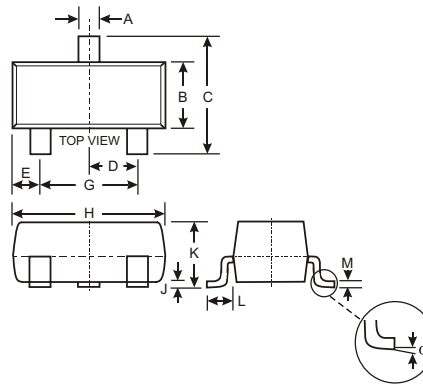


### Features

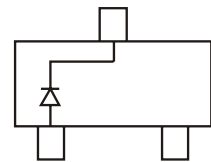
- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring for Transient and ESD Protection
- Available in Lead Free Version

### Mechanical Data

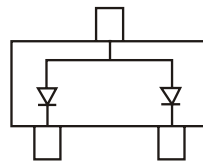
- Case: SOT-23, Molded Plastic
- Case material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please See Ordering Information, Note 4, on Page 3
- Polarity: See Diagrams Below
- Weight: 0.008 grams (approx.)
- Marking Code: See Diagrams Below & Page 3
- Ordering Information: See Page 3



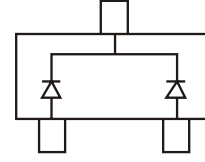
| SOT-23               |       |       |
|----------------------|-------|-------|
| Dim                  | Min   | Max   |
| A                    | 0.37  | 0.51  |
| B                    | 1.20  | 1.40  |
| C                    | 2.30  | 2.50  |
| D                    | 0.89  | 1.03  |
| E                    | 0.45  | 0.60  |
| G                    | 1.78  | 2.05  |
| H                    | 2.80  | 3.00  |
| J                    | 0.013 | 0.10  |
| K                    | 0.903 | 1.10  |
| L                    | 0.45  | 0.61  |
| M                    | 0.085 | 0.180 |
| α                    | 0°    | 8°    |
| All Dimensions in mm |       |       |



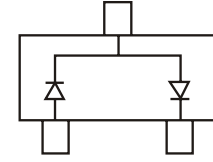
BAT54 Marking: KL1



BAT54A Marking: KL2



BAT54C Marking: KL3



BAT54S Marking: KL4

### Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                                                                         | Symbol                                                 | Value       | Unit |
|----------------------------------------------------------------------------------------|--------------------------------------------------------|-------------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 30          | V    |
| Forward Continuous Current (Note 2)                                                    | I <sub>F</sub>                                         | 200         | mA   |
| Repetitive Peak Forward Current                                                        | I <sub>FRM</sub>                                       | 300         | mA   |
| Forward Surge Current @ t < 1.0s                                                       | I <sub>FSM</sub>                                       | 600         | mA   |
| Power Dissipation (Note 2)                                                             | P <sub>d</sub>                                         | 200         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 2)                                   | R <sub>θJA</sub>                                       | 500         | °C/W |
| Operating and Storage Temperature Range                                                | T <sub>J</sub> , T <sub>STG</sub>                      | -65 to +125 | °C   |

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min | Typ | Max                              | Unit | Test Condition                                                                                                             |
|------------------------------------|--------------------|-----|-----|----------------------------------|------|----------------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 1) | V <sub>(BR)R</sub> | 30  | —   | —                                | V    | I <sub>RS</sub> = 100μA                                                                                                    |
| Forward Voltage (Note 1)           | V <sub>F</sub>     | —   | —   | 240<br>320<br>400<br>500<br>1000 | mV   | I <sub>F</sub> = 0.1mA<br>I <sub>F</sub> = 1mA<br>I <sub>F</sub> = 10mA<br>I <sub>F</sub> = 30mA<br>I <sub>F</sub> = 100mA |
| Reverse Leakage Current (Note 1)   | I <sub>R</sub>     | —   | —   | 2.0                              | μA   | V <sub>R</sub> = 25V                                                                                                       |
| Total Capacitance                  | C <sub>T</sub>     | —   | —   | 10                               | pF   | V <sub>R</sub> = 1.0V, f = 1.0MHz                                                                                          |
| Reverse Recovery Time              | t <sub>rr</sub>    | —   | —   | 5.0                              | ns   | I <sub>F</sub> = 10mA through I <sub>R</sub> = 10mA to I <sub>R</sub> = 1.0mA, R <sub>L</sub> = 100Ω                       |

Notes: 1. Short duration test pulse used to minimize self-heating effect.  
 2. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

