# 1A, 100-200V Ultrafast Surface Mount Rectifier

## FEATURES

- AEC-Q101 qualified
- Planar technology
- 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

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 1 | A |
| $V_{RRM}$ | 100-200 | V |
| $I_{FSM}$ | 28 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | Micro SMA | |

## APPLICATIONS

- High frequency switching
- DC/DC converter
- Snubber

## MECHANICAL DATA

- Case: Micro 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: 0.006g (approximately)

**Micro SMA**


| **ABSOLUTE MAXIMUM RATINGS** ($T_A$ = 25°C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **PU1BMH** | **PU1DMH** | **UNIT** |
| Marking code on the device | | | P1 | P2 | |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 100 | 200 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 70 | 140 | V |
| DC blocking voltage | | $V_{DC}$ | 100 | 200 | V |
| Forward current | | $I_F$ | 1 | | A |
| Surge peak forward current single half sine-wave superimposed on rated load per diode | 8.3ms at $T_A$ = 25°C | $I_{FSM}$ | 28 | | A |
| | 1.0ms at $T_A$ = 25°C | | 52 | | A |
| 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 | $R_{\Theta JL}$ | 28 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 60 | °C/W |
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 34 | °C/W |

**Thermal Performance Note:** Units mounted on PCB (5mm x 5mm Cu pad test board)

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

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage(1) | $I_F$ = 0.5A, $T_J$ = 25°C | $V_F$ | 0.84 | - | V |
| | $I_F$ = 1.0A, $T_J$ = 25°C | | 0.90 | 1.05 | V |
| | $I_F$ = 0.5A, $T_J$ = 125°C | | 0.70 | - | V |
| | $I_F$ = 1.0A, $T_J$ = 125°C | | 0.76 | 0.90 | V |
| Reverse current @ rated $V_R$(2) | $T_J$ = 25°C | $I_R$ | - | 1 | μA |
| | $T_J$ = 125°C | | - | 15 | μA |
| Reverse recovery time | $I_F$ = 0.5A, $I_R$ = 1.0A, Irr = 0.25A | $t_{rr}$ | - | 25 | ns |
| | $I_F$ = 1.0A, di/dt = 50A/μs, $V_R$ = 30V | | 36 | - | |
| Reverse recovery current | $I_F$ = 1.0A, di/dt = 200A/μs, $V_R$ = 100V | $I_{RM}$ | 3.4 | - | A |
| Reverse recovery charge | | $Q_{rr}$ | 40 | - | nC |
| Reverse recovery time | | $t_{rr}$ | 24 | - | ns |
| Junction capacitance | 1MHz, $V_R$ = 4.0V | $C_J$ | 18 | - | pF |

**Notes:**

(1) Pulse test with PW = 0.3ms

(2) Pulse test with PW = 30ms

## ORDERING INFORMATION

| ORDERING CODE(1) | PACKAGE | PACKING |
|---|---|---|
| PU1xMH M3G | Micro SMA | 3000 / 7" reel |

**Notes:**

(1) “x” defines voltage from 100V(PU1BMH) to 200V(PU1DMH)

