# BAS40 / 04 / 05 / 06

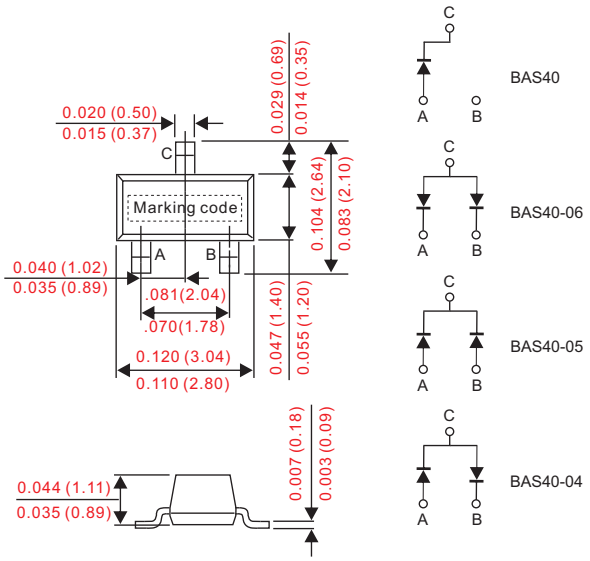
**200mA Surface Mount Small Signal Diodes**

## ■ Features

- Low current rectification and high speed switching.
- Small surface mount type.
- Up to 200mA current capability.
- Low forward voltage drop (VF = 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

## ■ Outline

SOT-23




Dimensions in inches and (millimeters)

## ■ 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

## ■ 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 40 | | | | V |
| Power Dissipation TA = 25°C | $P_D$ | 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 @ $t_P$≤1s;δ≤0.5 | $I_{FSM}$ | 120 | | | | mA |
| Non-repetitive peak forward current @ $t_P$<10ms | $I_{FSM}$ | 200 | | | | mA |
| Thermal resistance from junction to ambient | $R_{\theta JA}$ | 500 | | | | K /W |

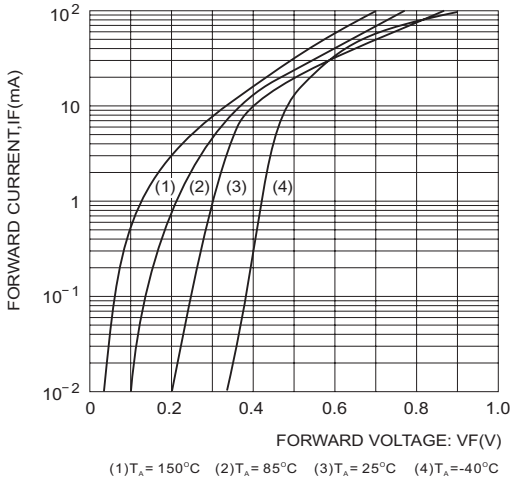
| Characteristic | | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Forward Voltage | $I_F$ = 1mA<br>$I_F$ = 10mA<br>$I_F$ = 40mA | $V_F$ | | | 0.40<br>0.56<br>1.0 | V |
| Diode Capacitance | $V_R$ = 0V, f = 1.0MHz | $C_d$ | | | 5.0 | pF |
| Reverse Current | $V_R$ = 30V<br>$V_R$ = 40V | $I_R$ | | | 1<br>10 | uA |



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## ■ Rating and characteristic curves

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




(1)$T_A$= 150°C (2)$T_A$= 85°C (3)$T_A$= 25°C (4)$T_A$=-40°C

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

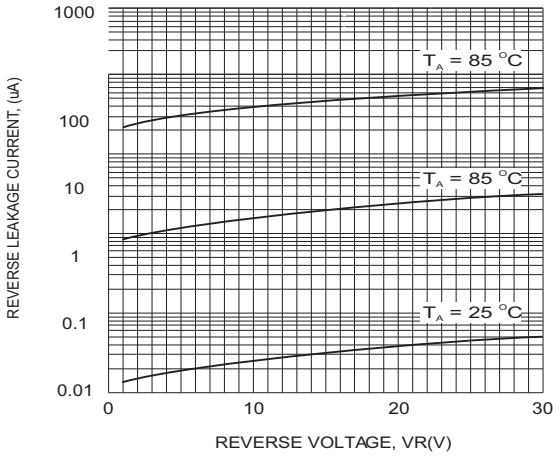



FIG.3- Differential forward resistance as a function of forward current ;typical values.

