



## Miniature Clamper / Damper Glass Passivated Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical  $I_R$  less than 0.1  $\mu\text{A}$
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters and freewheeling diodes specially designed for clamping circuits, horizontal deflection systems and damper applications.

### MECHANICAL DATA

**Case:** DO-15 (DO-204AC), molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	1650 V
$I_{FSM}$	40 A
$t_{rr}$	1500 ns
$I_R$	5.0 $\mu\text{A}$
$V_F$	1.6 V
$T_J$ max.	175 °C
Package	DO-15 (DO-204AC)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BY448GP	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1650	V
Maximum RMS voltage	$V_{RMS}$	1150	V
Maximum DC blocking voltage	$V_{DC}$	1650	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 50\text{ °C}$	$I_{F(AV)}$	1.5	A
Peak forward surge current 8.3 ms single half sine wave superimposed on rated load	$I_{FSM}$	40	A
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A = 100\text{ °C}$	$I_{R(AV)}$	50	$\mu\text{A}$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175	°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	BY448GP	UNIT
Maximum instantaneous forward voltage	$I_F = 3.0\text{ A}$		$V_F^{(1)}$	1.6	V
Maximum reverse current	$V_R = 1650\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	5.0	$\mu\text{A}$
		$T_A = 100\text{ }^\circ\text{C}$		100	
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 50\text{ mA}$		$t_{rr}$	20	$\mu\text{s}$
Reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$	typical	$t_{rr}$	0.5	$\mu\text{s}$
		maximum		1.5	
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	15	pF

**Note**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BY448GP	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	55	$^\circ\text{C/W}$

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BY448GP-E3/54	0.425	54	4000	13" diameter paper tape and reel
BY448GP-E3/73	0.425	73	2000	Ammo pack packaging



**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

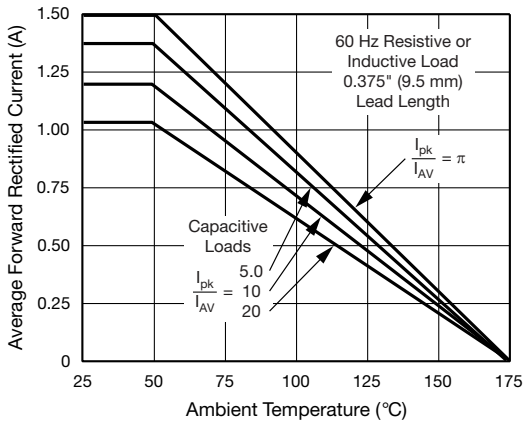


Fig. 1 - Forward Current Derating Curve

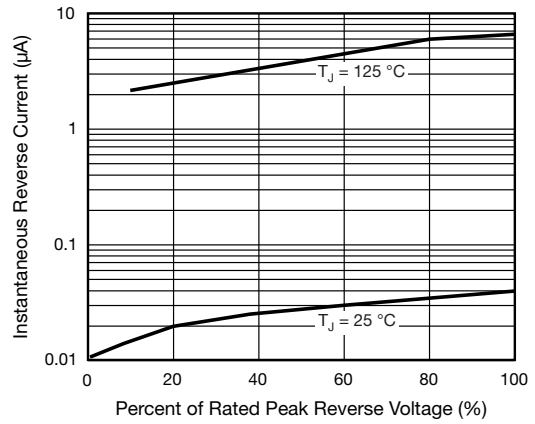


Fig. 4 - Typical Reverse Characteristics

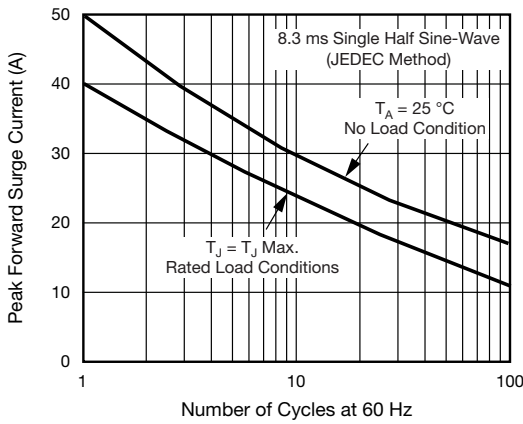


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

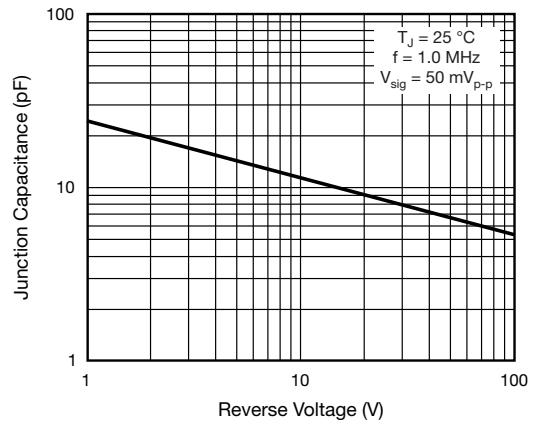


Fig. 5 - Typical Junction Capacitance

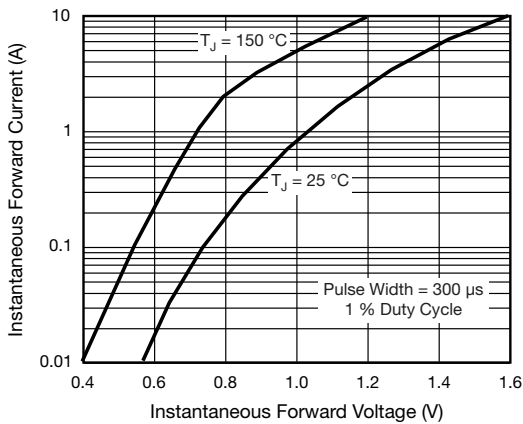
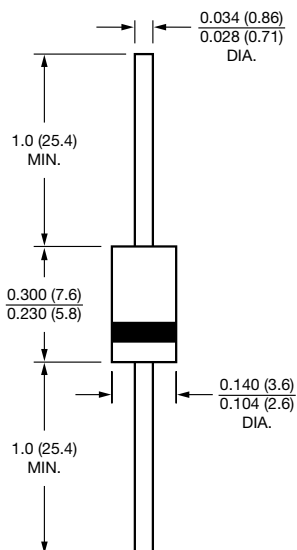


Fig. 3 - Typical Instantaneous Forward Characteristics



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-15 (DO-204AC)**





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