

## 500mW, High Speed Switching Diode

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

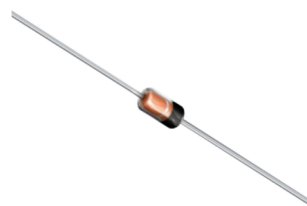
### APPLICATIONS

- Switching mode power supply (SMPS)

| KEY PARAMETERS       |            |      |
|----------------------|------------|------|
| PARAMETER            | VALUE      | UNIT |
| $I_F$                | 150        | mA   |
| $V_{RRM}$            | 100        | V    |
| $I_{FSM}$            | 2          | A    |
| $V_F$ at $I_F=100mA$ | 1          | V    |
| $T_{J\ MAX}$         | 150        | °C   |
| Package              | DO-35      |      |
| Configuration        | Singal die |      |

### MECHANICAL DATA

- Case: DO-35
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight:  $125 \pm 4$  mg



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)             |           |        |             |        |      |
|---|-----------|--------|-------------|--------|------|
| PARAMETER   | SYMBOL    | 1N4148 | 1N4448      | 1N914B | UNIT |
| Power dissipation   | $P_D$     |        | 500         |        | mW   |
| Repetitive peak reverse voltage   | $V_{RRM}$ |        | 100         |        | V    |
| Non-Repetitive peak forward surge current<br>Pluse width = $1\mu\text{s}$ , Square wave | $I_{FSM}$ |        | 2           |        | A    |
| Non-Repetitive peak forward current   | $I_{FM}$  |        | 450         |        | mA   |
| Forward current   | $I_F$     |        | 150         |        | mA   |
| Junction temperature range  | $T_J$     |        | -65 to +150 |        | °C   |
| Storage temperature range   | $T_{STG}$ |        | -65 to +150 |        | °C   |

| THERMAL PERFORMANCE                    |                 |     |      |
|--|-----------------|-----|------|
| PARAMETER                              | SYMBOL          | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 240 | °C/W |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |  |   |               |            |            |               |
|---|--|---|---------------|------------|------------|---------------|
| <b>PARAMETER</b>  | <b>CONDITIONS</b>  |   | <b>SYMBOL</b> | <b>MIN</b> | <b>MAX</b> | <b>UNIT</b>   |
| Forward voltage per diode <sup>(1)</sup>  | 1N4448,1N914B  | $I_F = 5\text{ mA}$ ,<br>$T_J = 25^\circ\text{C}$   | $V_F$         | 0.62       | 0.72       | V             |
|   | 1N4148   | $I_F = 10\text{ mA}$ ,<br>$T_J = 25^\circ\text{C}$  |               | -          | 1.00       |               |
|   | 1N4448,1N914B  | $I_F = 100\text{ mA}$ ,<br>$T_J = 25^\circ\text{C}$ |               | -          | 1.00       |               |
| Reverse voltage <sup>(2)</sup>  | $I_R = 100\ \mu\text{A}$ , $T_J = 25^\circ\text{C}$  |   | $V_R$         | 100        | -          | V             |
|   | $I_R = 5\ \mu\text{A}$ , $T_J = 25^\circ\text{C}$  |   |               | 75         | -          |               |
| Reverse current <sup>(2)</sup>  | $V_R = 20\text{ V}$ , $T_J = 25^\circ\text{C}$   |   | $I_R$         | -          | 25         | nA            |
|   | $V_R = 75\text{ V}$ , $T_J = 25^\circ\text{C}$   |   |               | -          | 5          | $\mu\text{A}$ |
| Junction capacitance  | 1 MHz, $V_R = 0\text{V}$   |   | $C_J$         | -          | 4          | pF            |
| Reverse recovery time   | $I_F = 10\text{ mA}$ , $V_R = 6\text{V}$ , $R_L = 100\ \Omega$ ,<br>$I_{RR} = 1\text{ mA}$ |   | $t_{rr}$      | -          | 4          | ns            |

**Notes:**

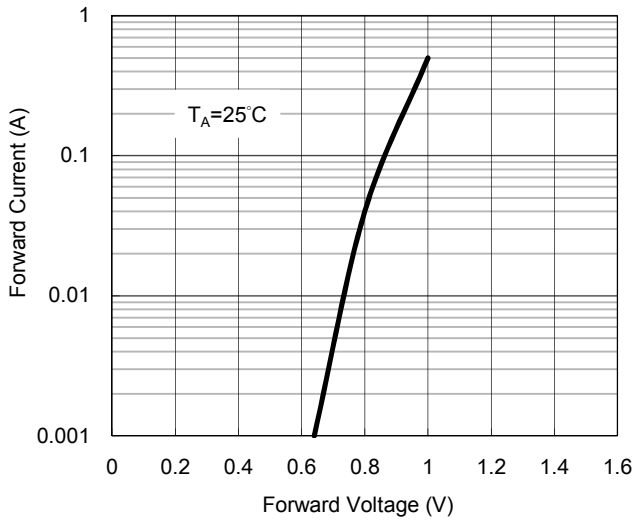
1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

| <b>ORDERING INFORMATION</b> |                |                |
|-----------------------------|----------------|----------------|
| <b>PART NO.</b>             | <b>PACKAGE</b> | <b>PACKING</b> |
| 1N4148 R0G                  | DO-35          | 10K / 14" Reel |
| 1N4148 R0                   | DO-35          | 10K / 14" Reel |
| 1N4148 A0G                  | DO-35          | 5K / Box(Ammo) |
| 1N4148 A0                   | DO-35          | 5K / Box(Ammo) |
| 1N4448 R0G                  | DO-35          | 10K / 14" Reel |
| 1N4448 R0                   | DO-35          | 10K / 14" Reel |
| 1N4448 A0G                  | DO-35          | 5K / Box(Ammo) |
| 1N4448 A0                   | DO-35          | 5K / Box(Ammo) |
| 1N914B R0G                  | DO-35          | 10K / 14" Reel |
| 1N914B R0                   | DO-35          | 10K / 14" Reel |
| 1N914B A0G                  | DO-35          | 5K / Box(Ammo) |
| 1N914B A0                   | DO-35          | 5K / Box(Ammo) |

