

# 1 AMP FAST RECOVERY SILICON RECTIFIERS BA157 THRU BA159

## TECHNICAL SPECIFICATION

### FEATURES

- Fast recovery times for high efficiency
- Low cost construction utilizing void - free moulded plastic technique
- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- High surge current capability  
Low leakage
- High temperature soldering capability  
250°C/10 seconds/9.5mm (.375in.) lead length at 2.3kg (5lb) tension
- Easily cleaned with Freon, Alcohol, Chlorothene and other similar solvents

### MECHANICAL DATA

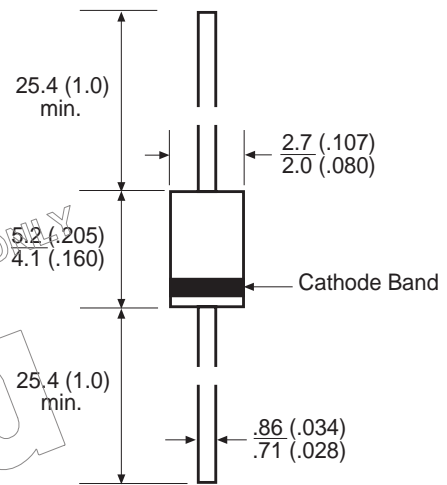
Case	: JEDEC DO-41, moulded plastic.
Terminals	: Plated axial leads, solderable per MIL-STD-202, Method 208.
Polarity	: Colour band denotes cathode end.
Mounting Position	: Any
Weight	: 0.3 grams (0.012 ounce)

**VOLTAGE**  
400 to 1000 Volts

**CURRENT**  
1.0 Amp

### DIMENSIONS - millimeters (inches)

DO-41



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	Symbols	BA157	BA158	BA159	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	400	600	1000	V
Maximum RMS Voltage	$V_{RMS}$	280	420	700	V
Maximum DC Blocking Voltage	$V_{DC}$	400	600	1000	V
Maximum Average Forward Rectified Current 9.5mm (.375in.) Lead Length at $T_A = 75^\circ\text{C}$	$I_{F(AV)}$		1.0		A
Peak Forward Surge Current, 8.3 ms single half sine - wave superimposed on rated load	$I_{FSM}$		30		A
Maximum Instantaneous Forward Voltage at 1.0A	$V_F$		1.2		V
Maximum Reverse Current at Rated DC Blocking Voltage	$I_R$	$T_A = 25^\circ\text{C}$	5.0		$\mu\text{A}$
		$T_A = 100^\circ\text{C}$	100		$\mu\text{A}$
Maximum Reverse Recovery Time (see Note 3)	$t_{rr}$	150	250	500	nS
Typical Junction Capacitance (see Note 1)	$C_J$		15		pF
Typical Thermal Resistance (see Note 2)	$R_{THja}$		50		$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$		- 50 to + 175		$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$		- 50 to + 175		$^\circ\text{C}$

Notes :

1. Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts
2. Thermal Resistance from Junction to Ambient
3. Test Conditions :  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$  recovery to 0.25A

## RATING AND CHARACTERISTIC CURVES

FIG. 1 - FORWARD CURRENT DERATING CURVE

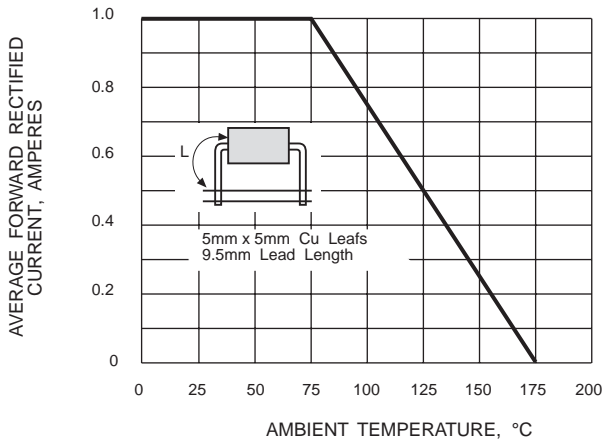


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

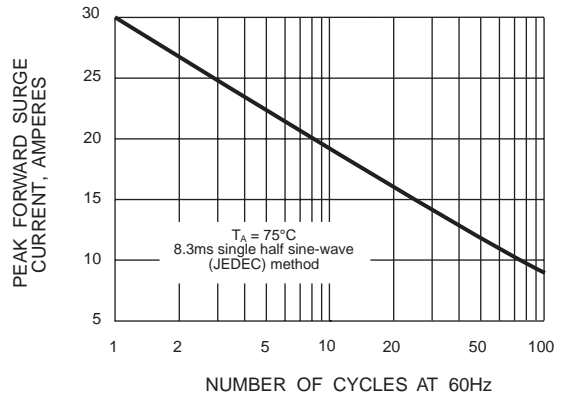


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

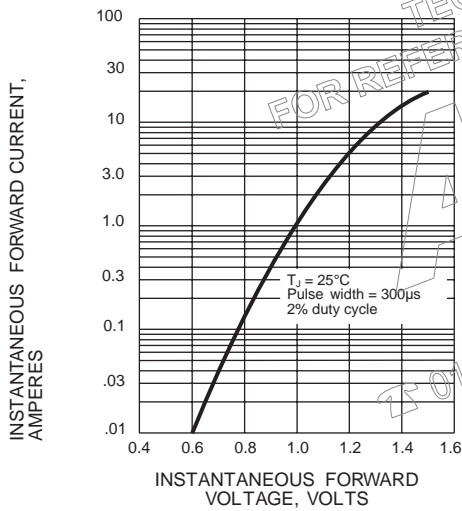


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

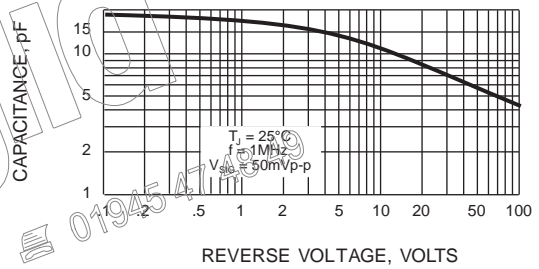
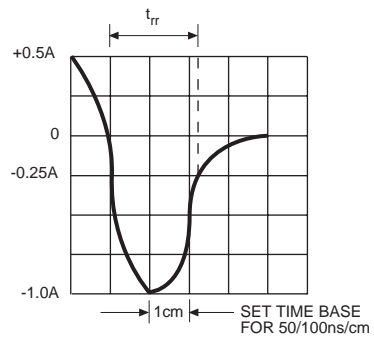
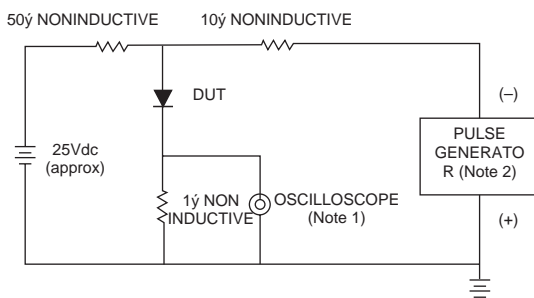


FIG. 5 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



- NOTES
- 1 Rise Time = 7ns max, Input Impedance = 1 megaohm 22pF
  - 2 Rise Time = 10ns max, Source Impedance = 50 ohms