

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 | $^{\circ}\text{C/W}$ |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) | | | | | |
|---|--|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | MIN | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | $I_F = 1\text{mA}, T_J = 25^{\circ}\text{C}$ | 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 ⁽²⁾ | $V_R = 30\text{V}, T_J = 25^{\circ}\text{C}$ | I_R | - | 0.2 | μA |
| 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 | $I_F = I_R = 10\text{mA}, R_L = 100\Omega,$ $I_{RR} = 1\text{mA}$ | 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 (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

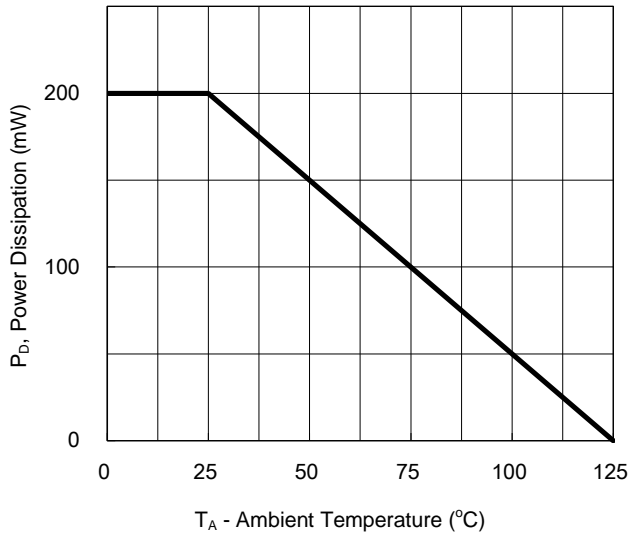


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current Per Leg

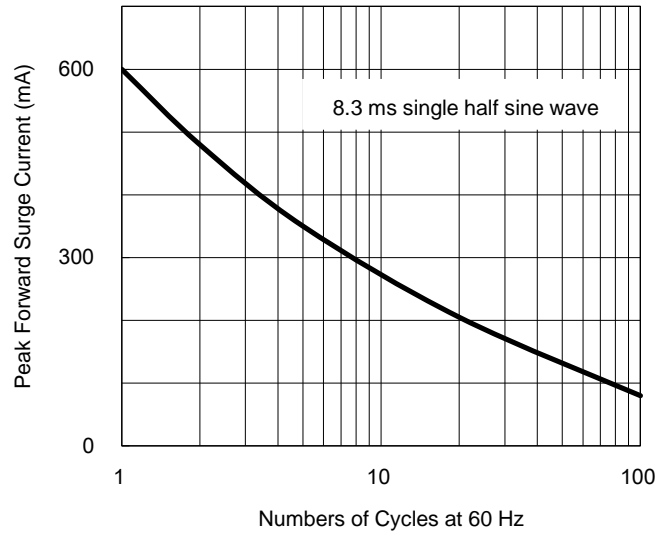


Fig.3 Typical Forward Characteristics

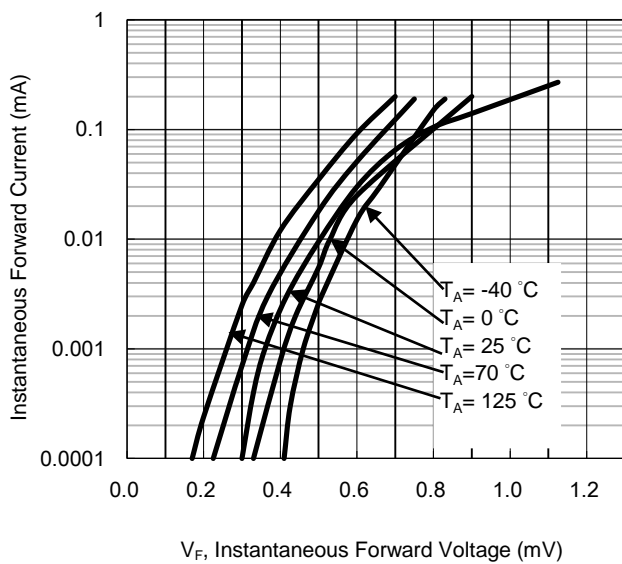
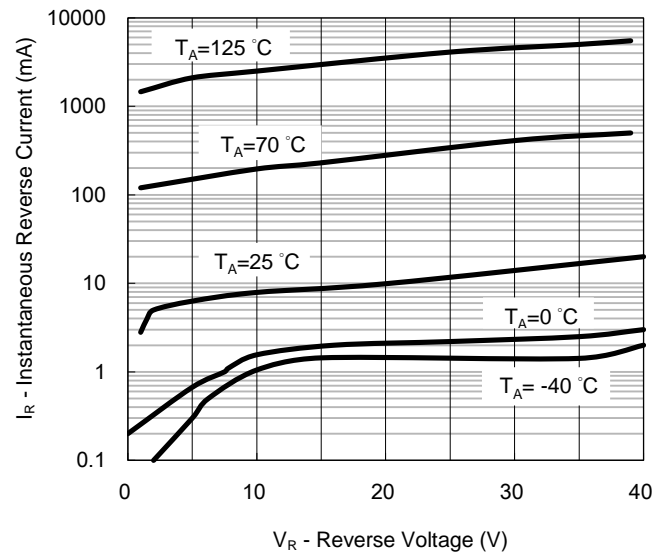


