

## Small Signal Schottky Diodes

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Very low switching time
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



94 9367

### 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

### Mechanical Data

**Case:** DO35 Glass case

**Weight:** approx. 125 mg

**Cathode Band Color:** black

**Packaging Codes/Options:**

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

TAP/10 k per Ammopack (52 mm tape), 50 k/box

### Parts Table

| Part   | Type differentiation | Ordering code           | Type Marking | Remarks                |
|--------|----------------------|-------------------------|--------------|------------------------|
| BAT81S | $V_R = 40\text{ V}$  | BAT81S-TR or BAT81S-TAP | BAT81S       | Tape and Reel/Ammopack |
| BAT82S | $V_R = 50\text{ V}$  | BAT82S-TR or BAT82S-TAP | BAT82S       | Tape and Reel/Ammopack |
| BAT83S | $V_R = 60\text{ V}$  | BAT83S-TR or BAT83S-TAP | BAT83S       | Tape and Reel/Ammopack |

### Absolute Maximum Ratings

$T_{amb} = 25\text{ °C}$ , 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

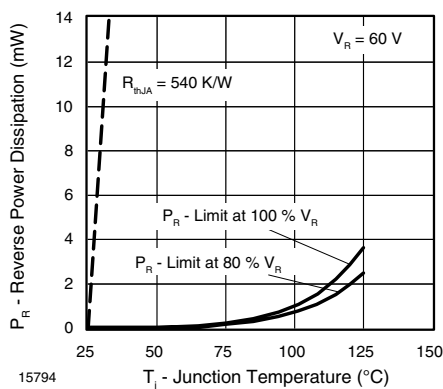


Figure 1. Max. Reverse Power Dissipation vs. Junction Temperature

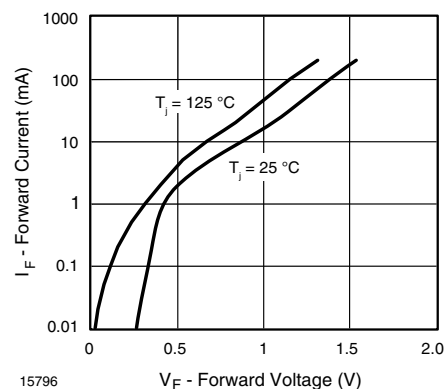


Figure 3. Forward Current vs. Forward Voltage

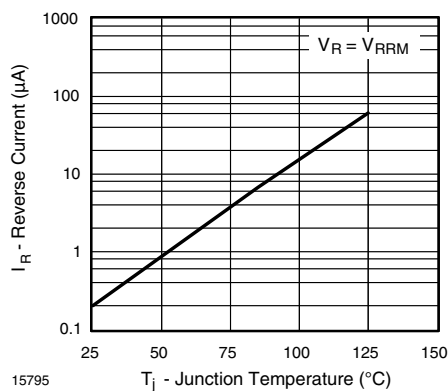


Figure 2. Reverse Current vs. Junction Temperature

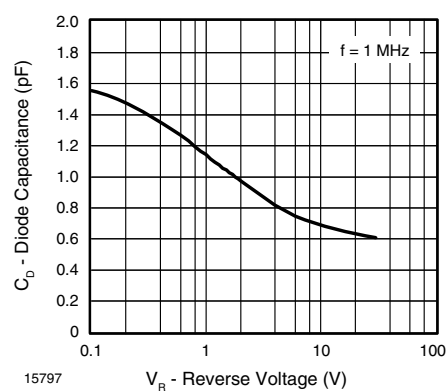
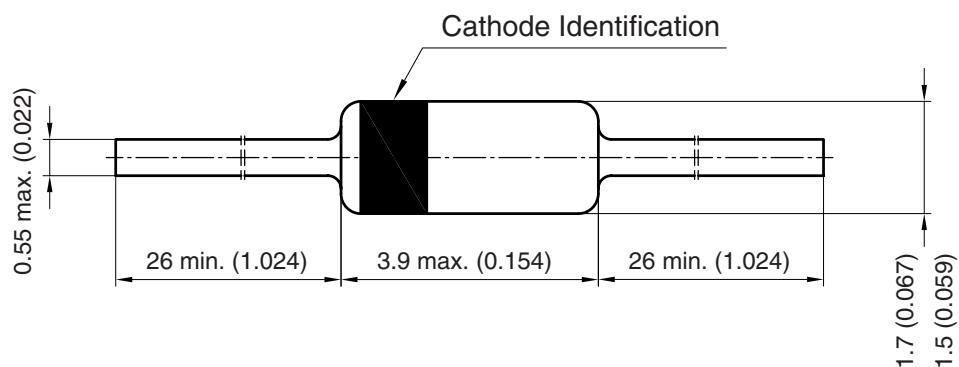


Figure 4. Diode Capacitance vs. Reverse Voltage

## Package Dimensions in millimeters (inches): DO35



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 94 9366

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1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

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2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

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