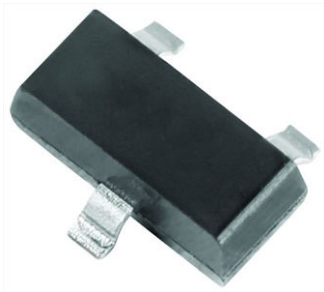
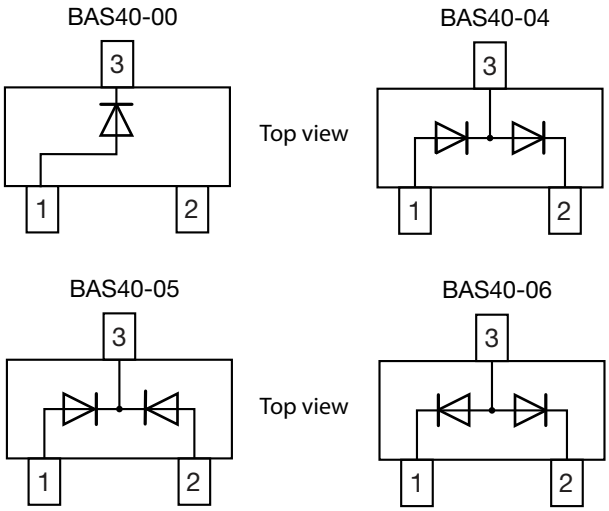
# Small Signal Schottky Diodes, Single and Dual






## FEATURES

- These diodes feature very low turn-on voltage and fast switching
- These devices are protected by a PN junction guardring 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

AUTOMOTIVE GRADE Available

Pb-free

e3

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 |
|---|---|---|---|---|---|---|
| BAS40-00 | BAS40-00-E3-08 | no | 43G | Single | 3 000 (8 mm tape on 7” reel) | 15 000 |
| | BAS40-00-HE3_A-08 | yes | | | | |
| | BAS40-00-E3-18 | no | | | 10 000 (8 mm tape on 13” reel) | 10 000 |
| | BAS40-00-HE3_A-18 | yes | | | | |
| BAS40-04 | BAS40-04-E3-08 | no | 44G | Dual serial | 3 000 (8 mm tape on 7” reel) | 15 000 |
| | BAS40-04-HE3_A-08 | yes | | | | |
| | BAS40-04-E3-18 | no | | | 10 000 (8 mm tape on 13” reel) | 10 000 |
| | BAS40-04-HE3_A-18 | yes | | | | |
| BAS40-05 | BAS40-05-E3-08 | no | 45G | Common cathode | 3 000 (8 mm tape on 7” reel) | 15 000 |
| | BAS40-05-HE3_A-08 | yes | | | | |
| | BAS40-05-E3-18 | no | | | 10 000 (8 mm tape on 13” reel) | 10 000 |
| | BAS40-05-HE3_A-18 | yes | | | | |
| BAS40-06 | BAS40-06-E3-08 | no | 46G | Common anode | 3 000 (8 mm tape on 7” reel) | 15 000 |
| | BAS40-06-HE3_A-08 | yes | | | | |
| | BAS40-06-E3-18 | no | | | 10 000 (8 mm tape on 13” reel) | 10 000 |
| | BAS40-06-HE3_A-18 | yes | | | | |

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

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

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Repetitive peak reverse voltage | | $V_{RRM} = V_{RWM} = V_R$ | 40 | V |
| Forward continuous current (1) | | $I_F$ | 200 | mA |
| Surge forward current (1) | $t_p < 1$ s | $I_{FSM}$ | 600 | mA |
| Power dissipation | on FR-4 board with recommended soldering footprint | $P_{tot}$ | 220 | mW |
| | Infinite heatsink | | 310 | mW |

