# 6A, 1000V Fast Recovery Bridge Rectifier

## FEATURES

- Ideal for automated placement
- High surge current capability
- UL Recognized File # E-326854
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

## APPLICATIONS

- Switching mode power supply
- AC to DC

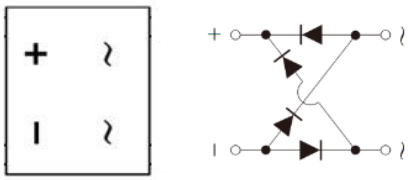
## MECHANICAL DATA

- Case: TBS
- Molding compound meets UL 94V-0 flammability rating
- Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1 whisker test
- Polarity: As marked
- Weight: 0.360g (approximately)

| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $I_F$ | 6 | A |
| $V_{RRM}$ | 1000 | V |
| $I_{FSM}$ | 140 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | TBS | |
| Configuration | Quad | |

Pb-Free RoHS COMPLIANT HALOGEN FREE

TBS



| ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | | **SYMBOL** | **RTBS60M** | **UNIT** |
| Marking code on the device | | | RT60M | |
| Repetitive peak reverse voltage | | $V_{RRM}$ | 1000 | V |
| Reverse voltage, total rms value | | $V_{R(RMS)}$ | 700 | V |
| Forward current | | $I_F$ | 6 | A |
| Surge peak forward current single half sine-wave superimposed on rated load per diode | t = 8.3ms | $I_{FSM}$ | 140 | A |
| | t = 1.0ms | | 480 | A |
| Rating of fusing ( t<8.3ms) | | $I^2t$ | 81 | $A^2s$ |
| 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 | $R_{\Theta JL}$ | 6.2 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\Theta JA}$ | 37 | °C/W |
| Junction-to-case thermal resistance | $R_{\Theta JC}$ | 3.5 | °C/W |

**Thermal Performance Note:** Units mounted on PCB (15mm x 15mm Cu pad test board)

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

| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
|---|---|---|---|---|---|
| Forward voltage per diode(1) | $I_F$ = 3A, $T_J$ = 25°C | $V_F$ | 0.99 | 1.3 | V |
| | $I_F$ = 6A, $T_J$ = 25°C | | 1.08 | - | V |
| | $I_F$ = 3A, $T_J$ = 125°C | | 0.84 | - | V |
| | $I_F$ = 6A, $T_J$ = 125°C | | 0.95 | - | V |
| Reverse current @ rated $V_R$ per diode(2) | $T_J$ = 25°C | $I_R$ | - | 5 | μA |
| | $T_J$ = 125°C | | 45 | - | μA |
| Junction capacitance per diode | 1MHz, $V_R$ = 4.0V | $C_J$ | 42 | - | pF |
| Reverse recovery time | $I_F$ = 0.5A , $I_R$ = 1.0A $I_{rr}$ = 0.25A | $t_{rr}$ | - | 500 | ns |

**Notes:**

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

## ORDERING INFORMATION

| ORDERING CODE | PACKAGE | PACKING |
|---|---|---|
| RTBS60M | TBS | 1,800 / Tape & Reel |

## CHARACTERISTICS CURVES

($T_A$ = 25°C unless otherwise noted)

