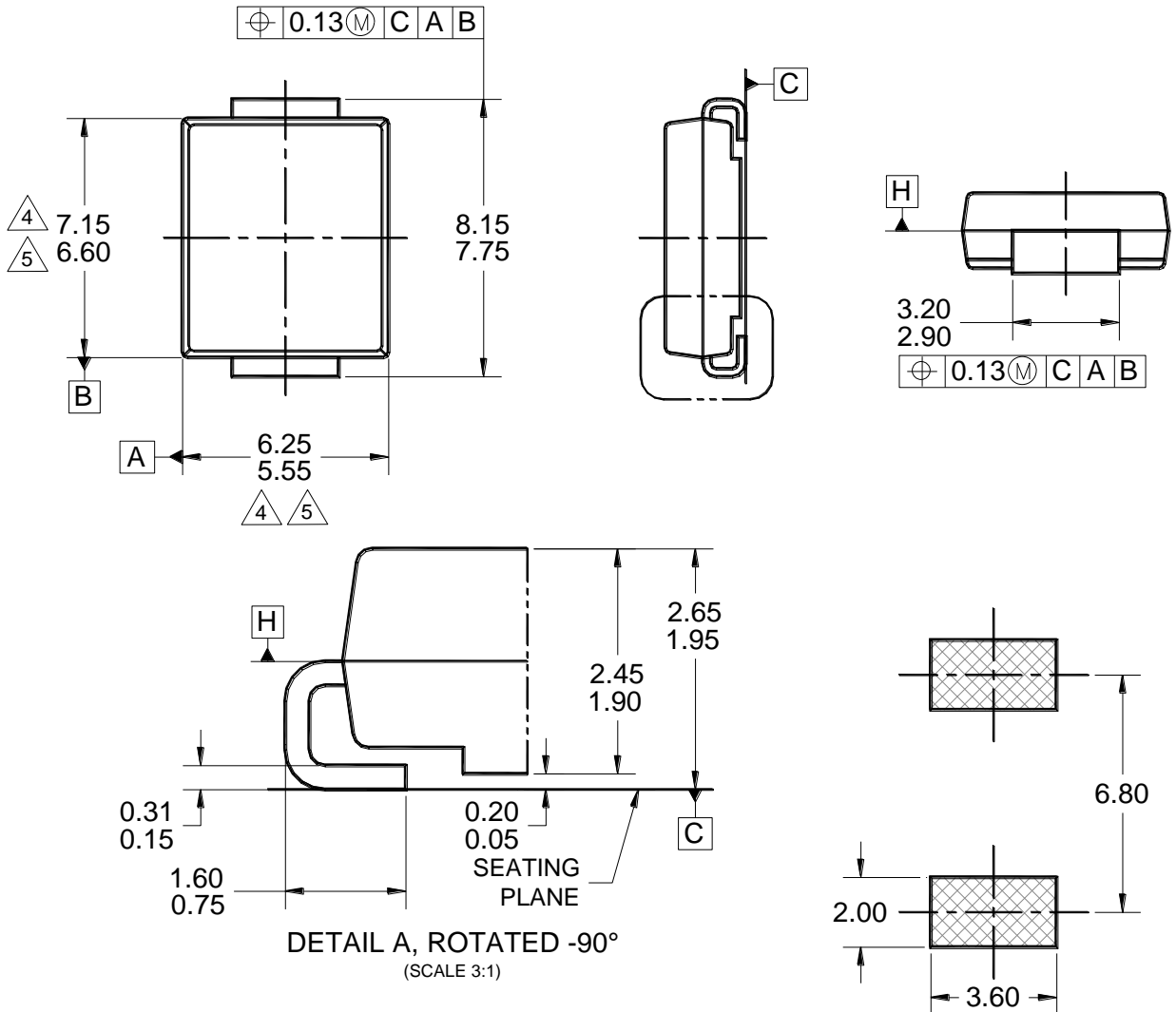


Fig.5 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



MARKING DIAGRAM

P/N = MARKING CODE
 G = GREEN COMPOUND
 YW = DATE CODE
 F = FACTORY CODE

SUGGESTED PAD LAYOUT

NOTES: UNLESS OTHERWISE SPECIFIED

- ALL DIMENSIONS ARE IN MILLIMETERS.
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AB, ISSUE D.
- MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
- MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
- DWG NO. REF: HQ2SD07-DO214SMC-036 REV A.

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