**Note**
(1) Infinite heatsink

**THERMAL CHARACTERISTICS** ($T_{amb}$ = 25 °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 | $R_{thJA}$ | 460 | K/W |
| Thermal resistance junction lead | Infinite heatsink | $R_{thJL}$ | 320 | K/W |
| Maximum 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 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Reverse breakdown voltage | $I_R$ = 10 µA (pulsed) | $V_{BR}$ | 40 | | | V |
| Leakage current | $V_R$ = 30 V | $I_R$ | | 20 | 100 | nA |
| Forward voltage | $I_F$ = 1 mA | $V_F$ | | | 380 | mV |
| Forward voltage (1) | $I_F$ = 50 mA | $V_F$ | | | 1 | V |
| Diode capacitance | $V_R$ = 0; f = 1 MHz | $C_D$ | | 2.5 | 5 | pF |
| Reverse recovery time | $I_F = I_R$ = 10 mA, $i_R$ = 1 mA, $R_L$ = 100 Ω | $t_{rr}$ | | | 5 | ns |

**Note**
(1) Pulse test $t_p < 300\mu s$

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

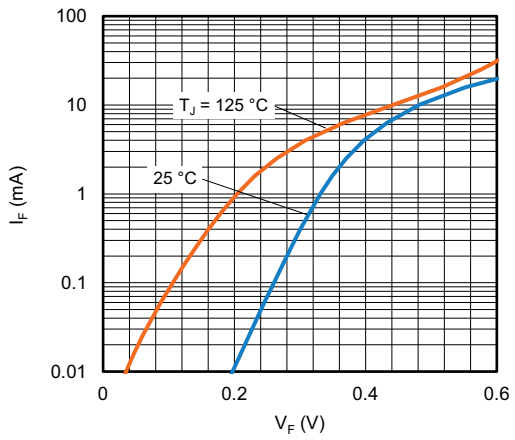



Fig. 1 - Typical Forward Current vs. Forward Voltage

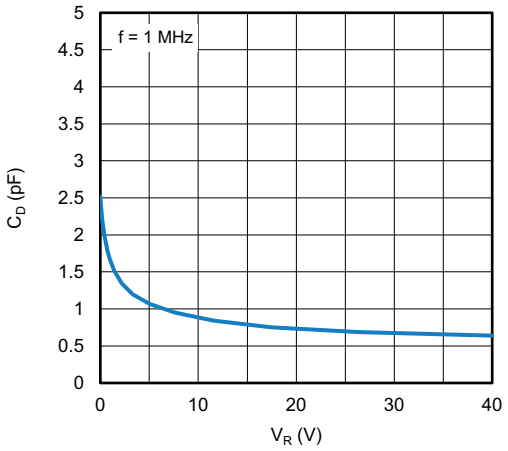



Fig. 3 - Typical Capacitance vs. Reverse Voltage

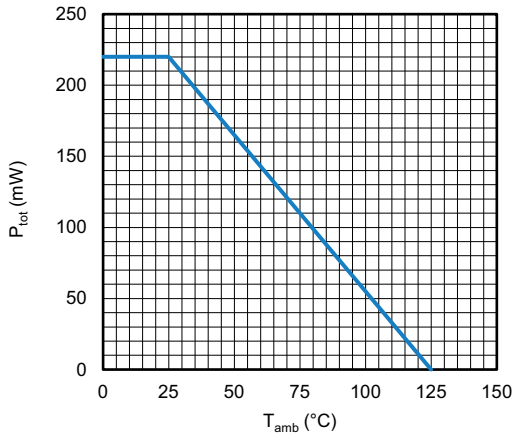



Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

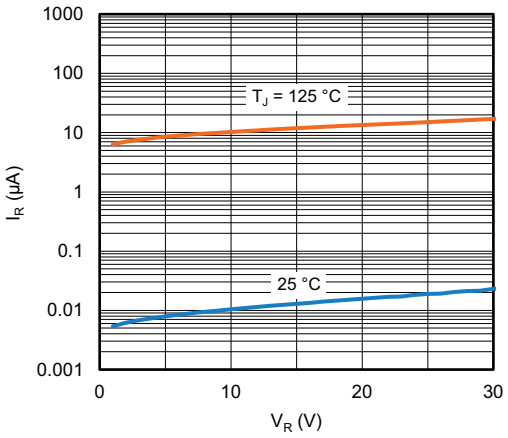
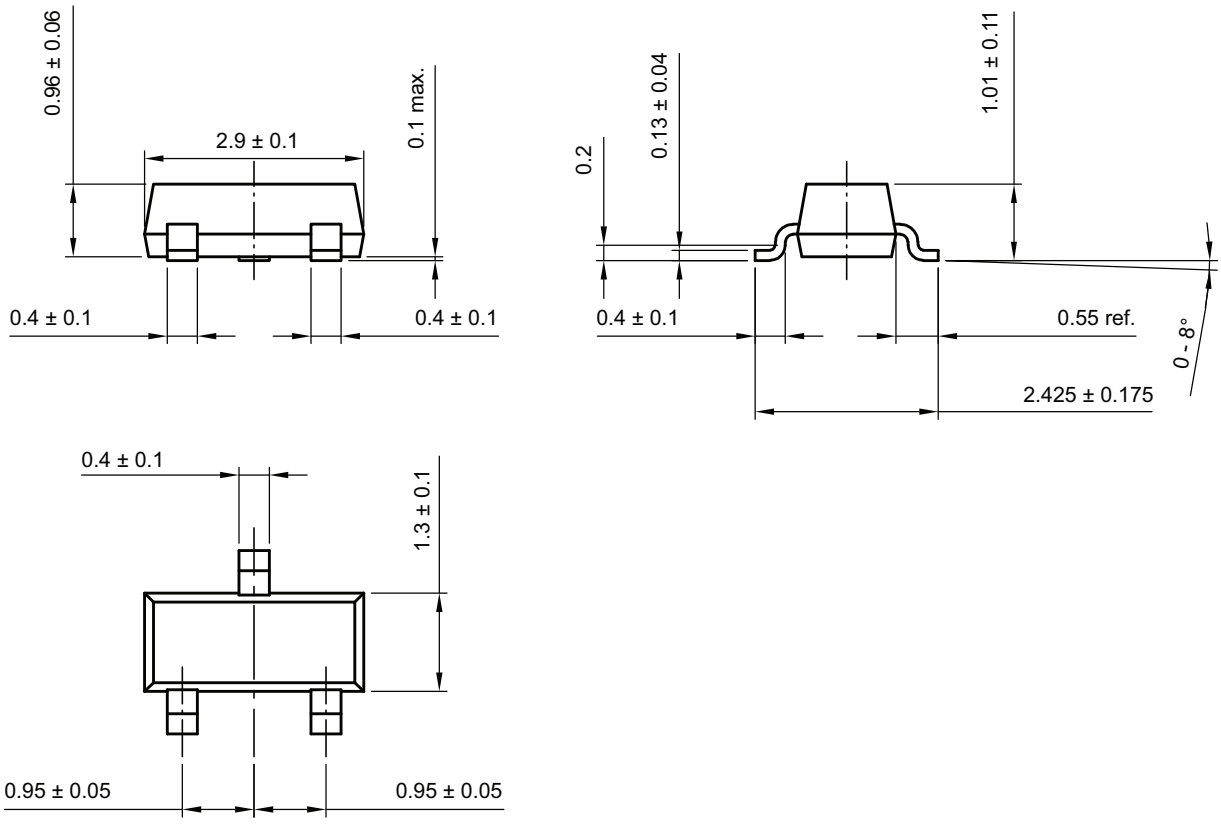
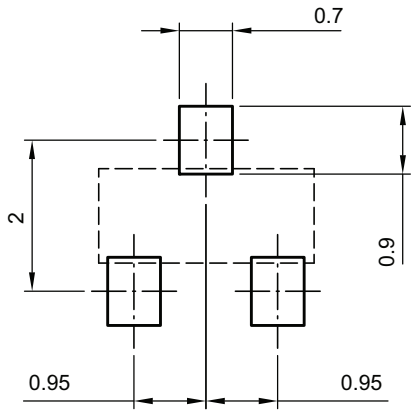



Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

**PACKAGE DIMENSIONS** in millimeters: **SOT-23**




footprint recommendation:

