

## Small Signal Fast Switching Diodes



### FEATURES

- Silicon epitaxial planar diode
- Electrically equivalent diodes:  
1N4148 - 1N914
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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### APPLICATIONS

- Extreme fast switches

**DESIGN SUPPORT TOOLS** click logo to get started



### MECHANICAL DATA

**Case:** DO-35 (DO-204AH)

**Weight:** approx. 105 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 | CIRCUIT CONFIGURATION | REMARKS                 |
|--------|------------------------|--------------|-----------------------|-------------------------|
| 1N4148 | 1N4148-TAP or 1N4148TR | V4148        | Single                | Tape and reel / ammpack |

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

| PARAMETER                       | TEST CONDITION                                         | SYMBOL      | VALUE | UNIT |
|---------------------------------|--------------------------------------------------------|-------------|-------|------|
| Repetitive peak reverse voltage |                                                        | $V_{RRM}$   | 100   | V    |
| Reverse voltage                 |                                                        | $V_R$       | 75    | V    |
| Peak forward surge current      | $t_p = 1\text{ }\mu\text{s}$                           | $I_{FSM}$   | 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               | $l = 4\text{ mm}, T_L = 45\text{ }^{\circ}\text{C}$    | $P_{tot}$   | 440   | mW   |
|                                 | $l = 4\text{ mm}, T_L \leq 25\text{ }^{\circ}\text{C}$ | $P_{tot}$   | 500   | mW   |

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

| PARAMETER                                  | TEST CONDITION                           | SYMBOL     | VALUE       | UNIT               |
|--------------------------------------------|------------------------------------------|------------|-------------|--------------------|
| Thermal resistance junction to ambient air | $l = 4\text{ mm}, T_L = \text{constant}$ | $R_{thJA}$ | 350         | K/W                |
| Junction temperature                       |                                          | $T_j$      | 175         | $^{\circ}\text{C}$ |
| Storage temperature range                  |                                          | $T_{stg}$  | -65 to +150 | $^{\circ}\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                            |            |      |      |      |               |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------|------|------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                             | SYMBOL     | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage                                                                                          | $I_F = 10\text{ mA}$                                                                       | $V_F$      |      |      | 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   | $\mu\text{A}$ |
|                                                                                                          | $V_R = 75\text{ V}$                                                                        | $I_R$      |      |      | 5    | $\mu\text{A}$ |
| Breakdown voltage                                                                                        | $I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01,$<br>$t_p = 0.3\text{ ms}$                     | $V_{(BR)}$ | 100  |      |      | V             |
| Diode capacitance                                                                                        | $V_R = 0\text{ V}, f = 1\text{ MHz},$<br>$V_{HF} = 50\text{ mV}$                           | $C_D$      |      |      | 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            |

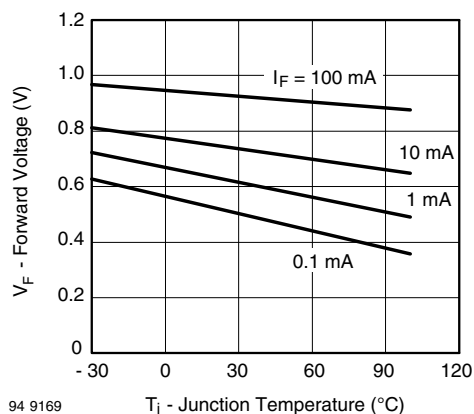
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Voltage vs. Junction Temperature

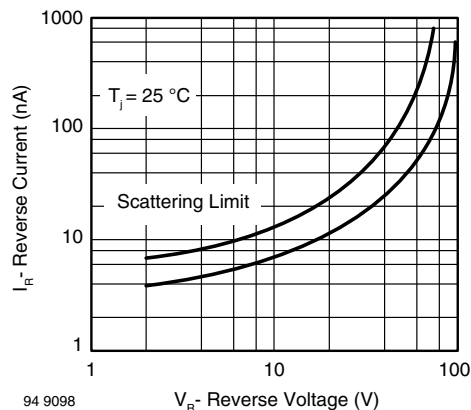


Fig. 3 - Reverse Current vs. Reverse Voltage

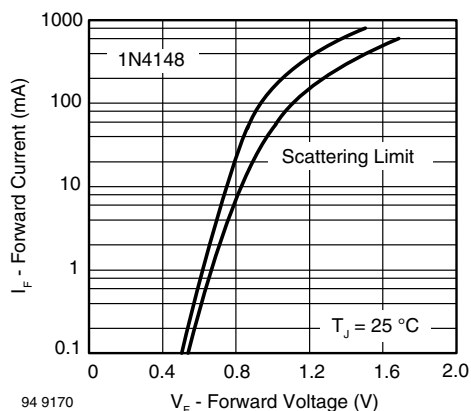
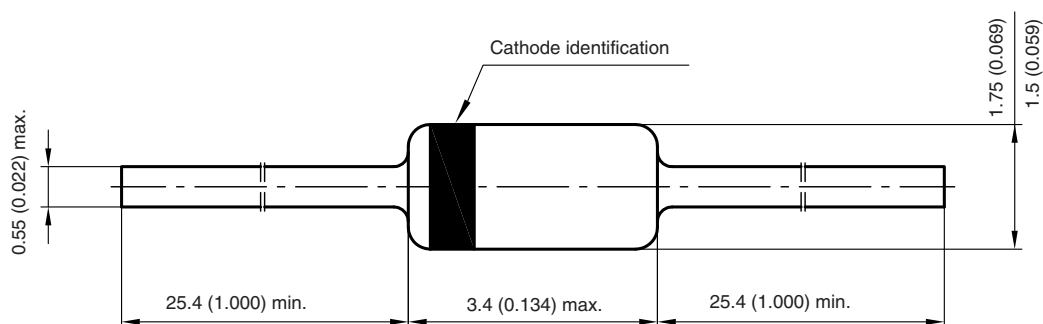


Fig. 2 - Forward Current vs. Forward Voltage



**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**



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