

### ■ Features

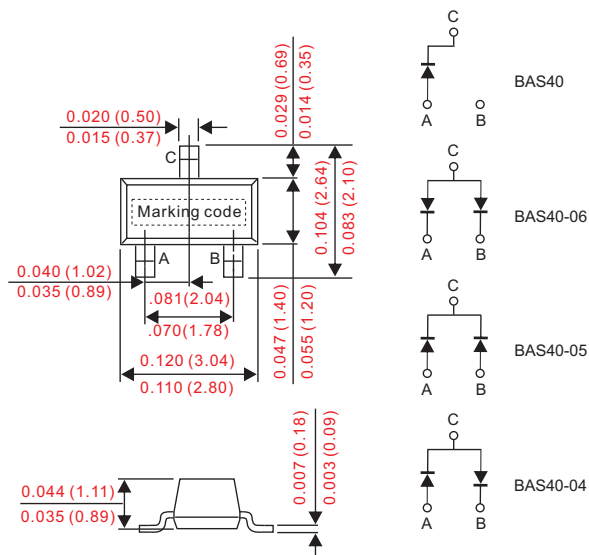
- Low current rectification and high speed switching.
- Small surface mount type.
- Up to 200mA current capability.
- Low forward voltage drop ( $V_F = 1.00V$  typ. @40mA).
- Silicon epitaxial planar chip, metal silicon junction.
- Suffix "G" indicates Halogen-free part, ex. BAS40G.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228

### ■ Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

### ■ Outline

SOT-23



### ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristic                              | Symbol          | BAS40      | BAS40-04 | BAS40-05 | BAS40-06 | UNIT  |
|---------------------------------------------|-----------------|------------|----------|----------|----------|-------|
| Marking code                                |                 | B1         | CB       | 45       | L2       |       |
| Peak Repetitive Reverse Voltage             | $V_{RRM}$       | 40         |          |          |          | V     |
| Working Peak Reverse Voltage                | $V_{RWM}$       |            |          |          |          |       |
| DC Blocking Voltage                         | $V_R$           |            |          |          |          |       |
| Power Dissipation                           | $P_D$           | 150        |          |          |          | mW    |
| Forward Continuous Current                  | $I_F$           | 120        |          |          |          | mA    |
| Junction Temperature                        | $T_J$           | +150       |          |          |          | °C    |
| Storage Temperature                         | $T_{STG}$       | -65 ~ +150 |          |          |          | °C    |
| Operating ambient temperature               | $T_{amb}$       | -65 ~ +150 |          |          |          | °C    |
| Repetitive Peak forward surge current       | $I_{FSM}$       | 120        |          |          |          | mA    |
| Non-repetitive peak forward current         | $I_{FSM}$       | 200        |          |          |          | mA    |
| Thermal resistance from junction to ambient | $R_{\theta JA}$ | 500        |          |          |          | K / W |

| Characteristic    | Symbol | MIN. | TYP. | MAX.                | UNIT |
|-------------------|--------|------|------|---------------------|------|
| Forward Voltage   | $V_F$  |      |      | 0.40<br>0.56<br>1.0 | V    |
| Diode Capacitance | $C_d$  |      |      | 5.0                 | pF   |
| Reverse Current   | $I_R$  |      |      | 1<br>10             | uA   |

## Rating and characteristic curves

FIG.1- Forward current as a function of forward voltage; typical values

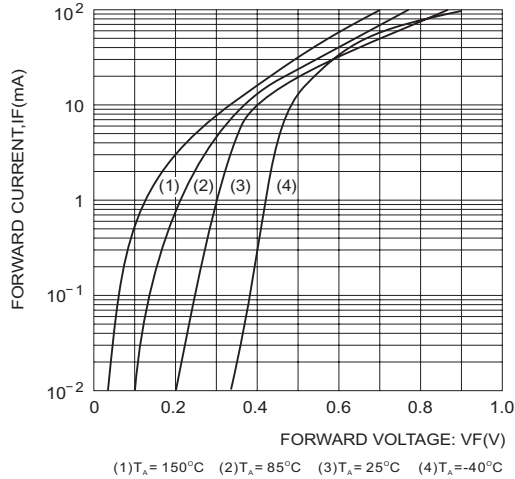


FIG.2- Reverse current as a function of reverse voltage; typical values

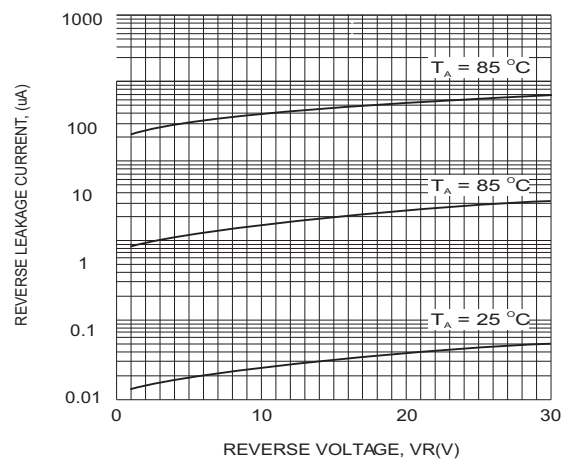


FIG.3- Differential forward resistance as a function of forward current; typical values.

