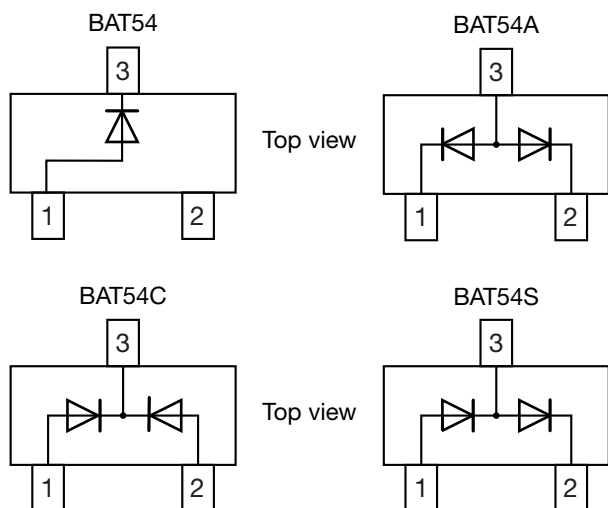
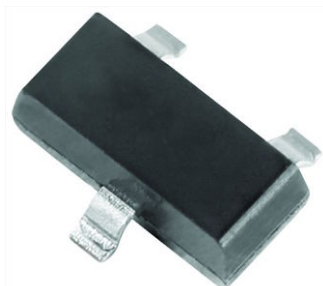


## Small Signal Schottky Diodes, Single and Dual



### FEATURES

- These diodes feature very low turn-on voltage and fast switching
- These devices are protected by a PN junction guarding against excessive voltage, such as electrostatic discharges
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level (MSL) 1
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### MECHANICAL DATA

**Case:** SOT-23

**Weight:** approx. 9.2 mg

**Packaging codes / options:**

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

### LINKS TO ADDITIONAL RESOURCES



3D Models



Models



Marking



Parametric Search



Order Samples

### PARTS TABLE

| PART   | ORDERING CODE   | AEC-Q101 QUALIFIED | TYPE MARKING | CIRCUIT CONFIGURATION | TAPED UNITS PER REEL              | MINIMUM ORDER QUANTITY |
|--------|-----------------|--------------------|--------------|-----------------------|-----------------------------------|------------------------|
| BAT54  | BAT54-E3-08     | no                 | L8           | Single                | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        | BAT54-HE3_A-08  | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54-E3-18     | no                 |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54-HE3_A-18  | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
| BAT54A | BAT54A-E3-08    | no                 | L46          | Common anode          | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        | BAT54A-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54A-E3-18    | no                 |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54A-HE3_A-18 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
| BAT54C | BAT54C-E3-08    | no                 | L47          | Common cathode        | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        | BAT54C-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54C-E3-18    | no                 |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54C-HE3_A-18 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
| BAT54S | BAT54S-E3-08    | no                 | L48          | Dual serial           | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        | BAT54S-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54S-E3-18    | no                 |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        | BAT54S-HE3_A-18 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |

**PACKAGE**

| PACKAGE NAME | WEIGHT | MOLDING COMPOUND<br>FLAMMABILITY RATING | MOISTURE SENSITIVITY<br>LEVEL  | SOLDERING CONDITIONS         |
|--------------|--------|-----------------------------------------|--------------------------------|------------------------------|
| SOT-23       | 9.2 mg | UL 94 V-0                               | MSL 1<br>(according J-STD-020) | Peak temperature max. 260 °C |

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER                                      | TEST CONDITION                                     | SYMBOL                    | VALUE | UNIT |
|------------------------------------------------|----------------------------------------------------|---------------------------|-------|------|
| Repetitive peak reverse voltage                |                                                    | $V_{RRM} = V_{RWM} = V_R$ | 30    | V    |
| Forward continuous current <sup>(1)</sup>      |                                                    | $I_F$                     | 200   | mA   |
| Repetitive peak forward current <sup>(1)</sup> |                                                    | $I_{FRM}$                 | 300   | mA   |
| Surge forward current <sup>(1)</sup>           | $t_p < 1\text{ s}$                                 | $I_{FSM}$                 | 600   | mA   |
| Power dissipation                              | on FR-4 board with recommended soldering footprint | $P_{tot}$                 | 230   | mW   |
|                                                | Infinite heatsink                                  |                           | 330   | mW   |