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

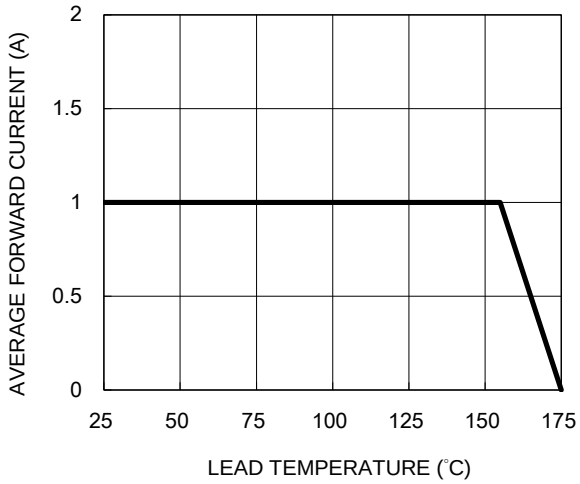



**Fig.2 Typical Junction Capacitance**

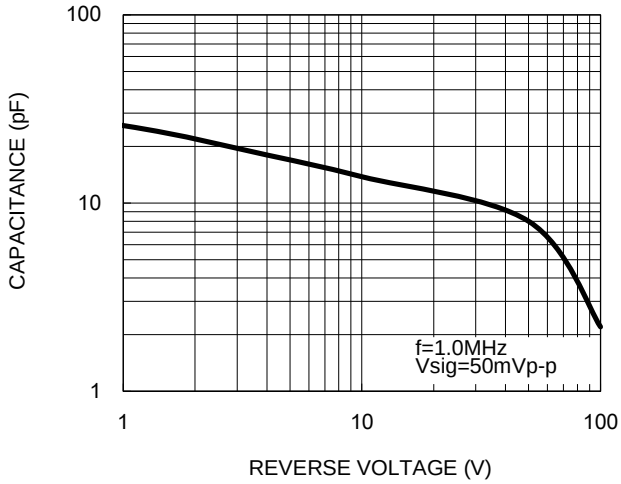



**Fig.3 Typical Reverse Characteristics**

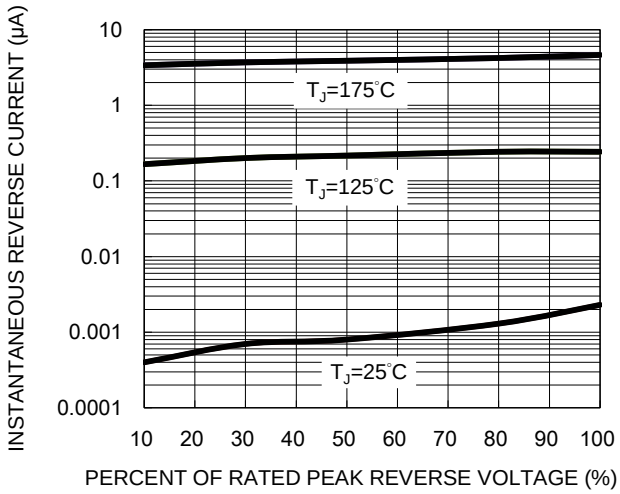



**Fig.4 Typical Forward Characteristics**

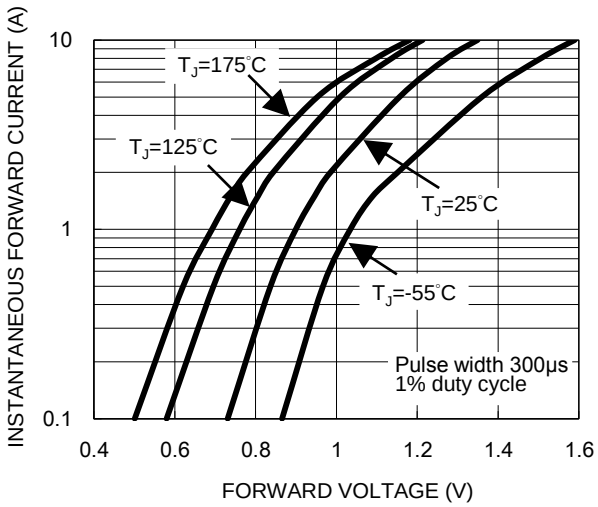
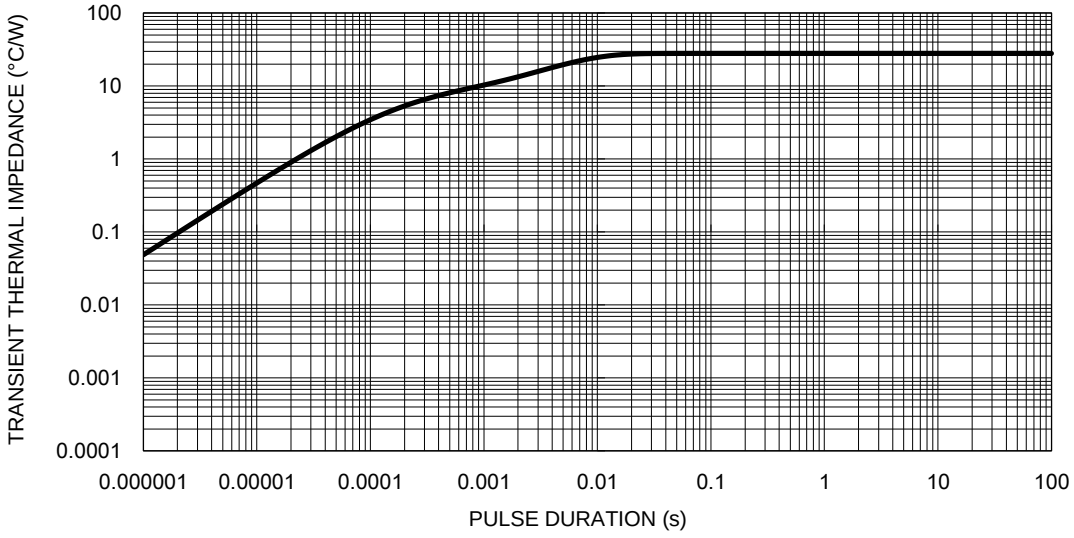
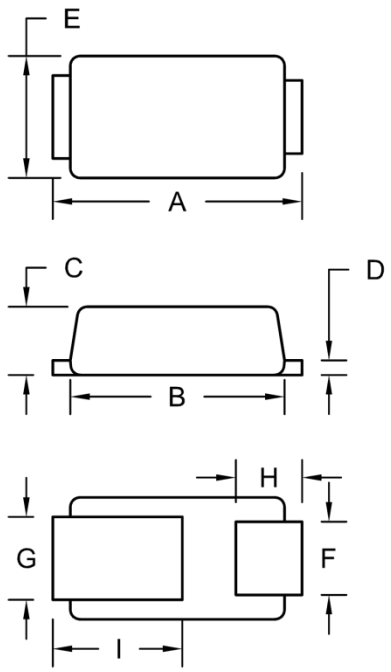



**Fig.5 Typical Transient Thermal Impedance**



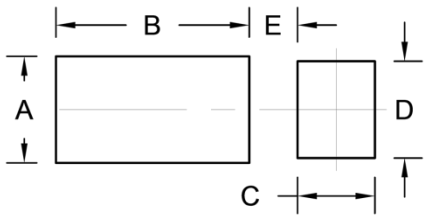
## PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

**Micro SMA**




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.30 | 2.70 | 0.091 | 0.106 |
| B | 2.10 | 2.30 | 0.083 | 0.091 |
| C | 0.63 | 0.73 | 0.025 | 0.029 |
| D | 0.10 | 0.20 | 0.004 | 0.008 |
| E | 1.15 | 1.35 | 0.045 | 0.053 |
| F | 0.65 | 0.85 | 0.026 | 0.034 |
| G | 0.75 | 0.95 | 0.030 | 0.037 |
| H | 0.55 | 0.75 | 0.022 | 0.030 |
| I | 1.10 | 1.50 | 0.043 | 0.059 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 1.10 | 0.043 |
| B | 2.00 | 0.079 |
| C | 0.80 | 0.031 |
| D | 1.00 | 0.039 |
| E | 0.50 | 0.020 |

## MARKING DIAGRAM


P/N = Marking Code
YW = Date Code

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