

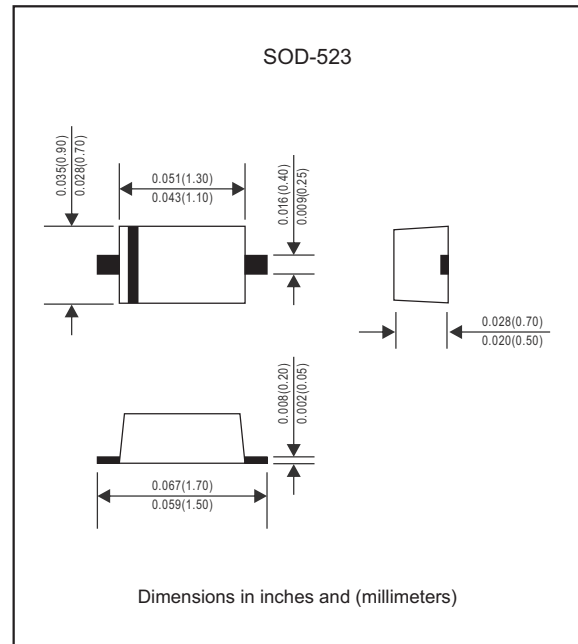
### Features

- Low current rectification and high speed switching
- Small surface mount type
- Up to 200mA current capability
- Low forward voltage drop (0.35V typ. @ $I_F=10\text{mA}$ )
- Silicon epitaxial planar chip, metal silicon junction
- High speed ( $t_{rr} < 5\text{ ns}$ )
- Lead-free parts meet RoHS requirements
- Compliant to Halogen-free

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-523
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

### Package outline



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

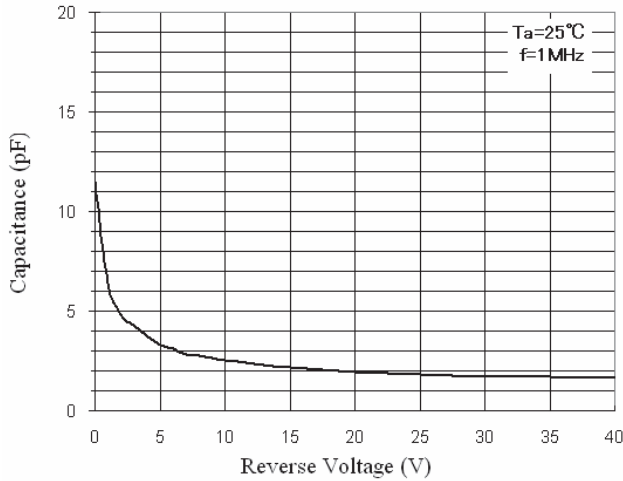
| PARAMETER                            | CONDITIONS                                      | Symbol          | MIN. | TYP. | MAX. | UNIT               |
|--------------------------------------|-------------------------------------------------|-----------------|------|------|------|--------------------|
| Repetitive peak reverse voltage      |                                                 | $V_{RRM}$       |      |      | 30   | V                  |
| Reverse voltage                      |                                                 | $V_R$           |      |      | 30   | V                  |
| Repetitive peak forward current      |                                                 | $I_{FRM}$       |      |      | 300  | mA                 |
| Non-repetitive peak forward current  | $t < 1.0\text{ s}$                              | $I_{FSM}$       |      |      | 600  | mA                 |
| Forward current                      |                                                 | $I_F$           |      |      | 200  | mA                 |
| Power dissipation                    | Mounted on FR-5 board at $T_A=25^\circ\text{C}$ | $P_D$           |      |      | 200  | mW                 |
| Thermal resistance                   | Junction to ambient                             | $R_{\theta JA}$ |      | 635  |      | $^\circ\text{C/W}$ |
| Operating junction temperature range |                                                 | $T_J$           | -55  |      | +125 | $^\circ\text{C}$   |
| Storage temperature range            |                                                 | $T_{STG}$       | -55  |      | +125 | $^\circ\text{C}$   |

