



FAST SWITCHING DIODES

1N4148

FEATURES

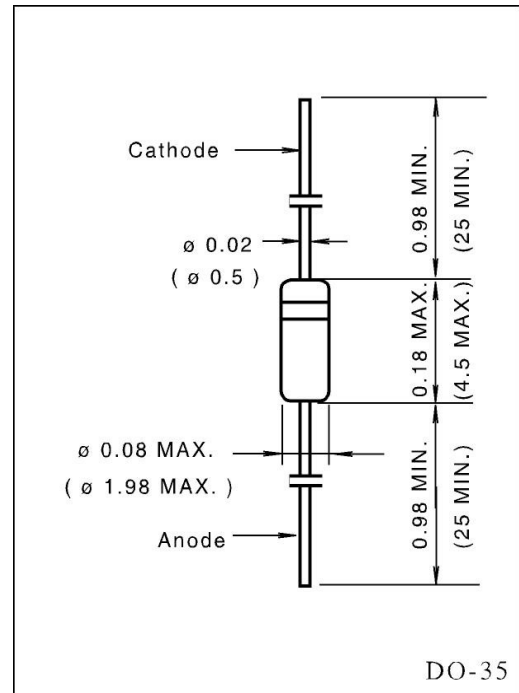
- Silicon Epitaxial Planar Diode
- Fast switching diode
- This diode is also available in other case styles including: the SOD-123 case with the type designation 1N4448W, the MiniMELF case with the type designation LL4448, and the SOT23 case with the type designation

MECHANICAL DATA

- Case: DO-35
- Weight: approx: 0.13gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25°C ambient temperature unless otherwise specified



	Symbol	Value	Unit
Reverse Voltage	V_R	75	V
Peak Reverse Voltage	V_{RM}	100	V
Rectified Current (Average) Half Wave Rectification with Resist. Load at $T_{amb} = 25\text{ }^\circ\text{C}$ and $f \geq 50\text{ Hz}$	I_0	150 ¹⁾	mA
Surge Forward Current at $t < 1\text{ s}$ and $T_j = 25\text{ }^\circ\text{C}$	I_{FSM}	500	mA
Power Dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	500 ¹⁾	mW
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_S	-65 to +175	°C

¹⁾ Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature (DO-35)



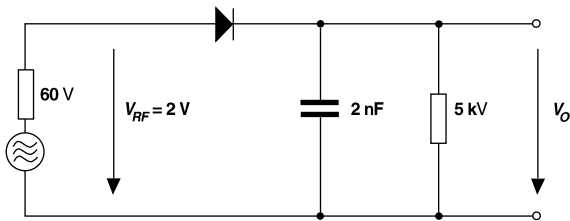
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ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage at $I_F = 10 \text{ mA}$	V_F	–	–	1	V
Leakage Current at $V_R = 20 \text{ V}$ at $V_R = 75 \text{ V}$ at $V_R = 20 \text{ V}, T_j = 150 \text{ }^\circ\text{C}$	I_R I_R I_R	– – –	– – –	25 5 50	nA μA μA
Capacitance at $V_F = V_R = 0 \text{ V}$	C_{tot}	–	–	4	pF
Voltage Rise when Switching ON tested with 50 mA Pulses $t_p = 0.1 \mu\text{s}$, Rise Time < 30 ns, $f_p = 5$ to 100 kHz	V_{fr}	–	–	2.5	V
Reverse Recovery Time from $I_F = 10 \text{ mA}$ to $I_R = 1 \text{ mA}$, $V_R = 6 \text{ V}, R_L = 100 \Omega$	t_{rr}	–	–	4	ns
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	350 ¹⁾	K/W
Rectification Efficiency at $f = 100 \text{ MHz}, V_{RF} = 2 \text{ V}$	η_v	0.45	–	–	–

¹⁾ Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature (DO-35)



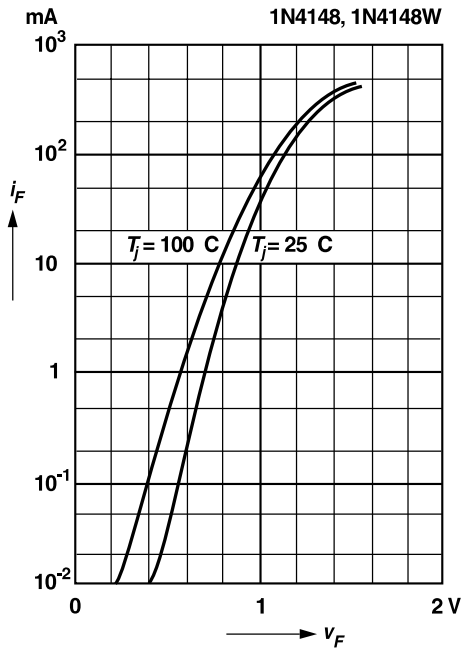
Rectification Efficiency Measurement Circuit