Fig.4 Typical Reverse Characteristics



CHARACTERISTICS CURVES

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

Fig. 5 Typical Total Capacitance VS. Reverse Voltage

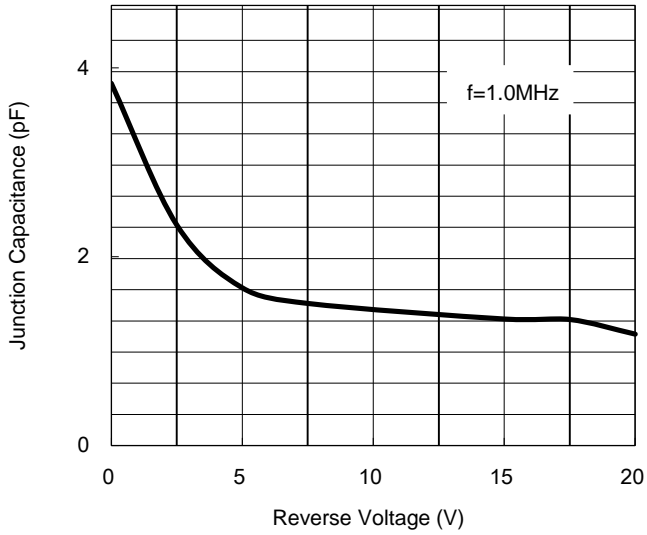
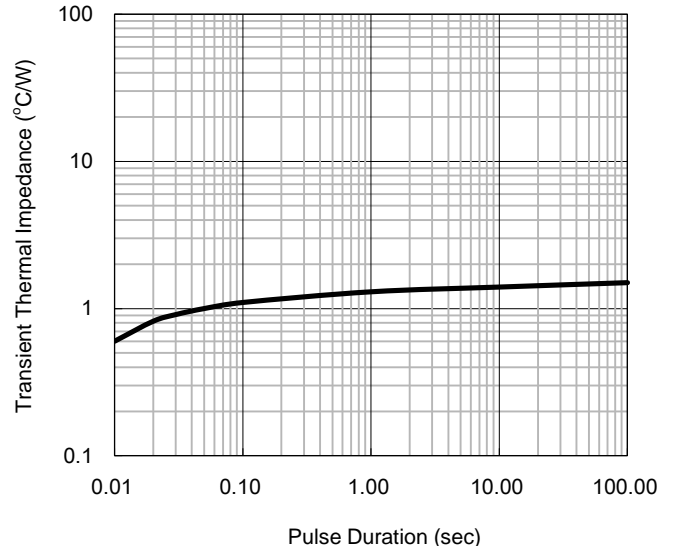
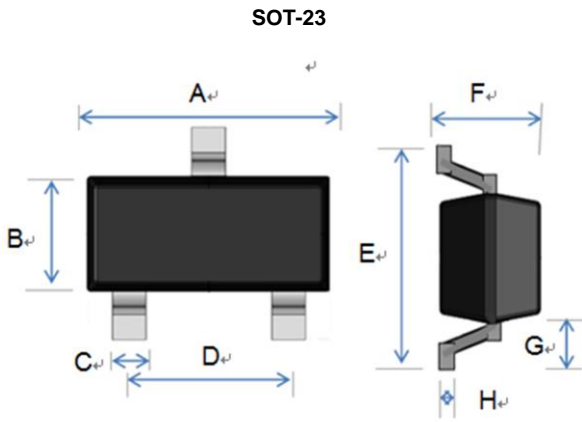


Fig.6 Typical Transient Thermal Characteristics

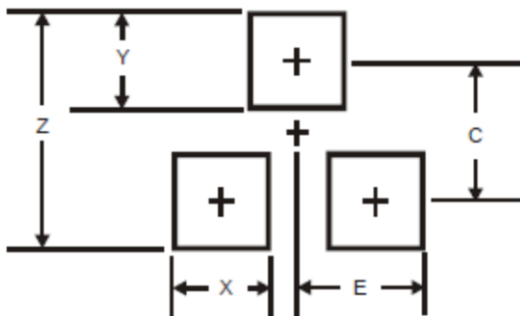


PACKAGE OUTLINE DIMENSION



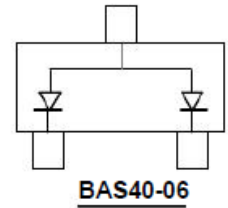
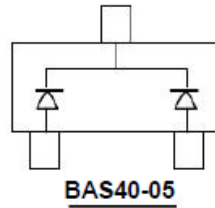
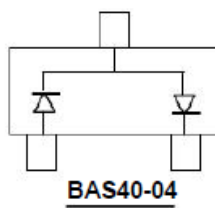
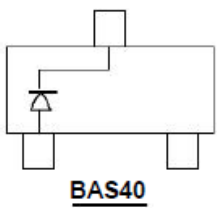
| DIM. | Unit(mm) | | Unit(inch) | |
|------|----------|------|------------|-------|
| | Min | Max | Min | Max |
| A | 2.70 | 3.10 | 0.106 | 0.122 |
| B | 1.10 | 1.50 | 0.043 | 0.059 |
| C | 0.30 | 0.51 | 0.012 | 0.020 |
| D | 1.78 | 2.04 | 0.070 | 0.080 |
| E | 2.10 | 2.64 | 0.083 | 0.104 |
| F | 0.89 | 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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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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