**Fig.1 Forward Current Derating Curve**

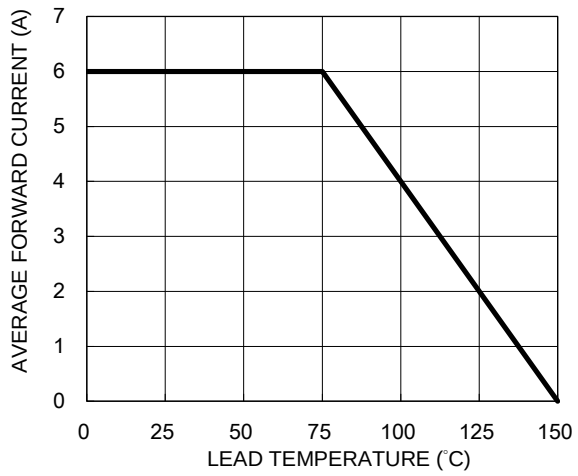



**Fig.2 Typical Junction Capacitance**

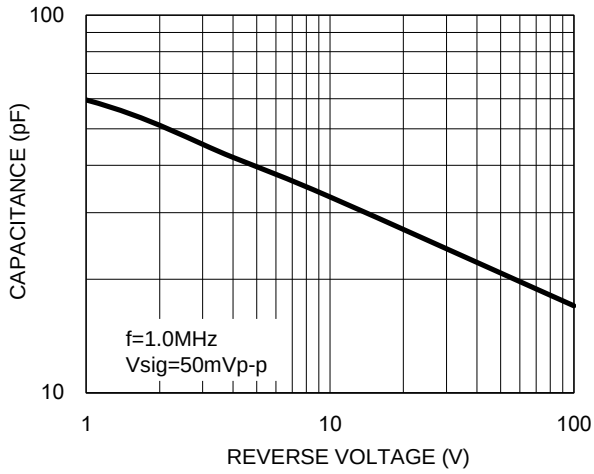



**Fig.3 Typical Reverse Characteristics**

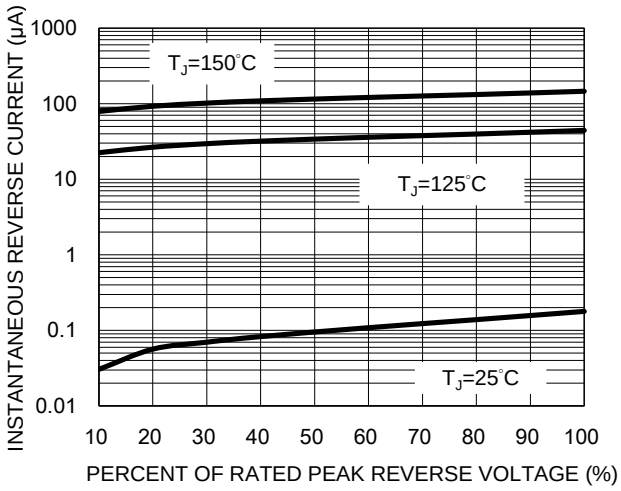
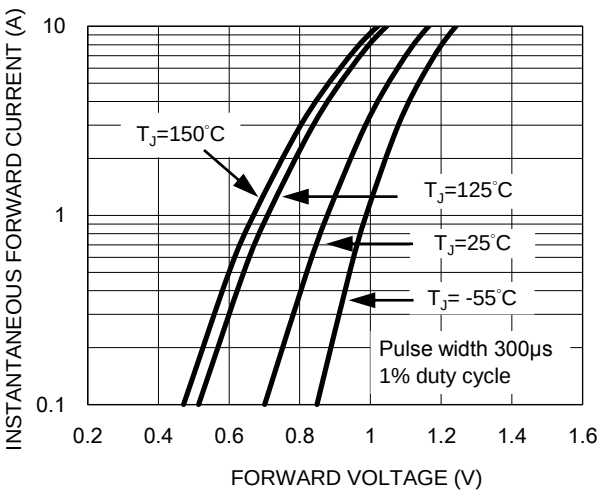
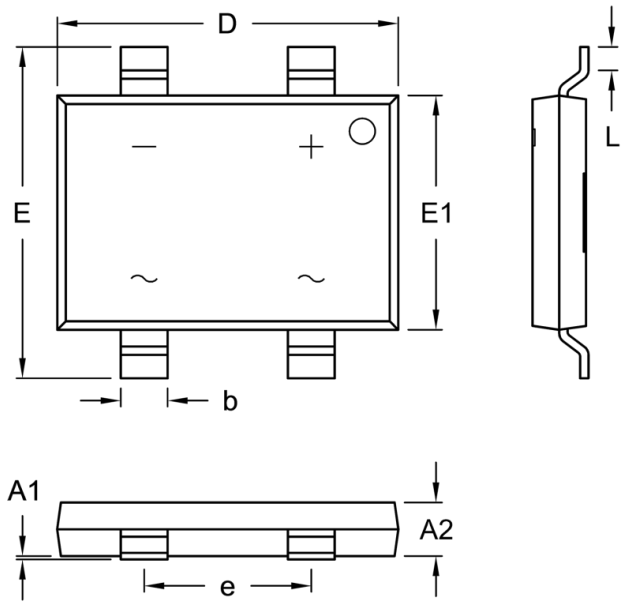



**Fig.4 Typical Forward Characteristics**



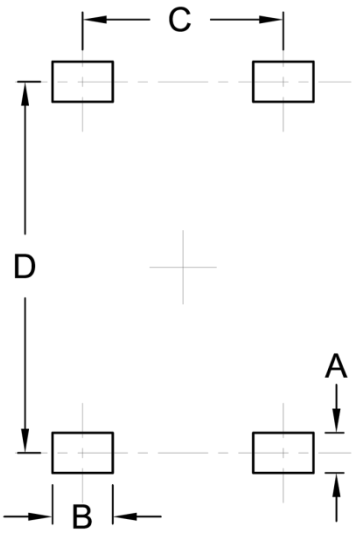
## PACKAGE OUTLINE DIMENSIONS

**TBS**




| DIM | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A1 | 0.00 | 0.15 | 0.000 | 0.006 |
| A2 | 1.40 | 1.80 | 0.055 | 0.071 |
| b | 1.30 | 1.50 | 0.051 | 0.059 |
| D | 10.00 | 10.40 | 0.394 | 0.409 |
| E | 9.70 | 10.10 | 0.382 | 0.398 |
| E1 | 6.80 | 7.20 | 0.268 | 0.283 |
| e | 4.90 | 5.10 | 0.193 | 0.201 |
| L | 0.50 | 1.10 | 0.020 | 0.043 |

## SUGGESTED PAD LAYOUT




| Symbol | Unit (mm) | Unit (inch) |
|---|---|---|
| A | 1.00 | 0.039 |
| B | 1.50 | 0.059 |
| C | 5.00 | 0.197 |
| D | 9.25 | 0.364 |

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

## MARKING DIAGRAM


P/N = Marking Code
YW = Date Code
F = Factory Code

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