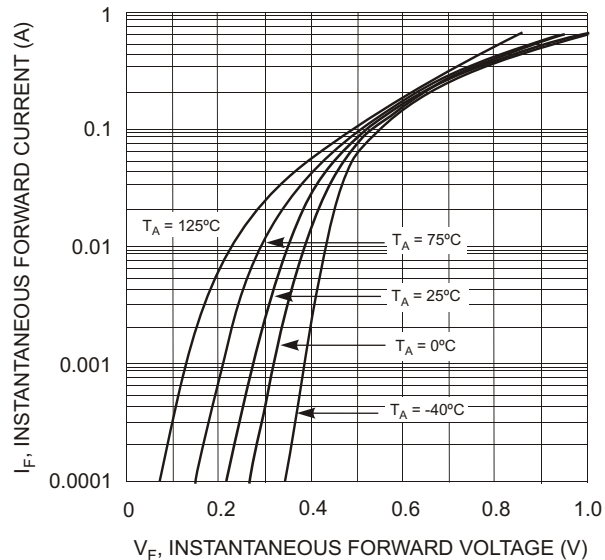


Fig. 1 Forward Characteristics

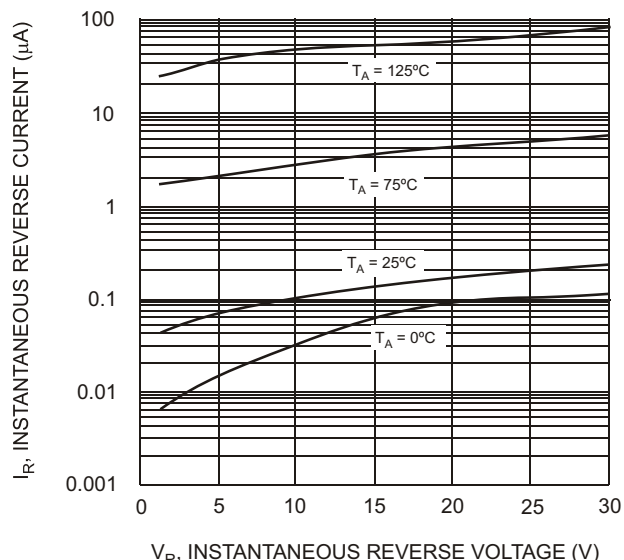


Fig. 2 Typical Reverse Characteristics

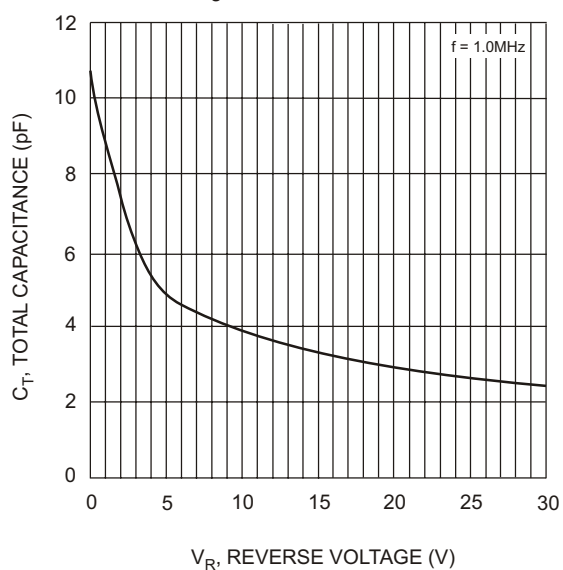


Fig. 3 Typical Capacitance vs. Reverse Voltage

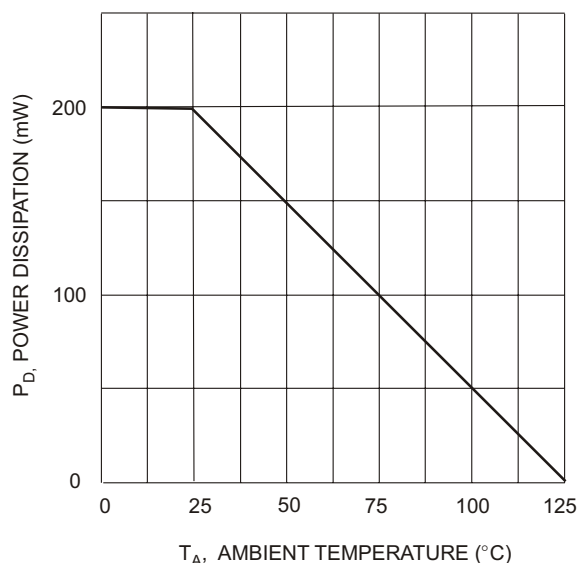
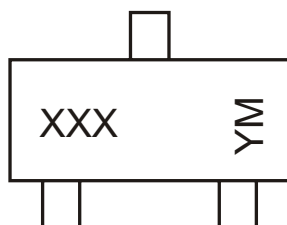


Fig. 4 Power Derating Curve

**Ordering Information** (Notes 3 and 4)

| Device                                      | Packaging | Shipping         |
|---------------------------------------------|-----------|------------------|
| BAT54-7<br>BAT54A-7<br>BAT54C-7<br>BAT54S-7 | SOT-23    | 3000/Tape & Reel |

Notes: 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.  
4. For lead free terminal plating part number, please add "-F" suffix to part number above. Example: BAT54A-7-F.

**Marking Information**

XXX = Product Type Marking Code (See Page 1)  
YM = Date Code Marking  
Y = Year ex: N = 2002  
M = Month ex: 9 = September

## Date Code Key

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | J    | K    | L    | M    | N    | P    | R    | S    | T    | U    | V    | W    |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |