

## 200mW, Low VF SMD Schottky Barrier Diode

### FEATURES

- Designed for mounting on small surface
- Low Capacitance
- Low forward voltage drop
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Adapters
- For switching power supply
- Low stored charge
- Inverter

### MECHANICAL DATA

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 8 mg (approximately)

| KEY PARAMETERS      |        |      |
|---------------------|--------|------|
| PARAMETER           | VALUE  | UNIT |
| $I_{F(AV)}$         | 200    | mA   |
| $V_{RRM}$           | 40     | V    |
| $I_{FSM}$           | 0.6    | A    |
| $V_F$ at $I_F=40mA$ | 1      | V    |
| $T_J$ Max.          | 125    | °C   |
| Package             | SOT-23 |      |



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |             |             |          |          |          |      |
|-----------------------------------------------------------------------------|-------------|-------------|----------|----------|----------|------|
| PARAMETER                                                                   | SYMBOL      | BAS40       | BAS40-04 | BAS40-05 | BAS40-06 | UNIT |
| Marking code on the device                                                  |             | 43          | 44       | 45       | 46       |      |
| Repetitive peak reverse voltage                                             | $V_{RRM}$   | 40          |          |          |          | V    |
| Forward current                                                             | $I_{F(AV)}$ | 200         |          |          |          | mA   |
| Non-repetitive peak forward surge current @ $t = 8.3ms$                     | $I_{FSM}$   | 0.6         |          |          |          | A    |
| Junction temperature range                                                  | $T_J$       | -65 to +125 |          |          |          | °C   |
| Storage temperature range                                                   | $T_{STG}$   | -65 to +125 |          |          |          | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                              | SYMBOL          | LIMIT | UNIT |
|----------------------------------------|-----------------|-------|------|
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 357   | °C/W |

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

| PARAMETER                                              | CONDITIONS                                                            | SYMBOL     | MIN | MAX  | UNIT          |
|--------------------------------------------------------|-----------------------------------------------------------------------|------------|-----|------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 1\text{mA}, T_J = 25^\circ\text{C}$                            | $V_F$      | -   | 0.38 | V             |
|                                                        | $I_F = 40\text{mA}, T_J = 25^\circ\text{C}$                           |            |     | 1.00 |               |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $V_R = 30\text{V}, T_J = 25^\circ\text{C}$                            | $I_R$      | -   | 0.2  | $\mu\text{A}$ |
| Reverse Breakdown Voltage                              | $I_R = 10\mu\text{A}$                                                 | $V_{(BR)}$ | 40  | -    | V             |
| Junction capacitance                                   | 1 MHz, $V_R = 1\text{V}$                                              | $C_J$      | -   | 5.0  | pF            |
| Reverse Recovery Time                                  | $I_F = I_R = 10\text{mA}, R_L = 100\Omega$ ,<br>$I_{RR} = 1\text{mA}$ | $t_{rr}$   | -   | 5.0  | ns            |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

**ORDERING INFORMATION**

| PART NO.             | PACKING CODE | PACKING CODE SUFFIX(*) | PACKAGE | PACKING      |
|----------------------|--------------|------------------------|---------|--------------|
| BAS40-XX<br>(Note 1) | RF           | G                      | SOT-23  | 3K / 7" Reel |

**Notes:**

1. "XX" is Device code from "04" to "06".

\*: optional available

**EXAMPLE**

| EXAMPLE P/N  | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|--------------|----------|--------------|---------------------|----------------|
| BAS40-04 RFG | BAS40-04 | RF           | G                   | Green compound |

