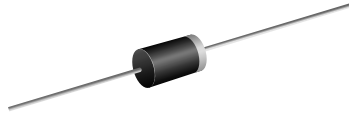


## Fast Switching Plastic Rectifier



DO-204AL (DO-41)

### FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer and telecommunication.

(Note: These devices are not Q101 qualified.)

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy body

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	400 V to 1000 V
$I_{FSM}$	20 A
$t_{rr}$	150 ns, 250 ns, 500 ns
$I_R$	5.0 $\mu$ A
$V_F$	1.3 V
$T_J$ max.	125 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	BA157	BA158	BA159D	BA159	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C	$I_{F(AV)}$	1.0				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	20				A
Maximum operation junction temperature	$T_J$	- 65 to + 125				°C
Maximum storage temperature	$T_{STG}$	- 65 to + 150				°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	BA157	BA158	BA159D	BA159	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F$	1.3			V	
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25$ °C	$I_R$	5.0			$\mu$ A	
Maximum reverse recovery time	$I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A	$t_{rr}$	150	250	500		ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	12			pF	

# BA157 thru BA159

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BA158-E3/54	0.33	54	5500	13" diameter paper tape and reel
BA158-E3/73	0.33	73	3000	Ammo pack packaging

## RATINGS AND CHARACTERISTICS CURVES

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

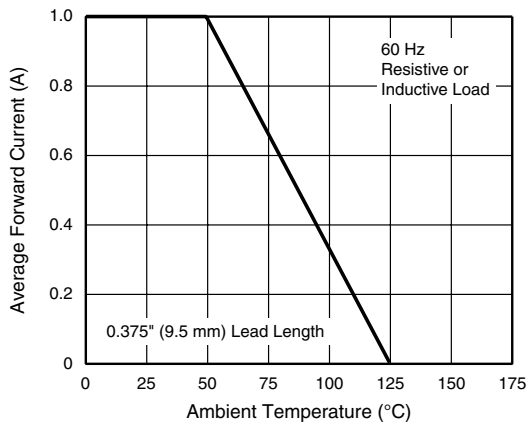


Figure 1. Forward Current Derating Curve

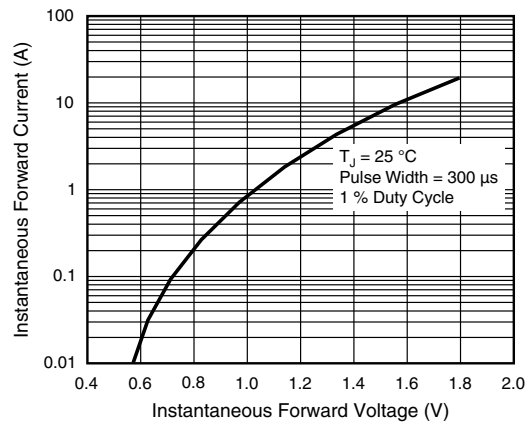


Figure 3. Typical Instantaneous Forward Characteristics

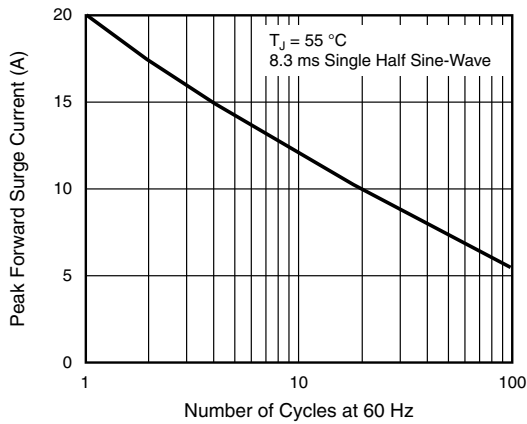


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

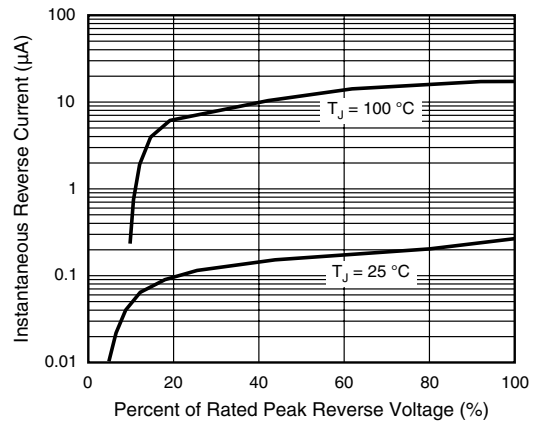


Figure 4. Typical Reverse Characteristics

# BA157 thru BA159

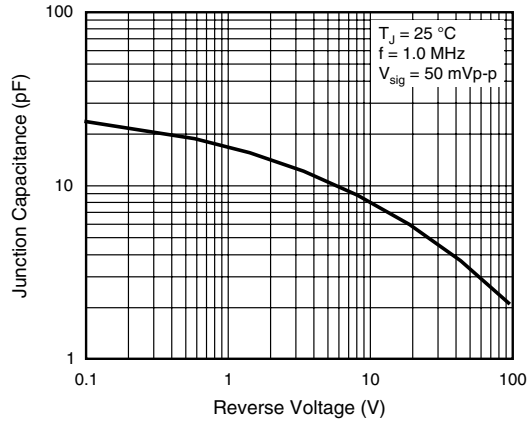


Figure 5. Typical Junction Capacitance

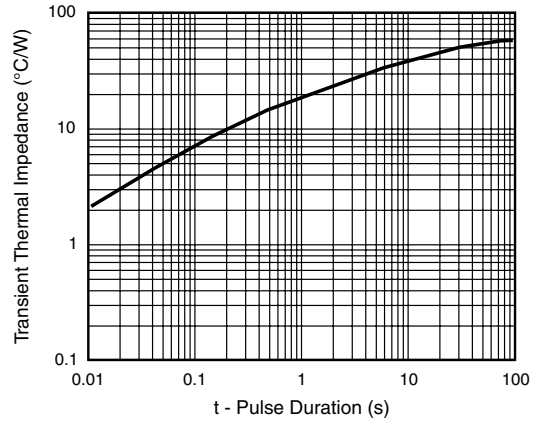


Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)

