

## Small Signal Fast Switching Diodes



### FEATURES

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



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

### APPLICATIONS

- High speed switch and general purpose use in computer and industrial applications

### 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               |
|--------|-----------------------|--------------|-----------------------|-----------------------|
| 1N4150 | 1N4150TR or 1N4150TAP | 1N4150       | 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 |                                                 | $V_{RRM}$   | 50    | V    |
| Reverse voltage                 |                                                 | $V_R$       | 50    | V    |
| Peak forward surge current      | $t_p = 1 \mu\text{s}$                           | $I_{FSM}$   | 4     | A    |
| Average peak forward current    |                                                 | $I_{FRM}$   | 600   | 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                                                                                          | $I_F = 1\text{ mA}$                                                                       | $V_F$    | 0.540 |      | 0.620 | V             |
|                                                                                                          | $I_F = 10\text{ mA}$                                                                      | $V_F$    | 0.660 |      | 0.740 | V             |
|                                                                                                          | $I_F = 50\text{ mA}$                                                                      | $V_F$    | 0.760 |      | 0.860 | V             |
|                                                                                                          | $I_F = 100\text{ mA}$                                                                     | $V_F$    | 0.820 |      | 0.920 | V             |
|                                                                                                          | $I_F = 200\text{ mA}$                                                                     | $V_F$    | 0.870 |      | 1     | V             |
| Reverse current                                                                                          | $V_R = 50\text{ V}$                                                                       | $I_R$    |       |      | 100   | nA            |
|                                                                                                          | $V_R = 50\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$                                    | $I_R$    |       |      | 100   | $\mu\text{A}$ |
| Diode capacitance                                                                                        | $V_R = 0\text{ V}, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$                               | $C_D$    |       |      | 2.5   | pF            |
| Reverse recovery time                                                                                    | $I_F = I_R = (10\text{ to }100)\text{ mA}, i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$ | $t_{rr}$ |       |      | 4     | ns            |

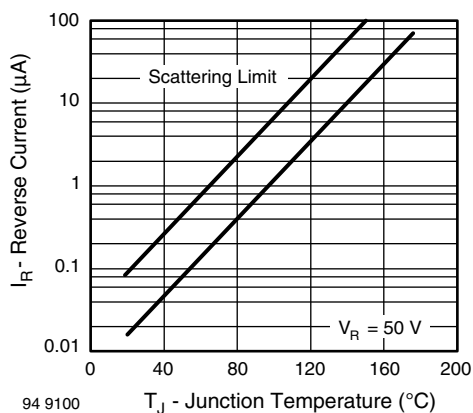
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Reverse Current vs. Junction Temperature

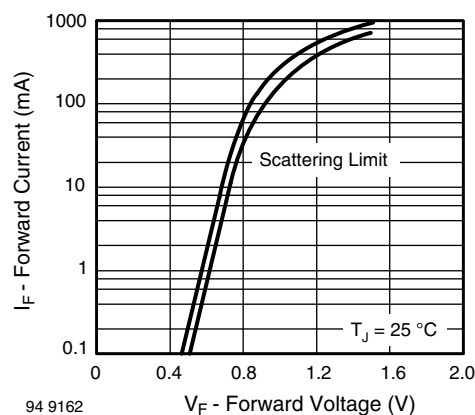
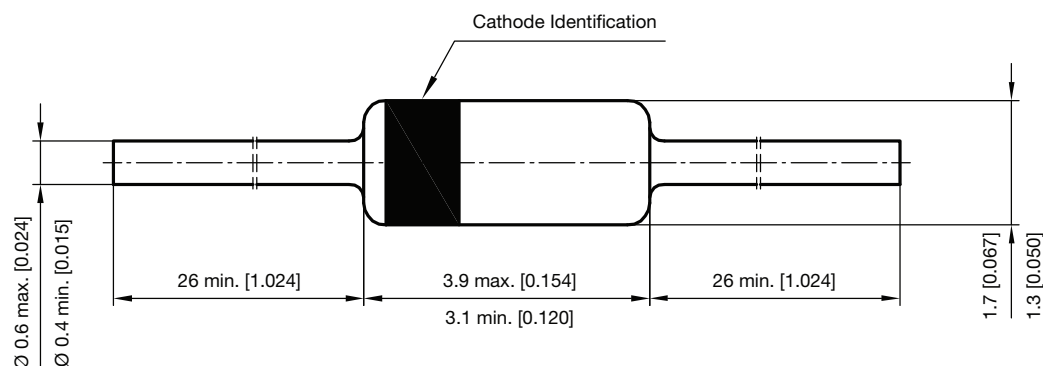


Fig. 2 - Forward Current vs. Forward Voltage

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


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