

# Switching diode

## 1N4531 / 1N4148 / 1N4150 / 1N4448

\* This product is available only outside of Japan.

● **Application**

High-speed switching

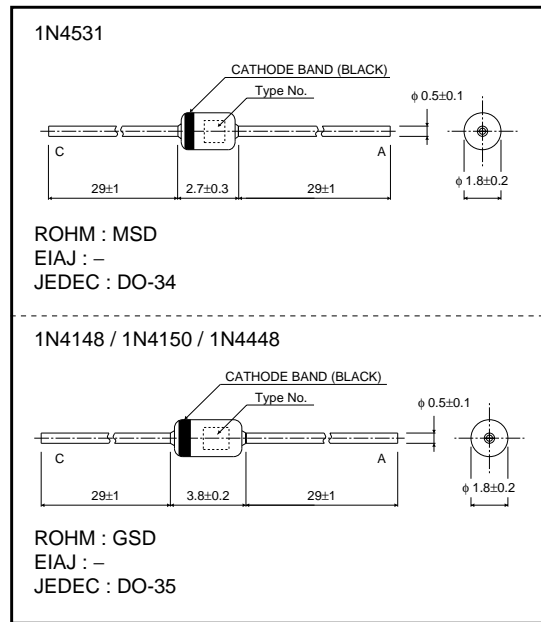
● **Features**

- 1) Glass sealed envelope. (MSD, GSD)
- 2) High speed.
- 3) High reliability.

● **Construction**

Silicon epitaxial planar

● **External dimensions (Units : mm)**



● **Absolute maximum ratings (Ta = 25°C)**

| Type   | V <sub>RM</sub> (V) | V <sub>R</sub> (V) | I <sub>FM</sub> (mA) | I <sub>O</sub> (mA) | I <sub>F</sub> (mA) | I <sub>FSM</sub> 1μs (A) | P (mW) | T <sub>j</sub> (°C) | T <sub>opr</sub> (°C) | T <sub>stg</sub> (°C) |
|--------|---------------------|--------------------|----------------------|---------------------|---------------------|--------------------------|--------|---------------------|-----------------------|-----------------------|
| 1N4531 | 100                 | 75                 | 450                  | 150                 | 200                 | 2                        | 500    | 200                 | -65~+200              | -65~+200              |
| 1N4148 | 100                 | 75                 | 450                  | 150                 | 200                 | 2                        | 500    | 200                 | -65~+200              | -65~+200              |
| 1N4150 | 50                  | 50                 | 600                  | 200                 | 250                 | 4                        | 500    | 200                 | -65~+200              | -65~+200              |
| 1N4448 | 100                 | 75                 | 450                  | 150                 | 200                 | 2                        | 500    | 200                 | -65~+200              | -65~+200              |

● **Electrical characteristics (Ta = 25°C)**

| Type   | V <sub>F</sub> (V) |          |                    |       |                    |        |                    |        |                    |         |                    | BV (V) Min. |                    | I <sub>R</sub> (μA) Max. |                    | C <sub>r</sub> (pF)<br>V <sub>R</sub> =0<br>f=1MHz | t <sub>r</sub> (ns)<br>V <sub>R</sub> =6V<br>I <sub>F</sub> =10mA<br>R <sub>L</sub> =100Ω |         |     |   |
|--------|--------------------|----------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|---------|--------------------|-------------|--------------------|--------------------------|--------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------|---------|-----|---|
|        | @ 0.1mA            | @ 0.25mA | @ 1mA              | @ 2mA | @ 5mA              | @ 10mA | @ 20mA             | @ 30mA | @ 50mA             | @ 100mA | @ 200mA            | @ 250mA     | @ 5μA              | @ 100μA                  | @ 25°C             |                                                    |                                                                                           | @ 150°C |     |   |
|        | V <sub>R</sub> (V) |          | V <sub>R</sub> (V) |       | V <sub>R</sub> (V) |        | V <sub>R</sub> (V) |        | V <sub>R</sub> (V) |         | V <sub>R</sub> (V) |             | V <sub>R</sub> (V) |                          | V <sub>R</sub> (V) |                                                    |                                                                                           |         |     |   |
| 1N4531 | /                  | /        | /                  | /     | /                  | 1.0    | /                  | /      | /                  | /       | /                  | /           | 75                 | 100                      | 0.025<br>5.0       | 20<br>75                                           | 50.0                                                                                      | 20      | 4   | 4 |
| 1N4148 | /                  | /        | /                  | /     | /                  | 1.0    | /                  | /      | /                  | /       | /                  | /           | 75                 | 100                      | 0.025<br>5.0       | 20<br>75                                           | 50.0                                                                                      | 20      | 4   | 4 |
| 1N4150 | /                  | /        | 0.54               | /     | /                  | 0.66   | /                  | /      | 0.76               | 0.82    | 0.87               | /           | -                  | 50                       | 0.1                | 50                                                 | 100.0                                                                                     | 50      | 2.5 | 4 |
| 1N4448 | /                  | /        | 0.62               | /     | 0.62               | 0.74   | /                  | /      | 0.86               | 0.92    | 1.0                | /           | -                  | 100                      | 0.025<br>5.0       | 20<br>75                                           | 50.0                                                                                      | 20      | 4   | 4 |