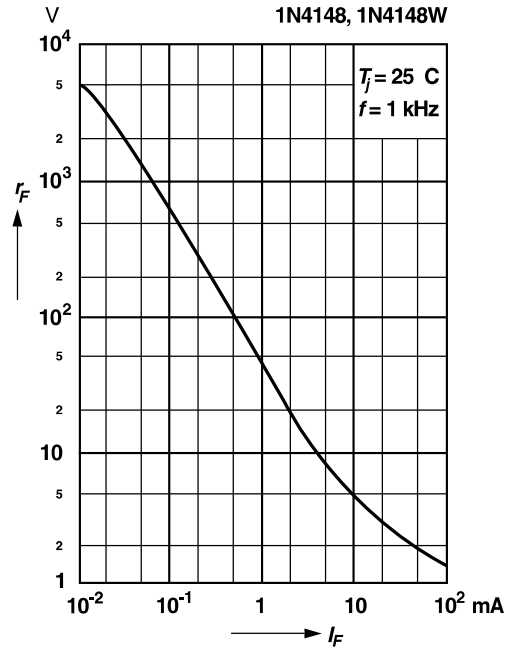
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RATINGS AND CHARACTERISTIC CURVES 1N4148

Forward characteristics

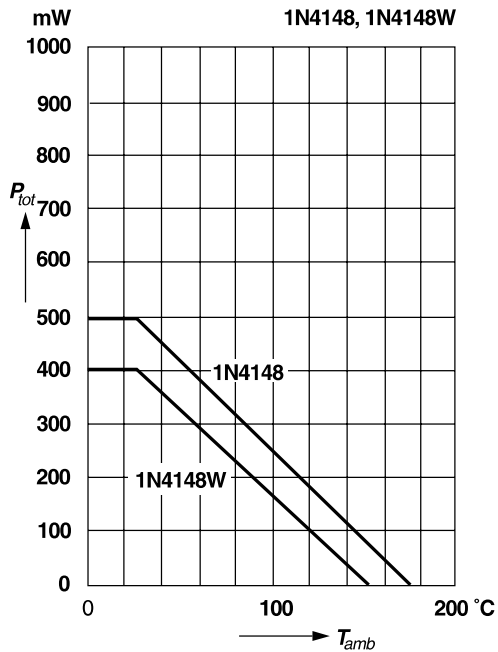


Dynamic forward resistance versus forward current

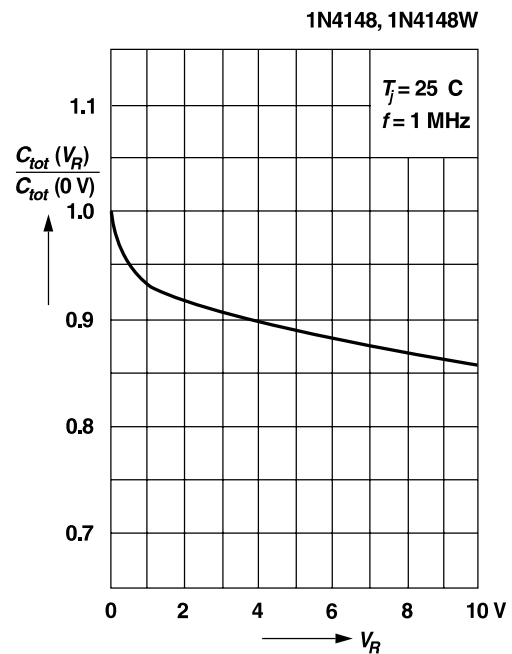


Admissible power dissipation versus ambient temperature

For conditions, see footnote in table
"Absolute Maximum Ratings"



Relative capacitance versus reverse voltage

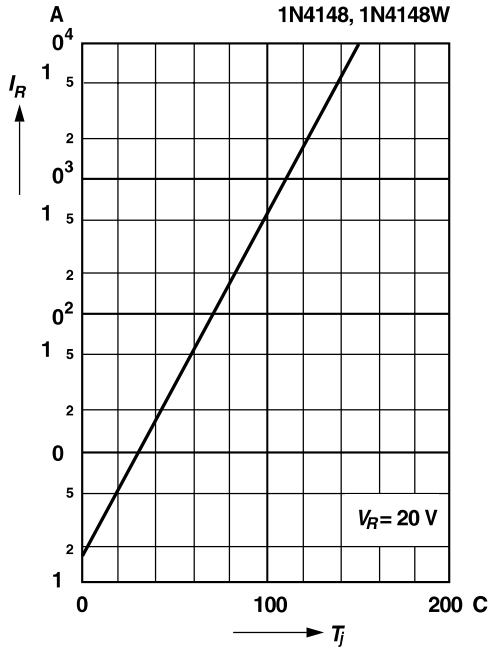




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n
1 Leakage current
versus junction temperature



Admissible repetitive peak forward current versus pulse duration

For conditions, see footnote in table "Absolute Maximum Ratings"