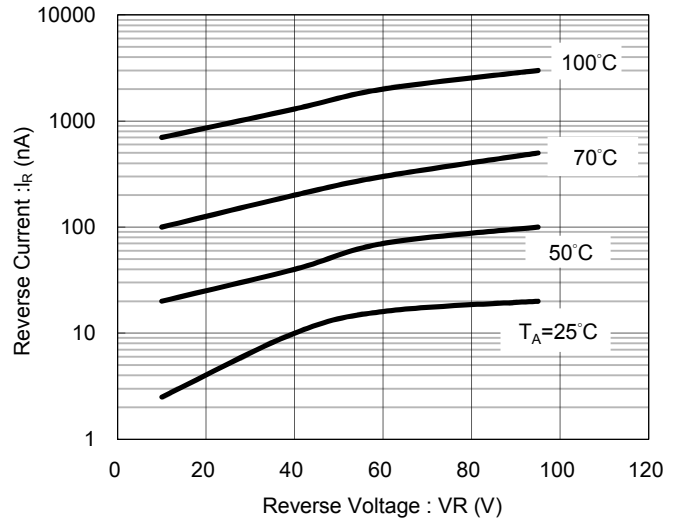
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

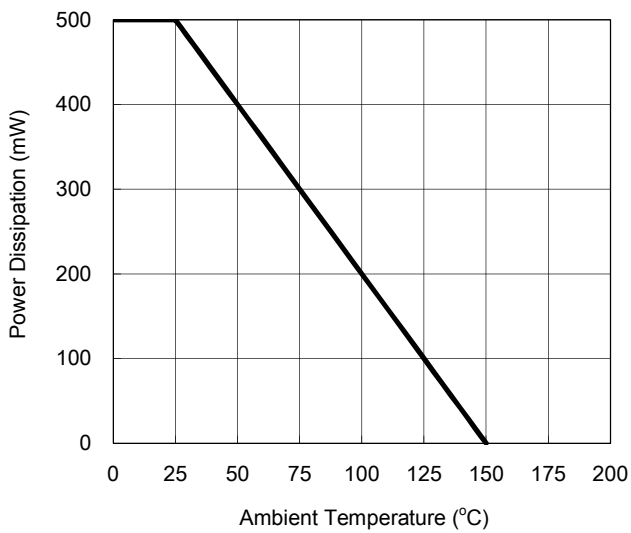
**Fig.1 Typical Forward Characteristics**



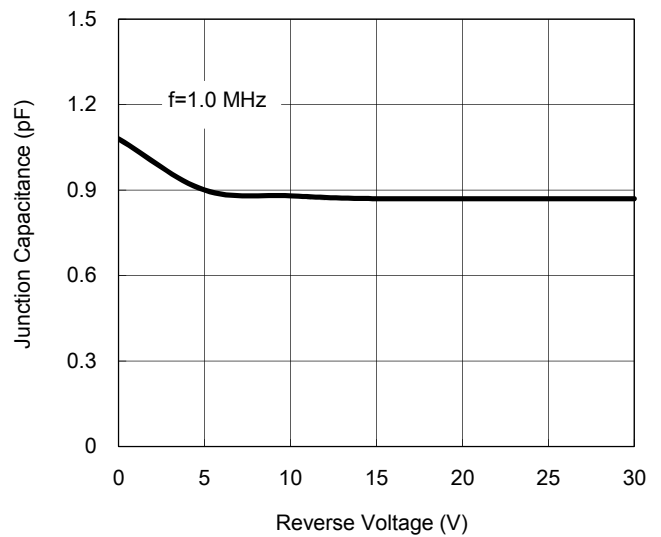
**Fig. 2 Reverse Current VS. Reverse Voltage**



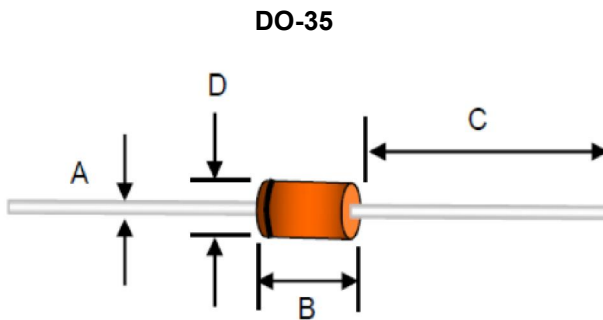
**Fig.3 Admissible Power Dissipation Curve**



**Fig.4 Typical Junction Capacitance**



**PACKAGE OUTLINE DIMENSION**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 0.34      | 0.60  | 0.013       | 0.024 |
| B    | 2.90      | 5.08  | 0.114       | 0.200 |
| C    | 25.40     | 38.10 | 1.000       | 1.500 |
| D    | 1.30      | 2.28  | 0.051       | 0.090 |

**MARKING DIAGRAM**



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