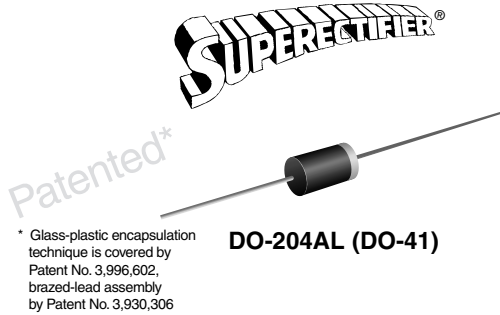


## Glass Passivated Junction Fast Switching Rectifier



### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical  $I_R$  less than  $0.1 \mu\text{A}$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip  $260^\circ\text{C}$ , 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For general purpose of medium frequency rectification.

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy over glass 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, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 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
$I_R$	$5.0 \mu\text{A}$
$V_F$	1.3 V
$T_J \text{ max.}$	$175^\circ\text{C}$

MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	BA157GP	BA158GP	BA159DGP	BA159GP	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 $T_A = 55^\circ\text{C}$	$I_{F(AV)}$	1.0				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	20				A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175				$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	BA157GP	BA158GP	BA159DGP	BA159GP	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F$	1.3				V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25^\circ\text{C}$	$I_R$	5.0				$\mu\text{A}$
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	$t_{rr}$	150	250	500	500	ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	15				pF

# BA157GP thru BA159GP

Vishay General Semiconductor



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	BA157GP	BA158GP	BA159DGP	BA159GP	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$			55		$^\circ\text{C/W}$

**Note:**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BA158GP-E3/54	0.336	54	5500	13" Diameter paper tape and reel
BA158GP-E3/73	0.336	73	3000	Ammo pack packaging
BA158GPHE3/54 <sup>(1)</sup>	0.336	54	5500	13" Diameter paper tape and reel
BA158GPHE3/73 <sup>(1)</sup>	0.336	73	3000	Ammo pack packaging

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

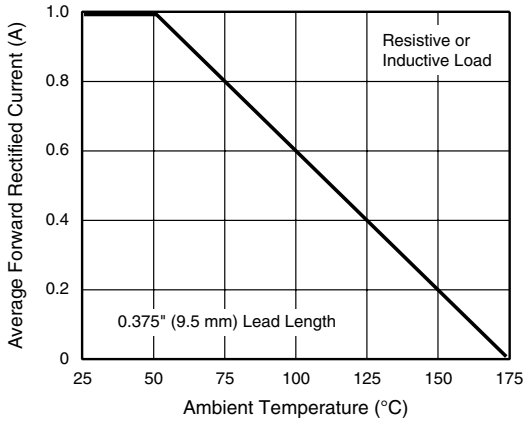


Figure 1. Forward Current Derating Curve

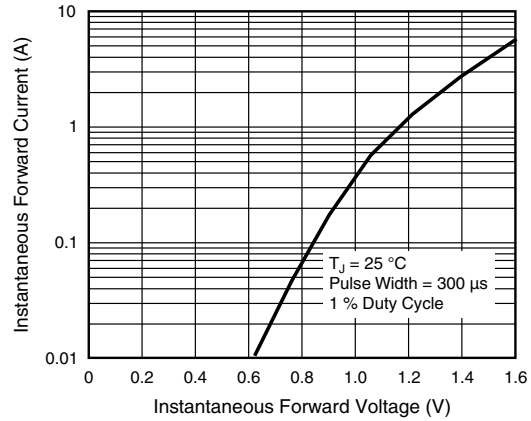


Figure 3. Typical Instantaneous Forward Characteristics

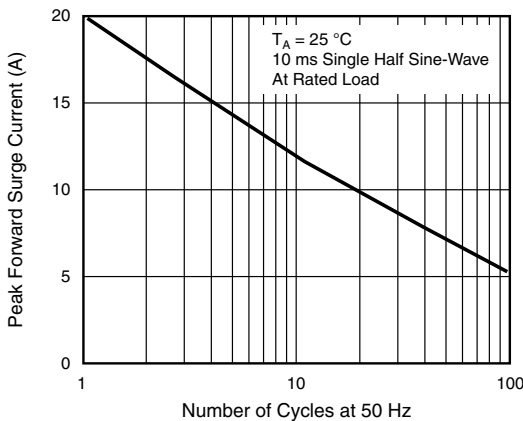


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

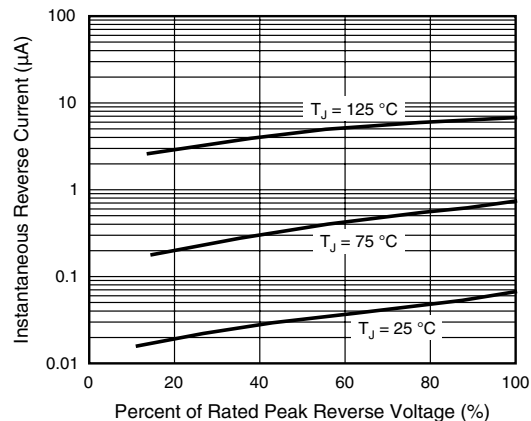


Figure 4. Typical Reverse Characteristics

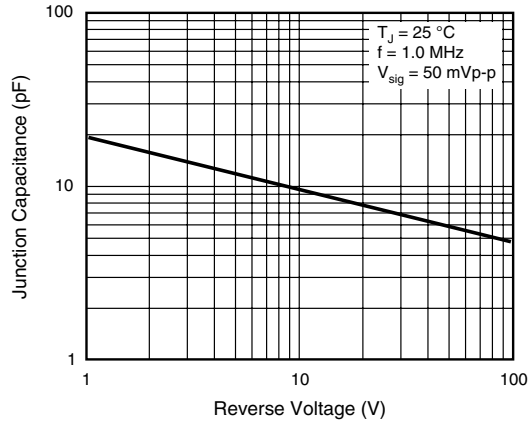


Figure 5. Typical Junction Capacitance

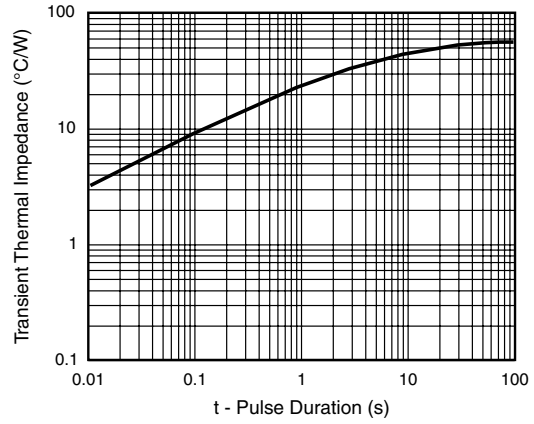
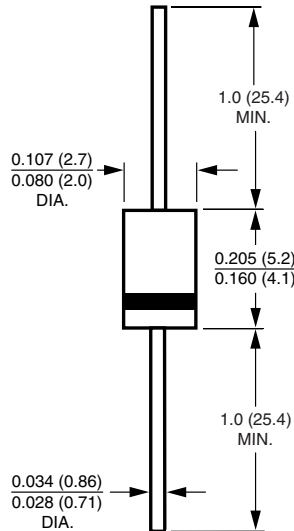


Figure 6. Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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



**Note:** Lead diameter is  $\frac{0.026 (0.66)}{0.023 (0.58)}$  for suffix "E" part numbers



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