



## Small Signal Schottky Diode



## FEATURES

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Very low switching time
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## LINKS TO ADDITIONAL RESOURCES



## MECHANICAL DATA

**Case:** DO-35 (DO-204AH)

**Weight:** approx. 125 mg

**Cathode band color:** black

**Packaging codes/options:**

TR/10K per 13" reel (52 mm tape), 50K/box

TAP/10K per ammpack (52 mm tape), 50K/box

## APPLICATIONS

- General purpose and switching Schottky barrier diode
- HF-detector
- Protection circuit
- Diode for low currents with a low supply voltage
- Small battery charger
- Power supplies
- DC/DC converter for notebooks

## PARTS TABLE

| PART   | TYPE DIFFERENTIATION | ORDERING CODE           | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS               |
|--------|----------------------|-------------------------|-----------------------|--------------|-----------------------|
| BAT81S | $V_R = 40\text{ V}$  | BAT81S-TR or BAT81S-TAP | Single                | BAT81S       | Tape and reel/ammpack |
| BAT82S | $V_R = 50\text{ V}$  | BAT82S-TR or BAT82S-TAP | Single                | BAT82S       | Tape and reel/ammpack |
| BAT83S | $V_R = 60\text{ V}$  | BAT83S-TR or BAT83S-TAP | Single                | BAT83S       | Tape and reel/ammpack |

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

| PARAMETER                       | TEST CONDITION          | PART   | SYMBOL    | VALUE | UNIT |
|---------------------------------|-------------------------|--------|-----------|-------|------|
| Reverse voltage                 |                         | BAT81S | $V_R$     | 40    | V    |
|                                 |                         | BAT82S | $V_R$     | 50    | V    |
|                                 |                         | BAT83S | $V_R$     | 60    | V    |
| Forward continuous current      |                         |        | $I_F$     | 30    | mA   |
| Peak forward surge current      | $t_p \leq 10\text{ ms}$ |        | $I_{FSM}$ | 500   | mA   |
| Repetitive peak forward current | $t_p \leq 1\text{ s}$   |        | $I_{FRM}$ | 150   | mA   |

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

| PARAMETER                                  | TEST CONDITION                              | SYMBOL     | VALUE       | UNIT               |
|--------------------------------------------|---------------------------------------------|------------|-------------|--------------------|
| Thermal resistance junction to ambient air | $l = 4\text{ mm}$ , $T_L = \text{constant}$ | $R_{thJA}$ | 320         | K/W                |
| Junction temperature                       |                                             | $T_j$      | 125         | $^{\circ}\text{C}$ |
| Storage temperature range                  |                                             | $T_{stg}$  | -65 to +150 | $^{\circ}\text{C}$ |

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

| PARAMETER         | TEST CONDITION                          | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-------------------|-----------------------------------------|--------|------|------|------|------|
| Forward voltage   | $I_F = 0.1\text{ mA}$                   | $V_F$  |      |      | 330  | mV   |
|                   | $I_F = 1\text{ mA}$                     | $V_F$  |      |      | 410  | mV   |
|                   | $I_F = 15\text{ mA}$                    | $V_F$  |      |      | 1000 | mV   |
| Reverse current   | $V_R = V_{Rmax.}$                       | $I_R$  |      |      | 200  | nA   |
| Diode capacitance | $V_R = 1\text{ V}$ , $f = 1\text{ MHz}$ | $C_D$  |      |      | 1.6  | pF   |

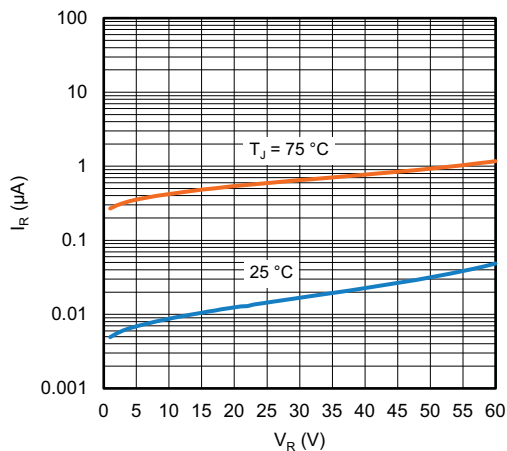
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Reverse Leakage Current vs. Reverse Voltage