**Note**<sup>(1)</sup> Infinite heatsink**THERMAL CHARACTERISTICS** ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER                                  | TEST CONDITION                                                              | SYMBOL     | VALUE       | UNIT |
|--------------------------------------------|-----------------------------------------------------------------------------|------------|-------------|------|
| Thermal resistance junction to ambient air | according to JEDEC® 51-3 on FR-4 board with recommended soldering footprint | $R_{thJA}$ | 430         | K/W  |
| Thermal resistance junction lead           | Infinite heatsink                                                           | $R_{thJL}$ | 300         | K/W  |
| Junction temperature                       |                                                                             | $T_j$      | 125         | °C   |
| Storage temperature range                  |                                                                             | $T_{stg}$  | -65 to +150 | °C   |
| Operating temperature range                |                                                                             | $T_{op}$   | -55 to +125 | °C   |

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

| PARAMETER                      | TEST CONDITION                                                                  | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------|---------------------------------------------------------------------------------|----------|------|------|------|---------------|
| Reverse breakdown voltage      | $I_R = 100\text{ }\mu\text{A}$ (pulsed)                                         | $V_{BR}$ | 30   |      |      | V             |
| Leakage current <sup>(1)</sup> | at $V_R = 25\text{ V}$                                                          | $I_R$    |      |      | 2    | $\mu\text{A}$ |
| Forward voltage <sup>(1)</sup> | $I_F = 0.1\text{ mA}$                                                           | $V_F$    |      |      | 240  | mV            |
|                                | $I_F = 1\text{ mA}$                                                             | $V_F$    |      |      | 320  | mV            |
|                                | $I_F = 10\text{ mA}$                                                            | $V_F$    |      |      | 400  | mV            |
|                                | $I_F = 30\text{ mA}$                                                            | $V_F$    |      |      | 500  | mV            |
|                                | $I_F = 100\text{ mA}$                                                           | $V_F$    |      |      | 800  | mV            |
| Diode capacitance              | $V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$                                         | $C_D$    |      |      | 10   | pF            |
| Reverse recovery time          | $I_F = I_R = 10\text{ mA}$ ,<br>$i_R = 1\text{ mA}$ , $R_L = 100\text{ }\Omega$ | $t_{rr}$ |      |      | 5    | ns            |

**Note**<sup>(1)</sup> Pulse test;  $t_p \leq 300\text{ }\mu\text{s}$ , duty cycle  $t_p/T < 0.02$



## TYPICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

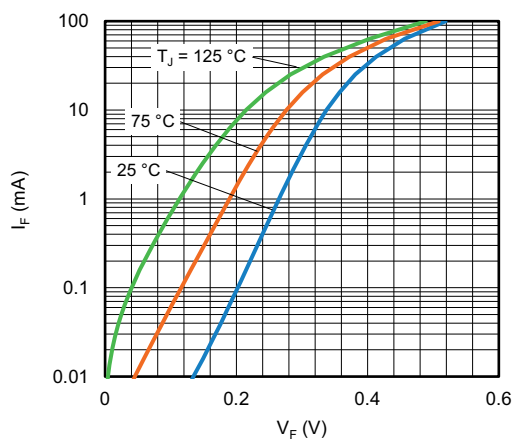


Fig. 1 - Typical Forward Current vs. Forward Voltage

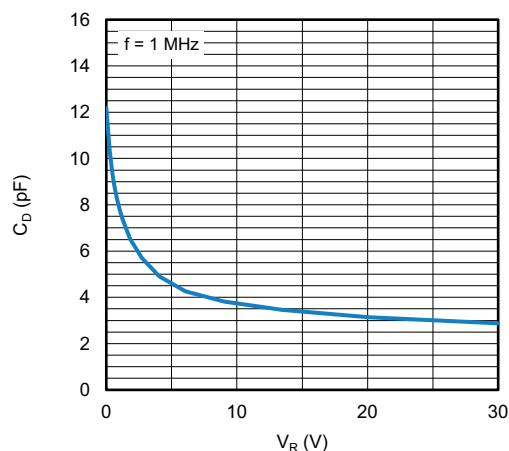


Fig. 3 - Typical Capacitance vs. Reverse Voltage

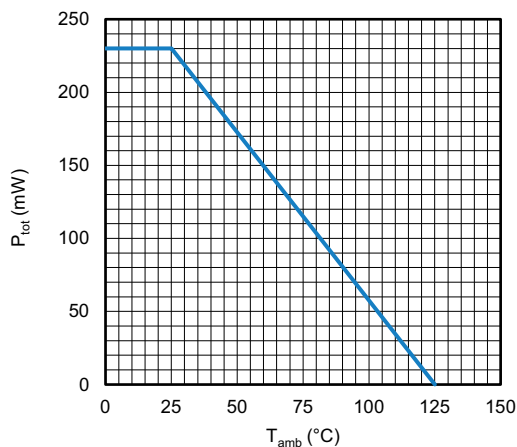


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

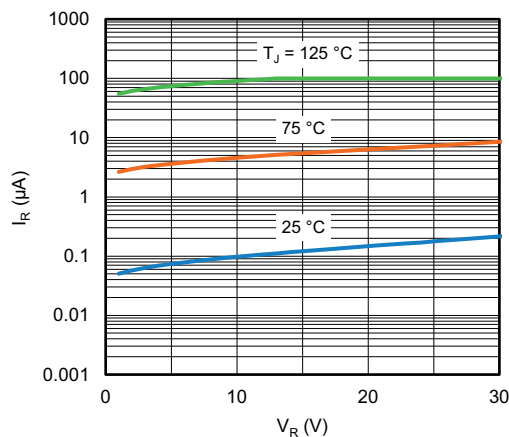
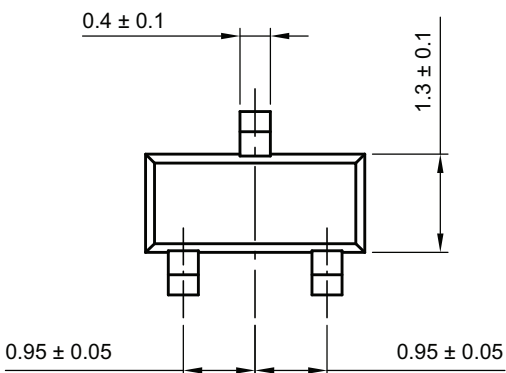
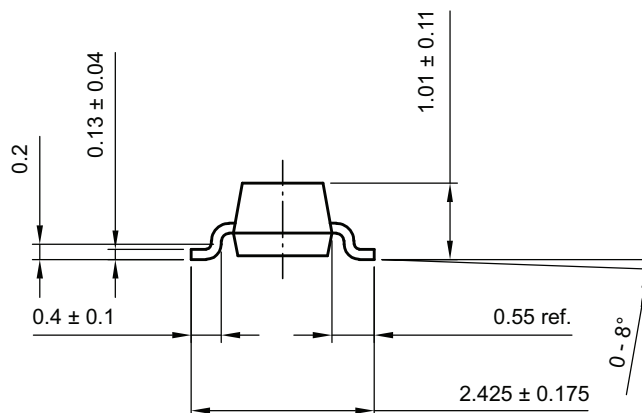
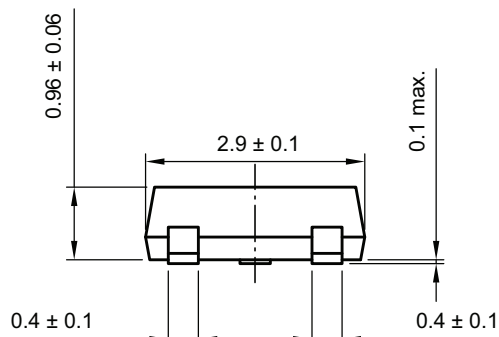


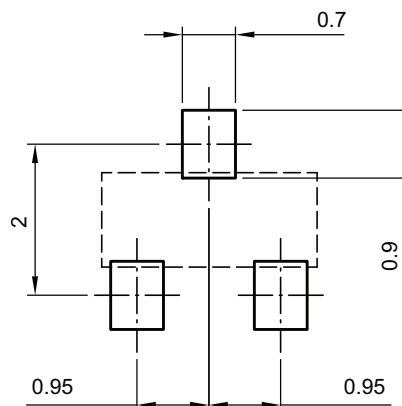
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