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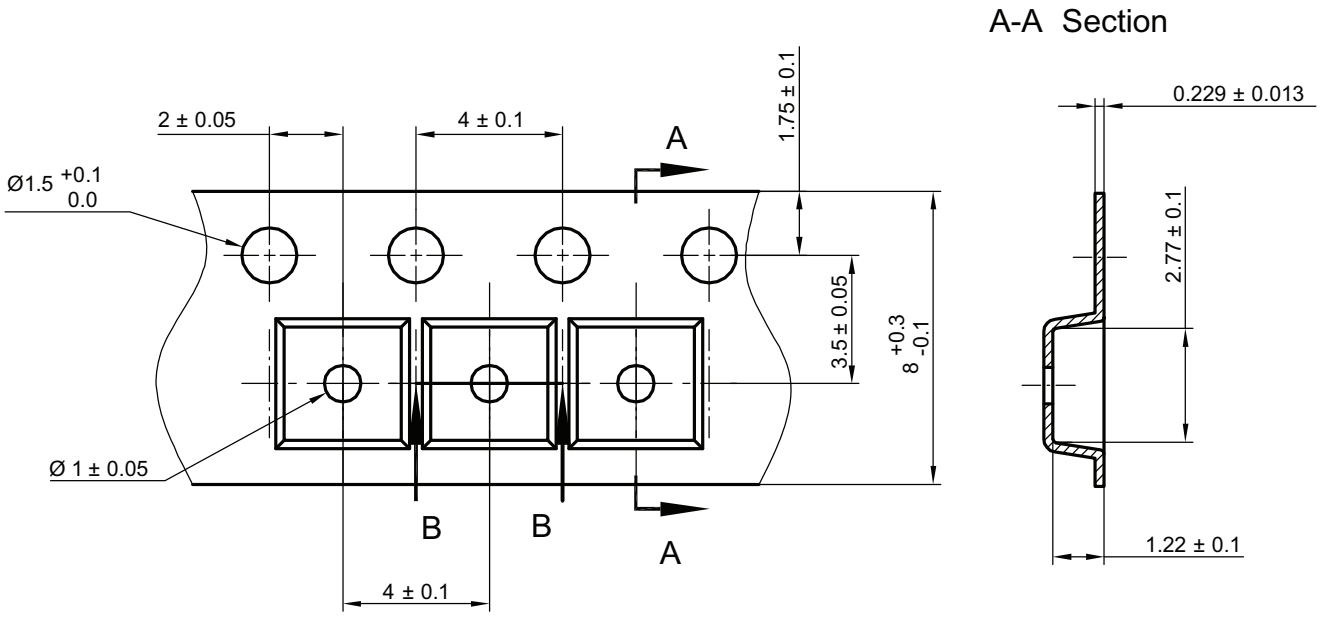
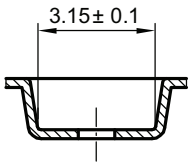
## CARRIER TAPE SOT-23




B-B Section

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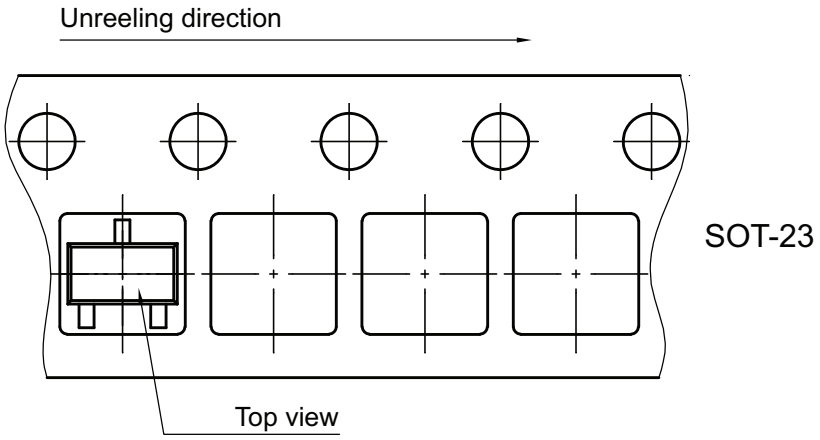
## ORIENTATION IN CARRIER TAPE SOT-23

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