



## Small Signal Schottky Diode



### FEATURES

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Very low switching time
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### MECHANICAL DATA

Case: DO-35

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           | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS               |
| BAT81S      | $V_R = 40\text{ V}$  | BAT81S-TR or BAT81S-TAP | Single diode          | BAT81S       | Tape and reel/ammpack |
| BAT82S      | $V_R = 50\text{ V}$  | BAT82S-TR or BAT82S-TAP | Single diode          | BAT82S       | Tape and reel/ammpack |
| BAT83S      | $V_R = 60\text{ V}$  | BAT83S-TR or BAT83S-TAP | Single diode          | 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)

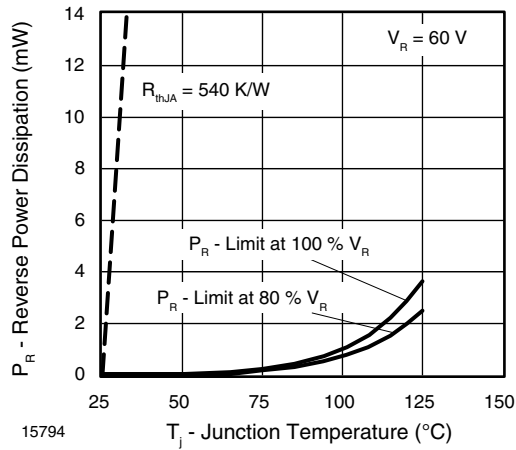


Fig. 1 - Max. Reverse Power Dissipation vs. Junction Temperature

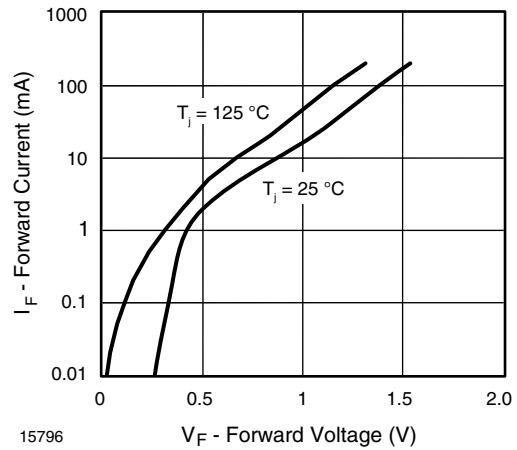


Fig. 3 - Forward Current vs. Forward Voltage

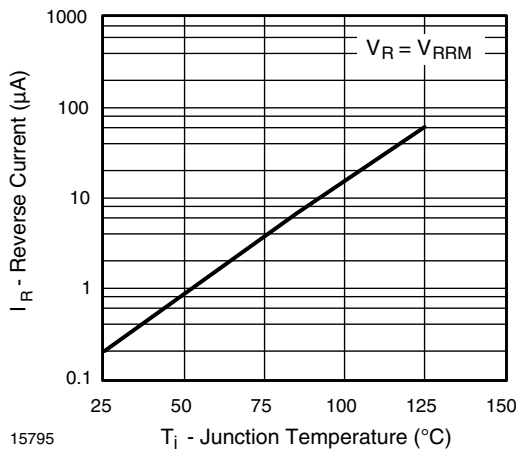


Fig. 2 - Reverse Current vs. Junction Temperature

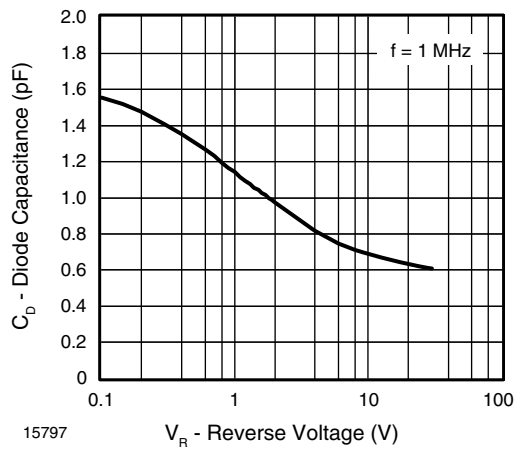
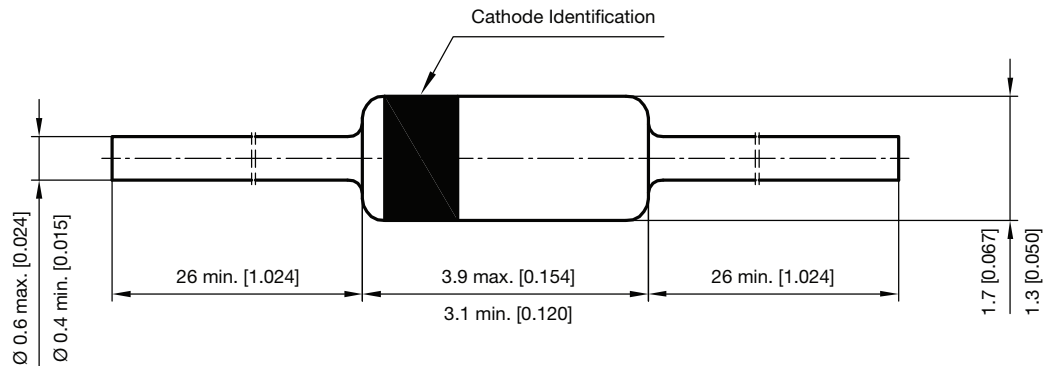


Fig. 4 - Diode Capacitance vs. Reverse Voltage

## PACKAGE DIMENSIONS in millimeters (inches): DO-35



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