# 6A, 100V - 200V Ultra Fast Surface Mount Rectifier

## FEATURES

- 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

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 6 | A |
| $V_{RRM}$ | 100 - 200 | V |
| $I_{FSM}$ | 160 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | DO-214AB (SMC) | |
| Configuration | Single die | |

Pb-Free RoHS COMPLIANT HALOGEN FREE

## 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: 0.201g (approximately)

**DO-214AB (SMC)**


| **ABSOLUTE MAXIMUM RATINGS** ($T_A$ = 25°C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **PU6BC** | **PU6DC** | **UNIT** |
| Marking code on the device | | | PU6BC | PU6DC | |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 100 | 200 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 70 | 140 | V |
| Forward current | | $I_F$ | 6 | | A |
| Surge peak forward current single half sine-wave superimposed on rated load | t = 8.3ms | $I_{FSM}$ | 160 | | A |
| | t = 1.0ms | | 360 | | |
| 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 | $R_{\Theta JL}$ | 12 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 57 | °C/W |
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 13 | °C/W |

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

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage(1) | $I_F$ = 3A, $T_J$ = 25°C | $V_F$ | 0.79 | - | V |
| | $I_F$ = 6A, $T_J$ = 25°C | | 0.85 | 0.94 | V |
| | $I_F$ = 3A, $T_J$ = 125°C | | 0.65 | - | V |
| | $I_F$ = 6A, $T_J$ = 125°C | | 0.71 | - | V |
| Reverse current @ rated $V_R$(2) | $T_J$ = 25°C | $I_R$ | - | 2 | μA |
| | $T_J$ = 125°C | | - | 15 | μA |
| Junction capacitance | 1MHz, $V_R$ = 4.0V | $C_J$ | 110 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | - | 25 | ns |
| | $I_F$ = 1.0A, di/dt = 50A/μs, $V_R$ = 30V | | 31 | - | |
| Reverse recovery current | $I_F$ = 6.0A, di/dt = 200A/μs, $V_R$ = 100V | $I_{RM}$ | 5.3 | - | A |
| Reverse recovery charge | | $Q_{rr}$ | 72 | - | nC |
| Reverse recovery time | | $t_{rr}$ | 27 | - | ns |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE(1) | PACKAGE | PACKING |
|---|---|---|
| PU6xC | DO-214AB (SMC) | 3,000/ Tape & Reel |

**Notes:**

1. “x” defines voltage from 100V(PU6BC) to 200V(PU6DC)