The upper figure is the minimum V<sub>F</sub> and the lower figure is the maximum V<sub>F</sub> value.

Diodes

●Electrical characteristic curves (Ta = 25°C)

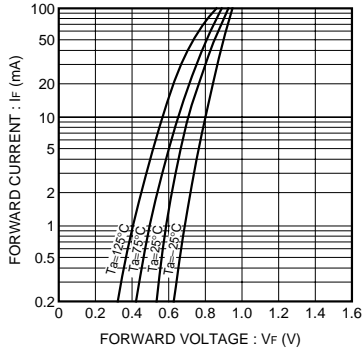


Fig. 1 Forward characteristics

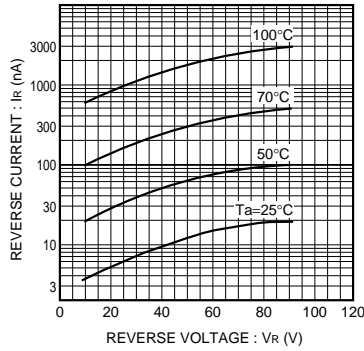


Fig. 2 Reverse characteristics

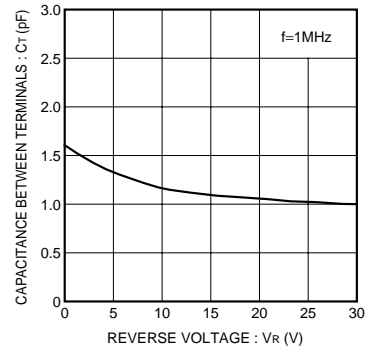


Fig. 3 Capacitance between terminals characteristics

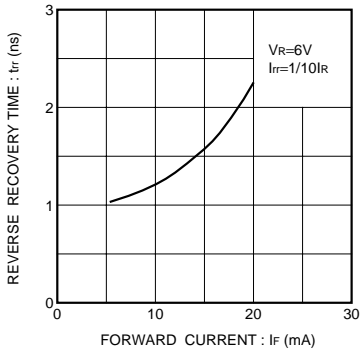


Fig. 4 Reverse recovery time characteristics

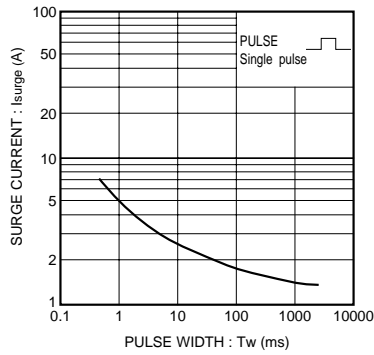


Fig. 5 Surge current characteristics

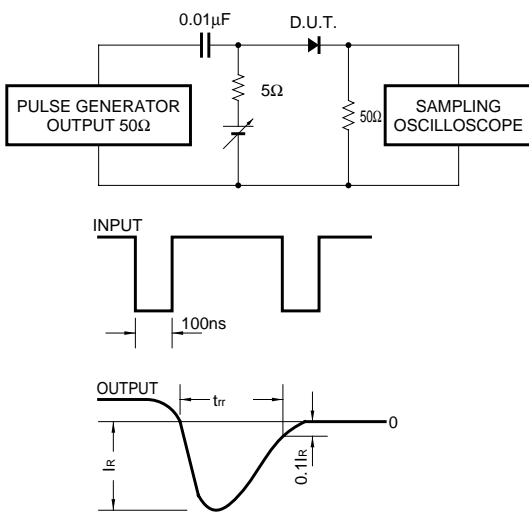


Fig. 6 Reverse recovery time (trr) measurement circuit