## CHARACTERISTICS CURVES

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

**Fig. 1 Power Derating Curve**

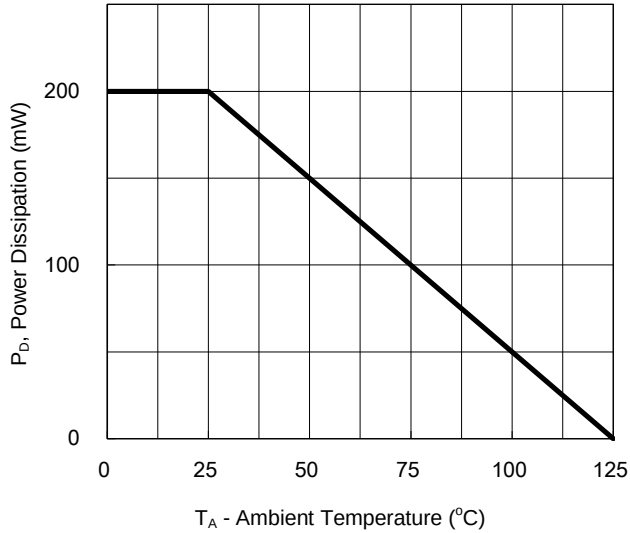


**Fig.2 Maximum Non-Repetitive Peak Forward Surge Current Per Leg**

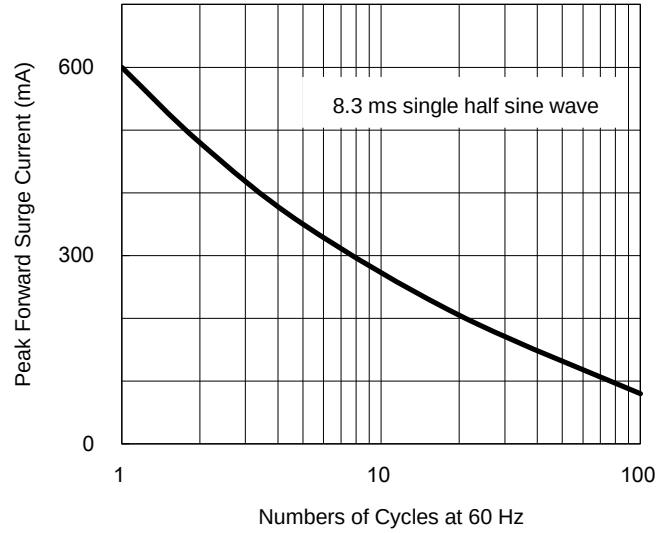


**Fig.3 Typical Forward Characteristics**

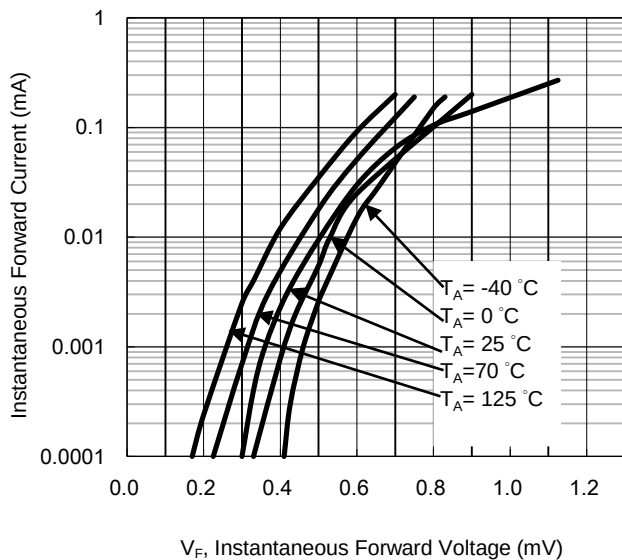
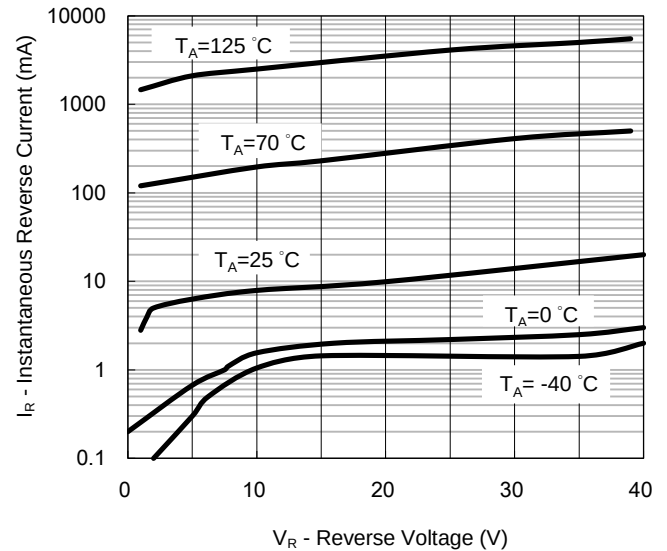