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

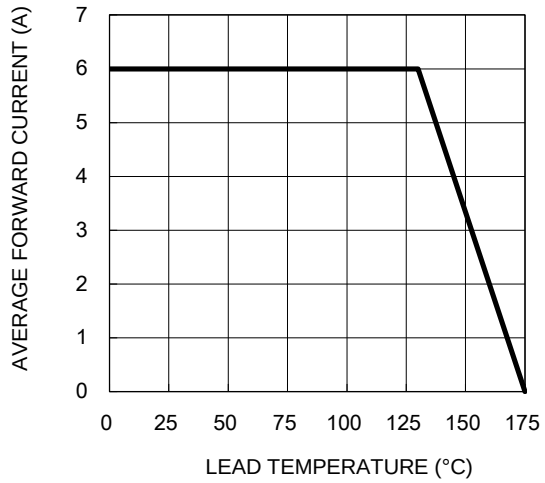



**Fig.2 Typical Junction Capacitance**

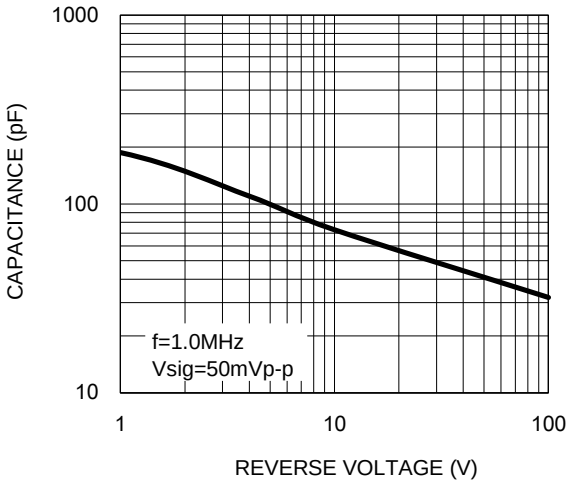



**Fig.3 Typical Reverse Characteristics**

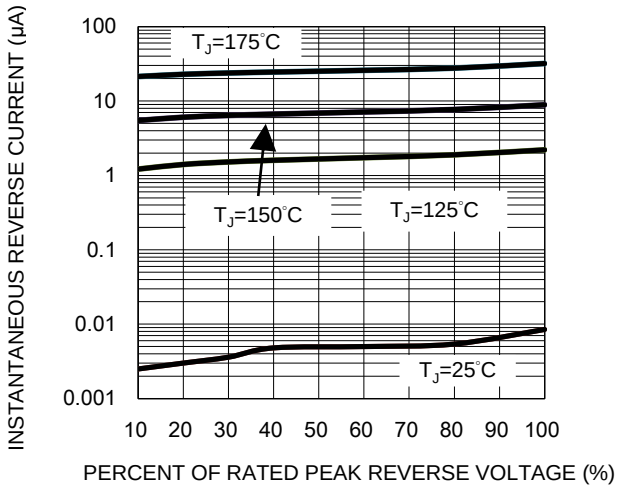



**Fig.4 Typical Forward Characteristics**

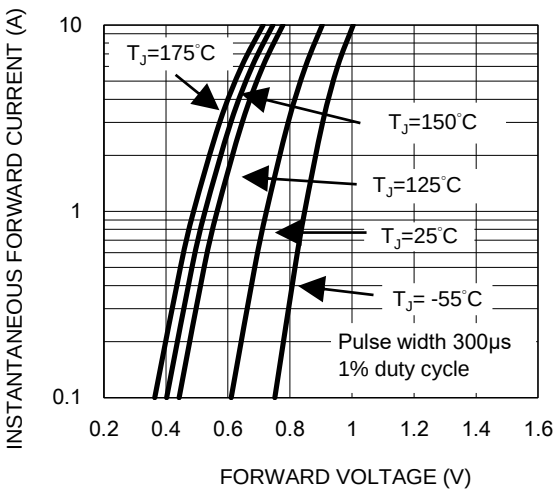
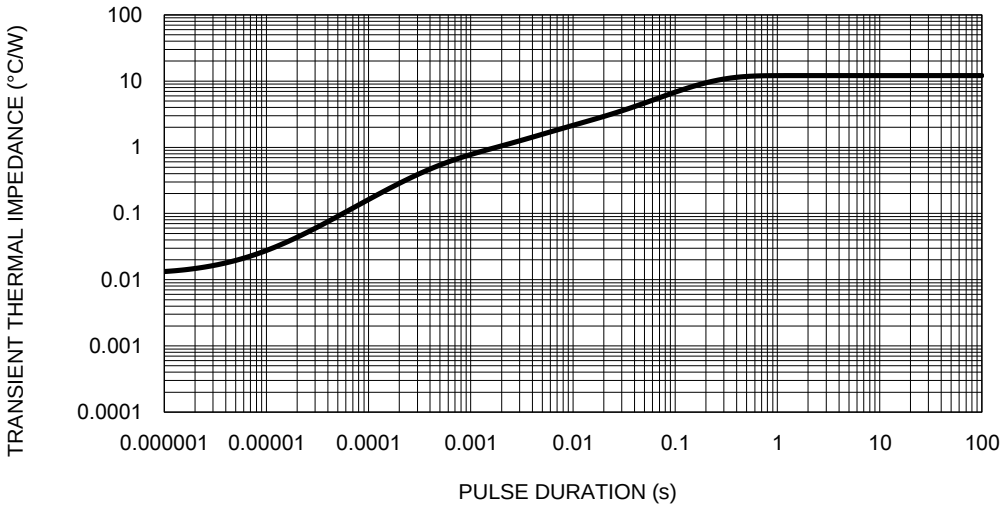
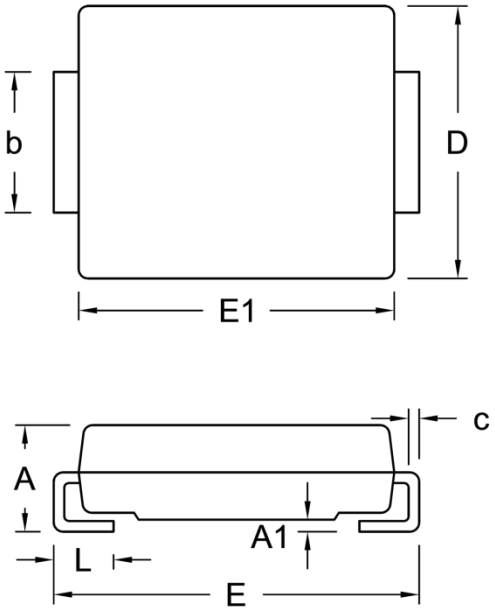



**Fig.5 Typical Transient Thermal Impedance**



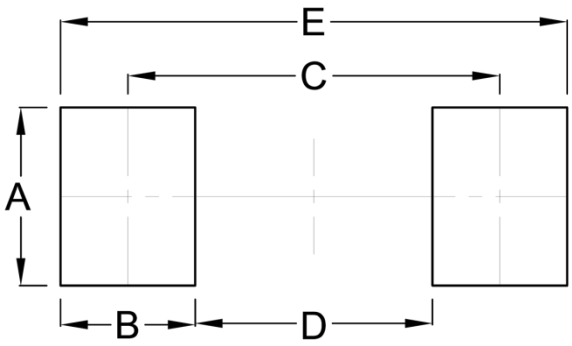
## PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.00 | 2.62 | 0.079 | 0.103 |
| A1 | 0.10 | 0.20 | 0.004 | 0.008 |
| b | 2.90 | 3.20 | 0.114 | 0.126 |
| c | 0.15 | 0.31 | 0.006 | 0.012 |
| D | 5.59 | 6.22 | 0.220 | 0.245 |
| E | 7.75 | 8.13 | 0.305 | 0.320 |
| E1 | 6.60 | 7.11 | 0.260 | 0.280 |
| L | 1.00 | 1.60 | 0.039 | 0.063 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 3.30 | 0.130 |
| B | 2.50 | 0.098 |
| C | 6.90 | 0.272 |
| D | 4.40 | 0.173 |
| E | 9.40 | 0.370 |

## MARKING DIAGRAM


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

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