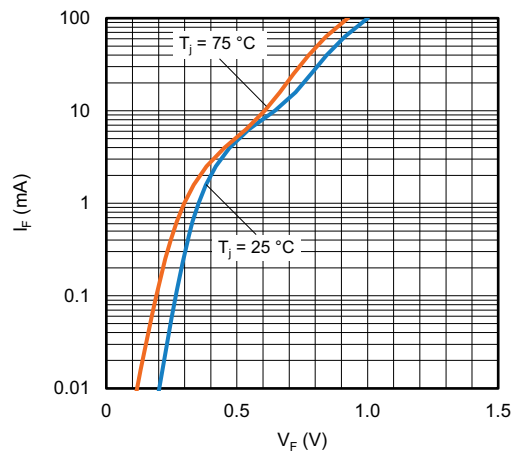


Fig. 3 - Typical Forward Current vs. Forward Voltage

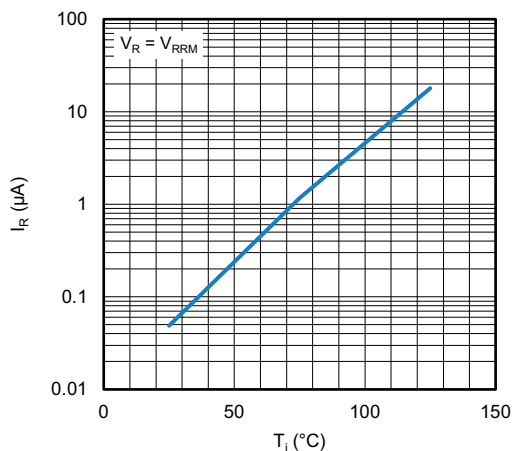


Fig. 2 - Reverse Current vs. Junction Temperature

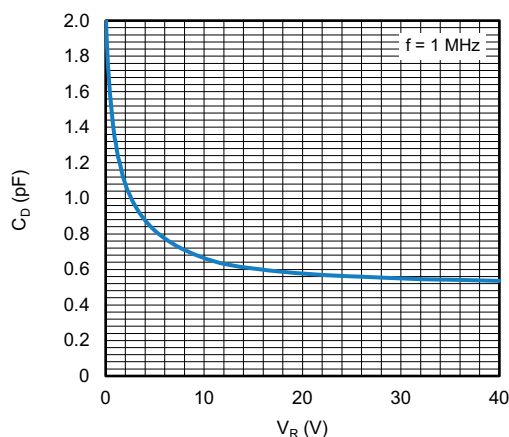
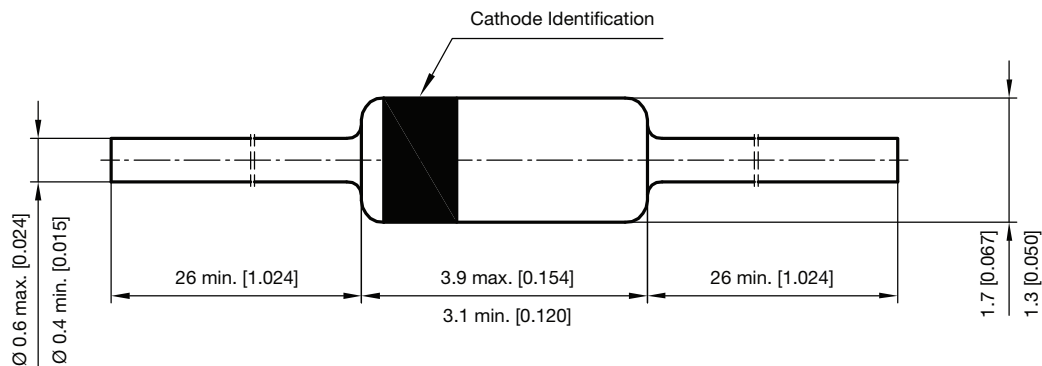


Fig. 4 - Typical Capacitance vs. Reverse Voltage

**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**


Rev. 6 - Date: 19. December 2011  
Document no.: SB-V-3906.04-031(4)  
94 9366



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