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

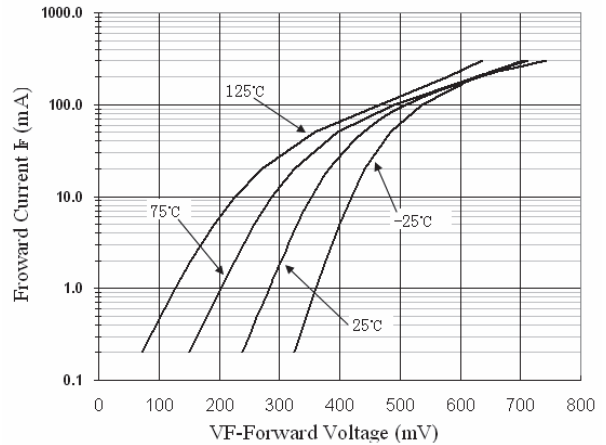
| PARAMETER             | CONDITIONS                                                 | Symbol   | MIN. | TYP.  | MAX.  | UNIT          |
|-----------------------|------------------------------------------------------------|----------|------|-------|-------|---------------|
| Forward voltage       | $I_F = 0.1\text{ mA}$                                      | $V_F$    |      | 0.220 | 0.240 | V             |
|                       | $I_F = 1\text{ mA}$                                        | $V_F$    |      | 0.290 | 0.320 | V             |
|                       | $I_F = 10\text{ mA}$                                       | $V_F$    |      | 0.350 | 0.400 | V             |
|                       | $I_F = 30\text{ mA}$                                       | $V_F$    |      | 0.410 | 0.500 | V             |
|                       | $I_F = 100\text{ mA}$                                      | $V_F$    |      | 0.520 | 1.000 | V             |
| Reverse current       | $V_R = 25\text{ V}$                                        | $I_R$    |      | 0.5   | 2.0   | $\mu\text{A}$ |
| Total capacitance     | $V_R = 1\text{ V}, f = 1\text{ MHz}$                       | $C_T$    |      |       | 10.0  | pF            |
| Reverse recovery time | $I_F = I_R = 10\text{ mAdc}, I_{R(REC)} = 1.0\text{ mAdc}$ | $t_{rr}$ |      |       | 5.0   | ns            |

### Rating and characteristic curves for each diode

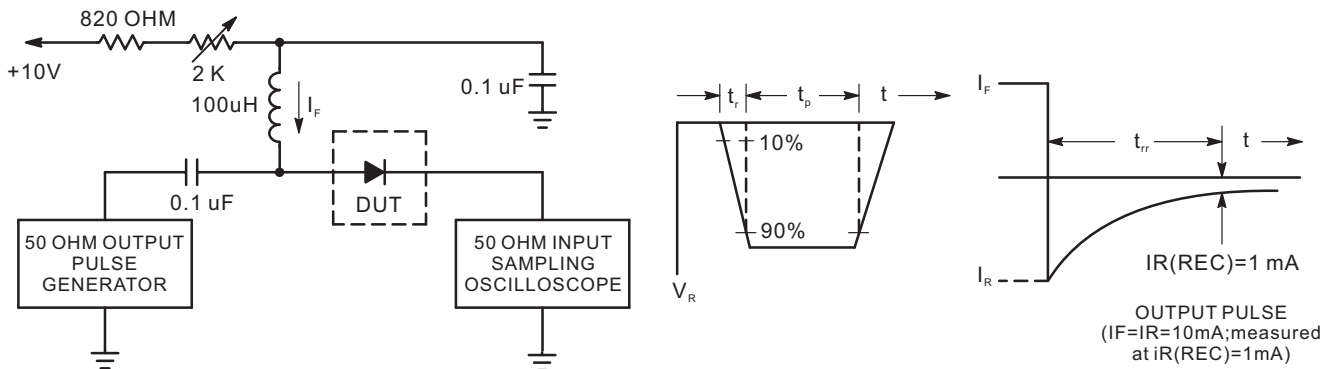
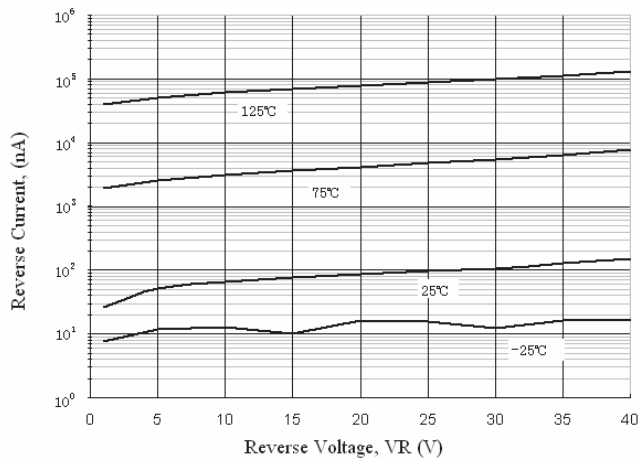
**Total Capacitance**



**Forward Voltage vs Ambient Temperature**





**Reverse Current vs Reverse Voltage**



- 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**

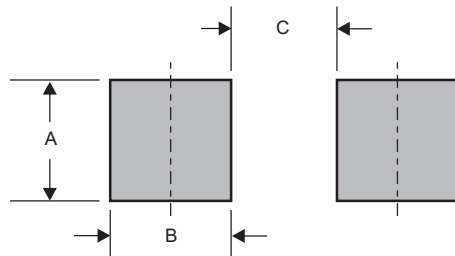
### Pinning information

| Pin                        | Simplified outline                                                                | Symbol                                                                              |
|----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pin1 cathode<br>Pin2 anode |  |  |

### Marking

| Type number | Marking code |
|-------------|--------------|
| BAT54X      | 5B/JV        |

### Suggested solder pad layout



Dimensions in inches and (millimeters)

| PACKAGE | A            | B            | C            |
|---------|--------------|--------------|--------------|
| SOD-523 | 0.032 (0.80) | 0.024 (0.60) | 0.044 (1.10) |