**Fig.4 Typical Reverse Characteristics**



## CHARACTERISTICS CURVES

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

**Fig. 5 Typical Total Capacitance VS. Reverse Voltage**

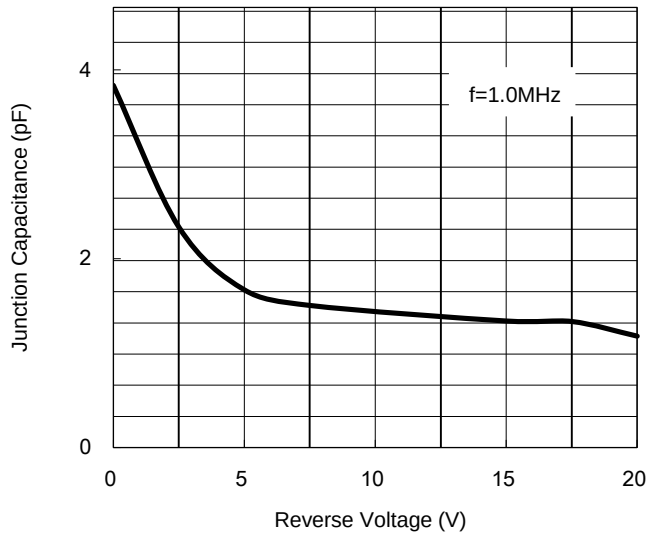
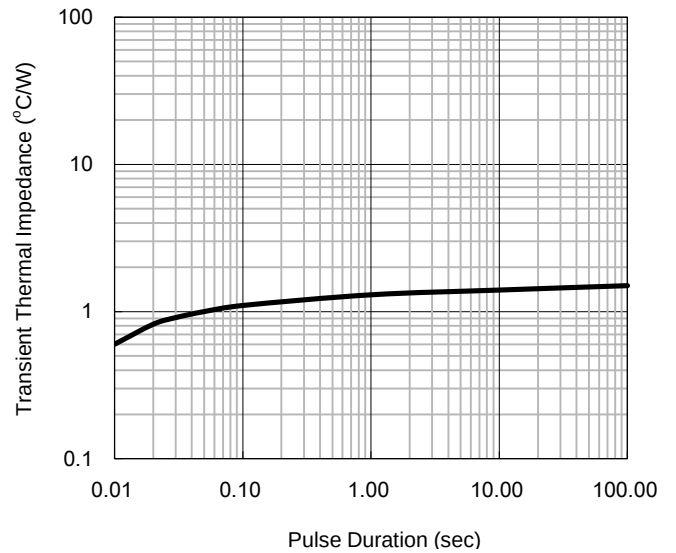
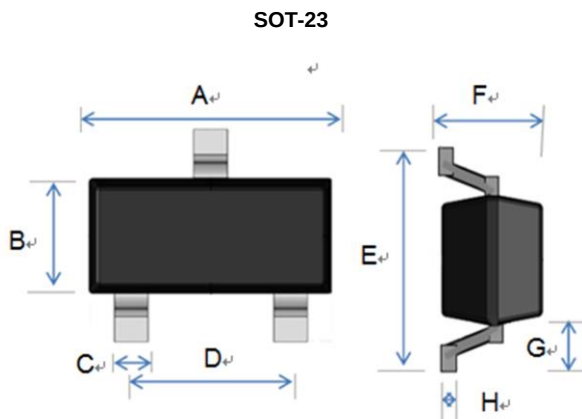


**Fig.6 Typical Transient Thermal Characteristics**

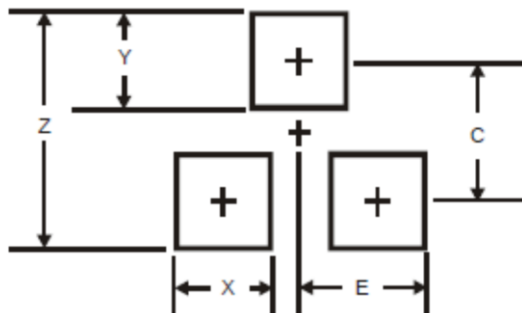


## PACKAGE OUTLINE DIMENSION



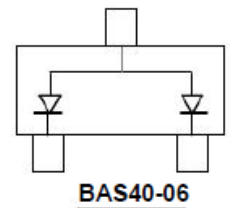
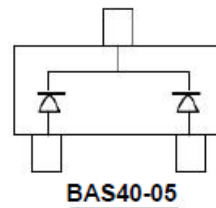
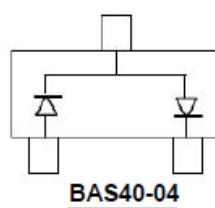
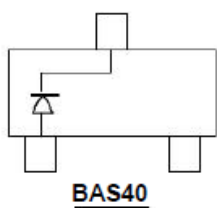
| DIM. | Unit(mm) |      | Unit(inch) |       |
|------|----------|------|------------|-------|
|      | Min      | Max  | Min        | Max   |
| A    | 2.70     | 3.10 | 0.106      | 0.122 |
| B    | 1.10     | 1.50 | 0.043      | 0.059 |
| C    | 0.30     | 0.51 | 0.012      | 0.020 |
| D    | 1.78     | 2.04 | 0.070      | 0.080 |
| E    | 2.10     | 2.64 | 0.083      | 0.104 |
| F    | 0.89     | 1.30 | 0.035      | 0.051 |
| G    | 0.55 REF |      | 0.022 REF  |       |
| H    | 0.10 REF |      | 0.004 REF  |       |

## SUGGEST PAD LAYOUT



| DIM. | Unit(mm) | Unit(inch) |
|------|----------|------------|
|      | TYP      | TYP        |
| Z    | 2.8      | 0.11       |
| X    | 0.7      | 0.03       |
| Y    | 0.9      | 0.04       |
| C    | 1.9      | 0.07       |
| E    | 1.0      | 0.04       |

## PIN CONFIGURATION



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