



# Small Signal Fast Switching Diodes



### FEATURES

- Silicon epitaxial planar diode
- Automotive graded device
- 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                |
| 1N4148-P    | 1N4148-P-TAP or 1N4148-P-TR | V4148        | Single diode          | Tape and reel/ammopack |

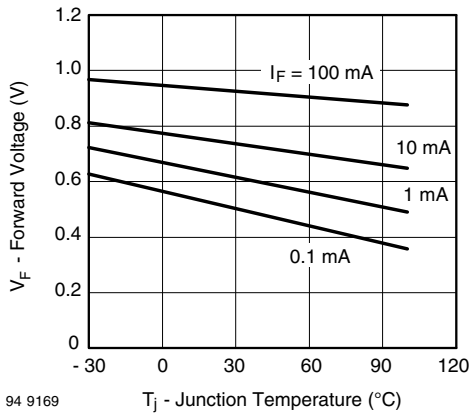
| ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                  |                    |       |      |
|---|----------------------------------|--------------------|-------|------|
| PARAMETER   | TEST CONDITION                   | SYMBOL             | VALUE | UNIT |
| Repetitive peak reverse voltage   |                                  | V <sub>RRM</sub>   | 100   | V    |
| Reverse voltage   |                                  | V <sub>R</sub>     | 75    | V    |
| Peak forward surge current  | t <sub>p</sub> = 1 μs            | I <sub>FSM</sub>   | 2     | A    |
| Repetitive peak forward current   |                                  | I <sub>FRM</sub>   | 500   | mA   |
| Forward continuous current  |                                  | I <sub>F</sub>     | 300   | mA   |
| Average forward current   | V <sub>R</sub> = 0               | I <sub>F(AV)</sub> | 150   | mA   |
| Power dissipation   | I = 4 mm, T <sub>L</sub> = 45 °C | P <sub>tot</sub>   | 440   | mW   |
|   | I = 4 mm, T <sub>L</sub> ≤ 25 °C | P <sub>tot</sub>   | 500   | mW   |

| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                                     |                   |               |      |
|--|-------------------------------------|-------------------|---------------|------|
| PARAMETER  | TEST CONDITION                      | SYMBOL            | VALUE         | UNIT |
| Thermal resistance junction to ambient air                                     | I = 4 mm, T <sub>L</sub> = constant | R <sub>thJA</sub> | 350           | K/W  |
| Junction temperature   |                                     | T <sub>j</sub>    | 175           | °C   |
| Storage temperature range  |                                     | T <sub>stg</sub>  | - 65 to + 150 | °C   |



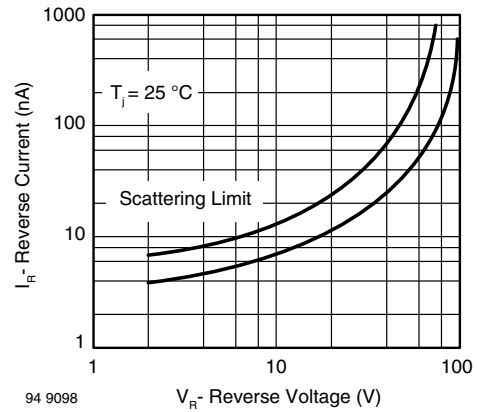
| ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |            |      |      |      |               |
|---|--|------------|------|------|------|---------------|
| PARAMETER   | TEST CONDITION   | SYMBOL     | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage   | $I_F = 10\text{ mA}$   | $V_F$      |      |      | 1    | V             |
| Reverse current   | $V_R = 20\text{ V}$  | $I_R$      |      |      | 25   | nA            |
|   | $V_R = 20\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$                                     | $I_R$      |      |      | 50   | $\mu\text{A}$ |
| Reverse current   | $V_R = 75\text{ V}$  | $I_R$      |      |      | 5    | $\mu\text{A}$ |
|   | $I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01,$<br>$t_p = 0.3\text{ ms}$                     | $V_{(BR)}$ | 100  |      |      | V             |
| Diode capacitance   | $V_R = 0\text{ V}, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$                                | $C_D$      |      |      | 4    | pF            |
| Rectification efficiency  | $V_{HF} = 2\text{ V}, f = 100\text{ MHz}$  | $\eta_r$   | 45   |      |      | %             |
| Reverse recovery time   | $I_F = I_R = 10\text{ mA},$<br>$i_R = 1\text{ mA}$   | $t_{rr}$   |      |      | 8    | ns            |
|   | $I_F = 10\text{ mA}, V_R = 6\text{ V},$<br>$i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$ | $t_{rr}$   |      |      | 4    | ns            |

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



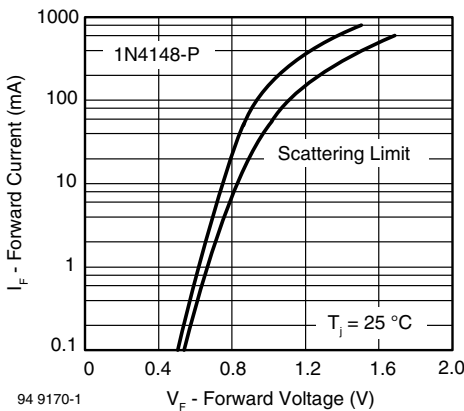
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Fig. 1 - Forward Voltage vs. Junction Temperature



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Fig. 3 - Reverse Current vs. Reverse Voltage

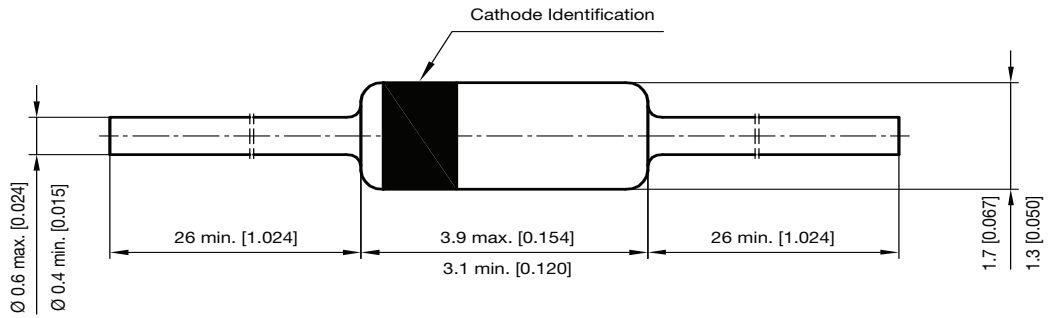


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Fig. 2 - Forward Current vs. Forward Voltage



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



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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А