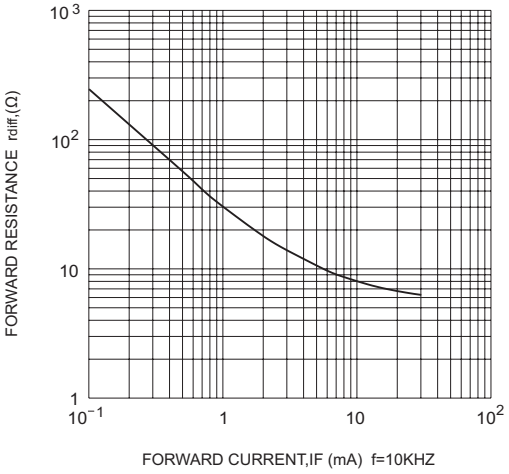
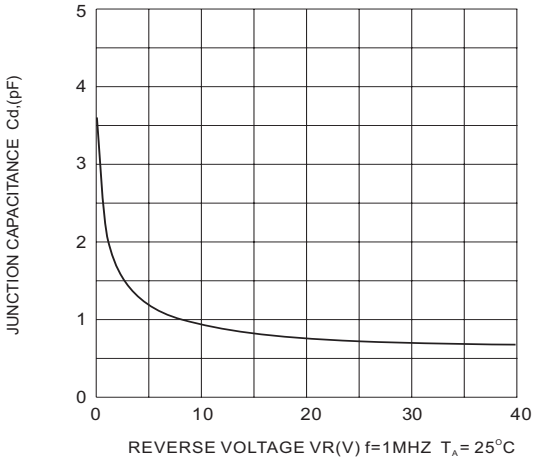
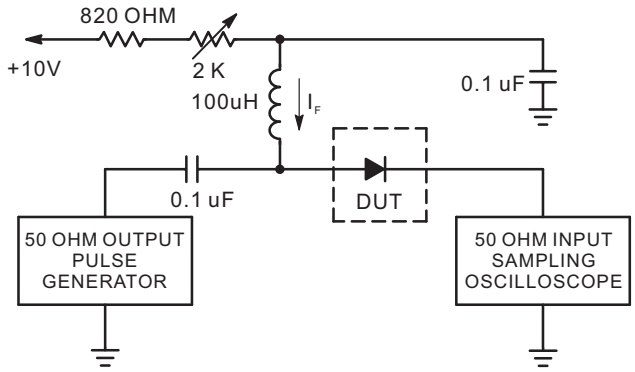
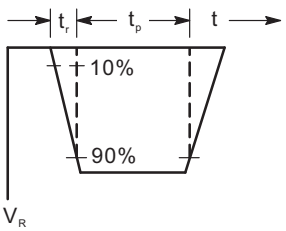
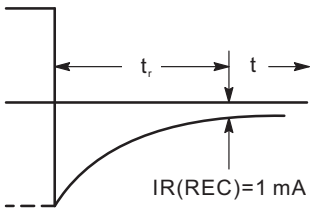



FIG.4 -Diode capacitance as a function of reverse voltage ;typical values.




OUTPUT PULSE
(IF=IR=10mA;measured at iR(REC)=1mA)

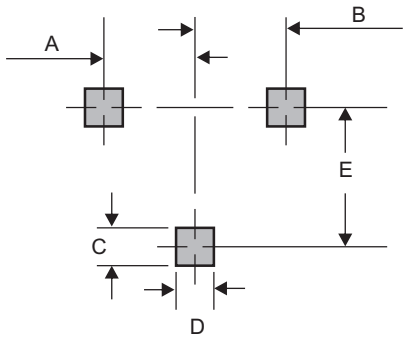
Notes : 1. A2.0 Kohm variable resistor adjusted for a forward Current (IF) of 10mA.
2. Input pulse is adjusted so IR(peak) is equal to 10 mA.
3. tp >> trr.

Recovery Time Equivalent Test Circuit



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■ 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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Add:Rm. 3, 2F., No.32, Taiyuan St., Zhubei City, Hsinchu County 302, Taiwan (R.O.C.)



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