

## Small Signal Fast Switching Diodes



### FEATURES

- Silicon epitaxial planar diode
- AEC-Q101 qualified
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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

### APPLICATIONS

- Extreme fast switches

### 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

### PARTS TABLE

| PART   | ORDERING CODE         | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS               |
|--------|-----------------------|--------------|-----------------------|-----------------------|
| 1N4151 | 1N4151TR or 1N4151TAP | 1N4151       | Single diode          | Tape and reel/ammpack |

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

| PARAMETER                       | TEST CONDITION                                  | SYMBOL      | VALUE | UNIT |
|---------------------------------|-------------------------------------------------|-------------|-------|------|
| Repetitive peak reverse voltage |                                                 | $V_{RRM}$   | 75    | V    |
| Reverse voltage                 |                                                 | $V_R$       | 50    | V    |
| Peak forward surge current      | $t_p = 1 \mu\text{s}$                           | $I_{FSM}$   | 2     | A    |
| Repetitive peak forward current |                                                 | $I_{FRM}$   | 500   | mA   |
| Forward continuous current      |                                                 | $I_F$       | 300   | mA   |
| Average forward current         | $V_R = 0$                                       | $I_{F(AV)}$ | 150   | mA   |
| Power dissipation               | $l = 4 \text{ mm}, T_L = 45^{\circ}\text{C}$    | $P_{tot}$   | 440   | mW   |
|                                 | $l = 4 \text{ mm}, T_L \leq 25^{\circ}\text{C}$ | $P_{tot}$   | 500   | mW   |

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

| PARAMETER                                  | TEST CONDITION                            | SYMBOL     | VALUE         | UNIT               |
|--------------------------------------------|-------------------------------------------|------------|---------------|--------------------|
| Thermal resistance junction to ambient air | $l = 4 \text{ mm}, T_L = \text{constant}$ | $R_{thJA}$ | 350           | K/W                |
| Junction temperature                       |                                           | $T_j$      | 175           | $^{\circ}\text{C}$ |
| Storage temperature range                  |                                           | $T_{stg}$  | - 65 to + 175 | $^{\circ}\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                       |            |      |       |      |               |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------|------|-------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                        | SYMBOL     | MIN. | TYP.  | MAX. | UNIT          |
| Forward voltage                                                                                          | $I_F = 50\text{ mA}$                                                                  | $V_F$      |      | 0.880 | 1    | V             |
| Reverse current                                                                                          | $V_R = 50\text{ V}$                                                                   | $I_R$      |      | 14    | 50   | nA            |
|                                                                                                          | $V_R = 50\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$                                | $I_R$      |      |       | 50   | $\mu\text{A}$ |
| Breakdown voltage                                                                                        | $I_R = 5\text{ }\mu\text{A}$                                                          | $V_{(BR)}$ | 75   |       |      | V             |
| Diode capacitance                                                                                        | $V_R = 0\text{ V}, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$                           | $C_D$      |      |       | 2    | pF            |
| Reverse recovery time                                                                                    | $I_F = I_R = 10\text{ mA}, i_R = 1\text{ mA}$                                         | $t_{rr}$   |      |       | 4    | ns            |
|                                                                                                          | $I_F = 10\text{ mA}, V_R = 6\text{ V}, i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$ | $t_{rr}$   |      |       | 2    | ns            |

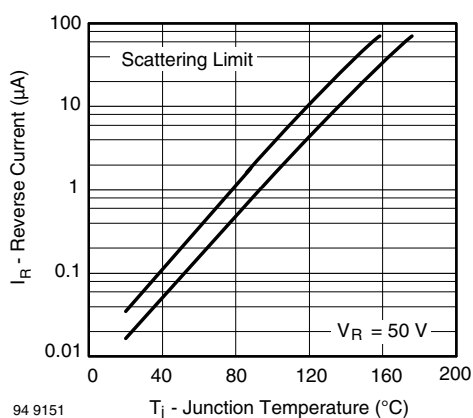
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Reverse Current vs. Junction Temperature

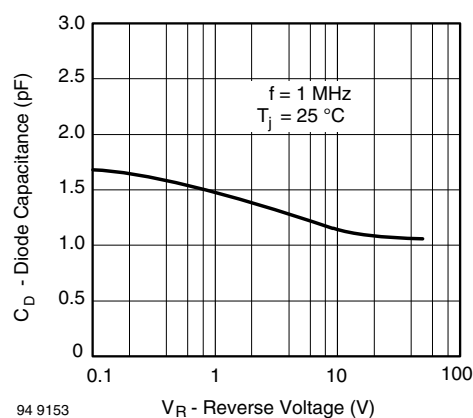


Fig. 3 - Diode Capacitance vs. Reverse Voltage

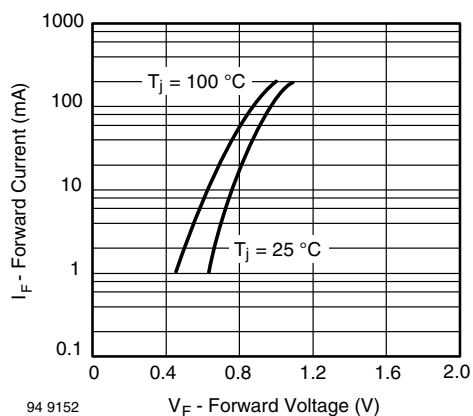
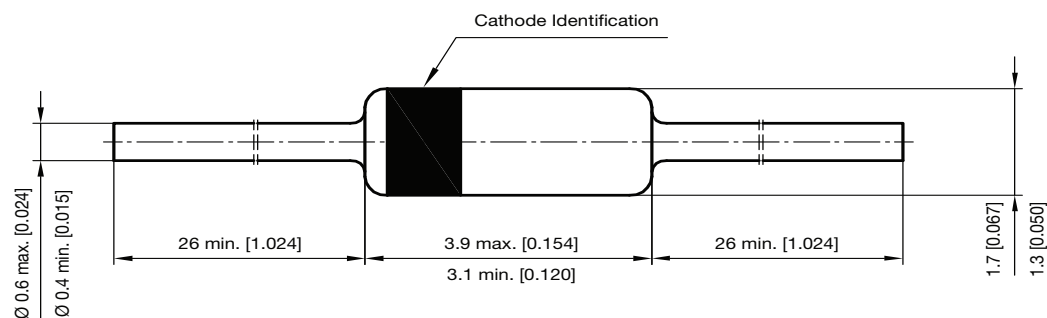


Fig. 2 - Forward Current vs. Forward Voltage



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



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



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