

# Silicon Diode

## **1N4946**

Fast Switching Rectifier

600V / 1A

# DATASHEET

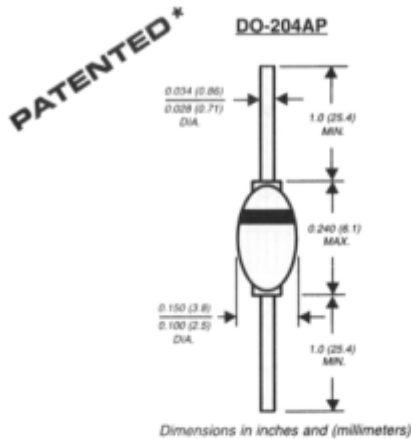
OEM – General Semiconductor

Source: General Semiconductor Databook 1998

# 1N4942 THRU 1N4948

## GLASS PASSIVATED JUNCTION FAST SWITCHING RECTIFIER

Reverse Voltage - 200 to 1000 Volts Forward Current - 1.0 Ampere



\* Brazed-lead assembly is covered by Patent No. 3,930,306

### FEATURES

- ◆ High temperature metallurgically bonded construction
- ◆ Hermetically sealed package
- ◆ Glass passivated cavity-free junction
- ◆ 1.0 Ampere operation at  $T_A=55^\circ\text{C}$  with no thermal runaway
- ◆ Typical  $I_R$  less than  $0.1\mu\text{A}$
- ◆ Capable of meeting environmental standards of MIL-S-19500
- ◆ Fast switching for high efficiency
- ◆ High temperature soldering guaranteed:  $350^\circ\text{C}/10$  seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension

### MECHANICAL DATA

**Case:** JEDEC DO-204AP solid glass body  
**Terminals:** Solder plated axial leads, solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denotes cathode end  
**Weight:** 0.02 ounce, 0.56 gram

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified.

	SYMBOLS	1N4942	1N4944	1N4946	1N4947	1N4948	UNITS
* Maximum recurrent peak reverse voltage	$V_{RRM}$	200	400	600	800	1000	Volts
Maximum RMS voltage	$V_{RMS}$	140	280	420	560	700	Volts
* Maximum DC blocking voltage	$V_{DC}$	200	400	600	800	1000	Volts
* Minimum reverse breakdown voltage at $50\mu\text{A}$	$V_{(BR)}$	220	440	660	880	1100	Volts
* Maximum average forward rectified current 0.375" (9.5mm) lead length at $T_A=55^\circ\text{C}$	$I_{(AV)}$	1.0					Amp
* Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	25.0					Amps
* Maximum instantaneous forward voltage at: 1.0A at 2.0A, $T_A=-40^\circ\text{C}$	$V_F$	1.3 2.5					Volts
* Maximum DC reverse current at Rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=175^\circ\text{C}$	$I_R$	1.0 500.0					$\mu\text{A}$
* Maximum reverse recovery time (NOTE 1)	$t_{rr}$	150	250		500		ns
Typical junction capacitance (NOTE 2)	$C_J$	15.0					pF
Typical thermal resistance (NOTE 3)	$R_{\theta JA}$	55.0					$^\circ\text{C}/\text{W}$
* Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175					$^\circ\text{C}$

**NOTES:**

- (1) Reverse recovery test conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{rr}=25\text{A}$
- (2) Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts
- (3) Thermal resistance from junction to ambient at 0.375" (9.5mm) lead length, P.C.B. mounted  
\*JEDEC registered values

**RATINGS AND CHARACTERISTIC CURVES 1N4942 THRU 1N4948**