## PACKAGE DIMENSIONS in millimeters: SOT-23



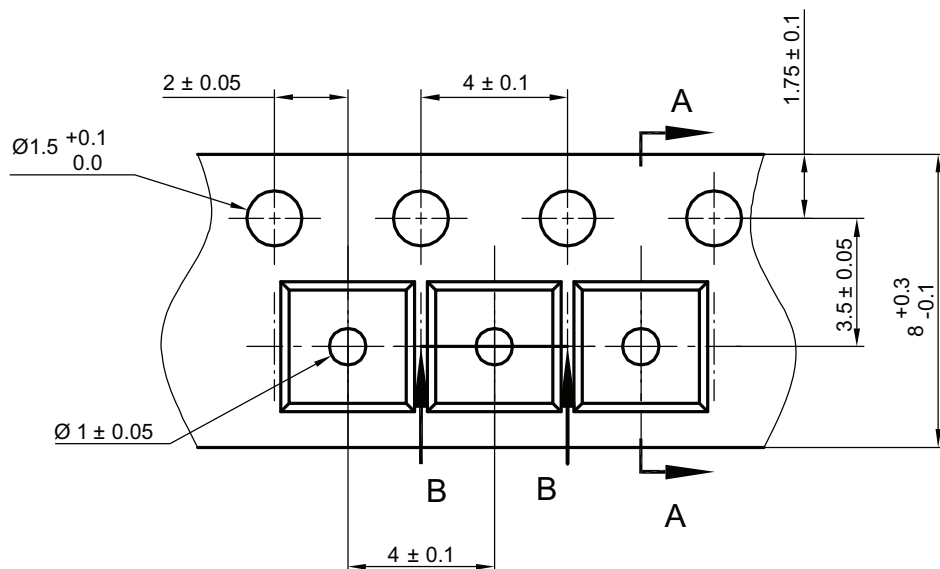
footprint recommendation:



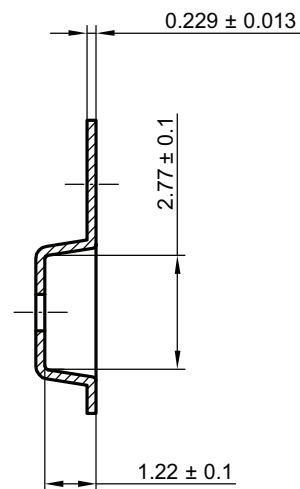
Created - Date: 18-Oct-2021  
Rev. 01 - Date: 18-Jan-2022  
S8-V-3929.01-009 (4)



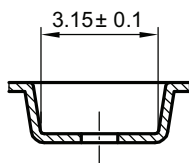
**CARRIER TAPE SOT-23**



A-A Section

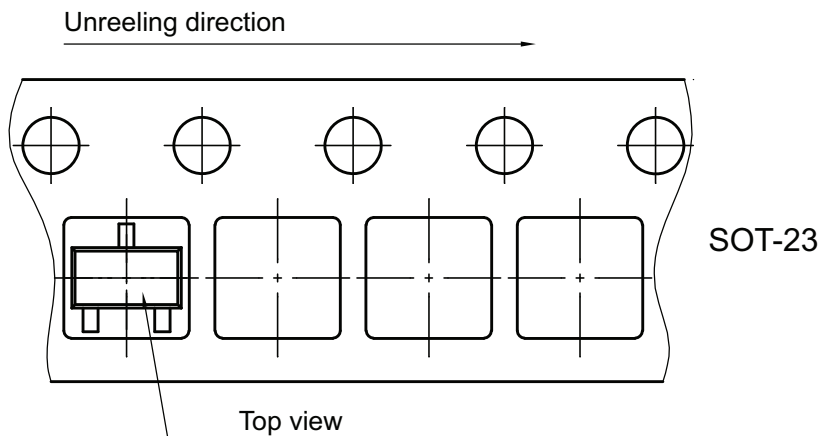


B-B Section



Created Date: 04-Feb-2010  
Rev. Date: 07-Feb-2022

**ORIENTATION IN CARRIER TAPE SOT-23**



Created Date: 04-Feb-2010  
Rev. Date: 07-Nov-2022



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