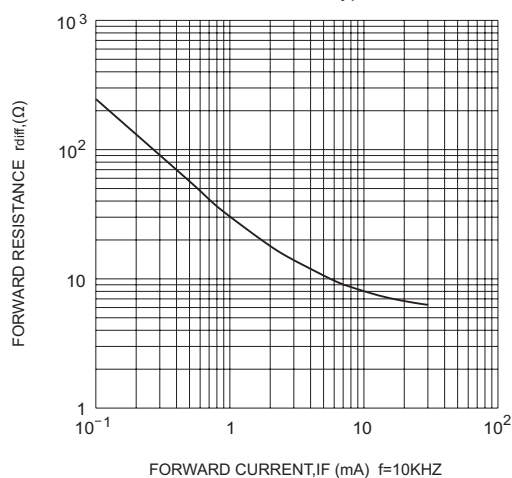
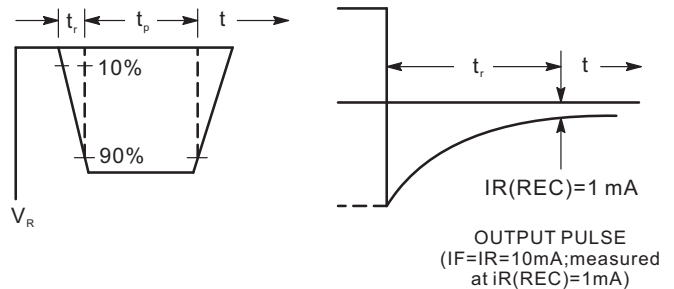
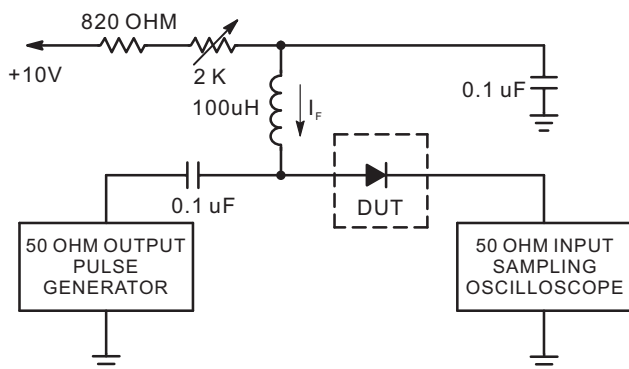
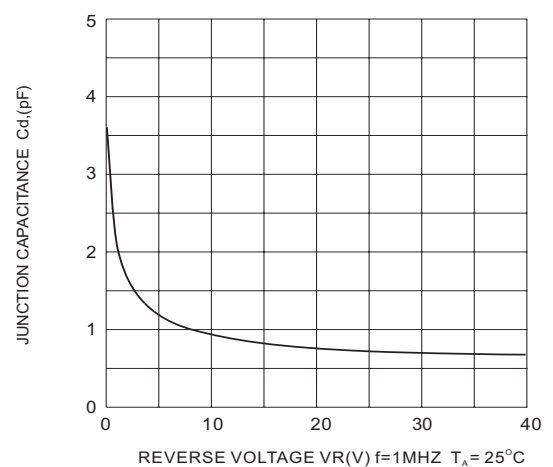


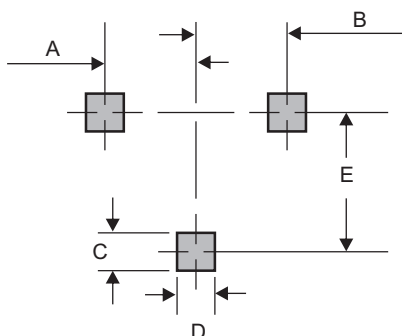
FIG.4 -Diode capacitance as a function of reverse voltage; typical values.



- Notes : 1. A2.0 Kohm variable resistor adjusted for a forward Current ( $I_F$ ) of 10mA.  
2. Input pulse is adjusted so  $I_R(\text{peak})$  is equal to 10 mA.  
3.  $t_p \gg t_{rr}$ .

Recovery Time Equivalent Test Circuit

### ■ SOT-23 foot print



| A            | B            | C            | D            | E            |
|--------------|--------------|--------------|--------------|--------------|
| 0.037 (0.95) | 0.037 (0.95) | 0.035 (0.90) | 0.031 (0.80) | 0.079 (2.00) |

Dimensions in inches and (millimeters)

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