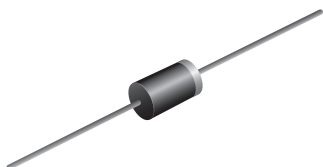


# Miniature Clamper/Damper Glass Passivated Fast Rectifier

**SUPERECTIFIER®**



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

## FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical  $I_R$  less than 0.1  $\mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

## 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-204AC, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 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 $\mu A$
$V_F$	1.6 V
$T_J$ max.	175 °C
Package	DO-204AC (DO-15)
Diode variation	Single die

MAXIMUM RATINGS ( $T_A = 25$ °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 $T_A = 50$ °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 $T_A = 100$ °C	$I_{R(AV)}$	50	$\mu A$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175	°C

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  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	$V_R = 1650\text{ V}$	$I_R$	5.0	$\mu\text{A}$
			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	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**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  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

**ORDERING INFORMATION** (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
BY448GPHE3/54 <sup>(1)</sup>	0.425	54	4000	13" diameter paper tape and reel
BY448GPHE3/73 <sup>(1)</sup>	0.425	73	2000	Ammo pack packaging

**Note**

(1) AEC-Q101 qualified

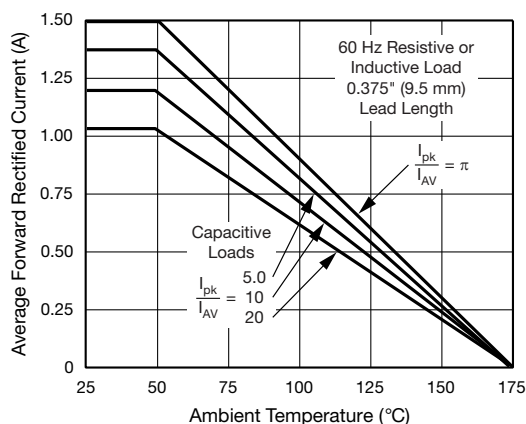
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

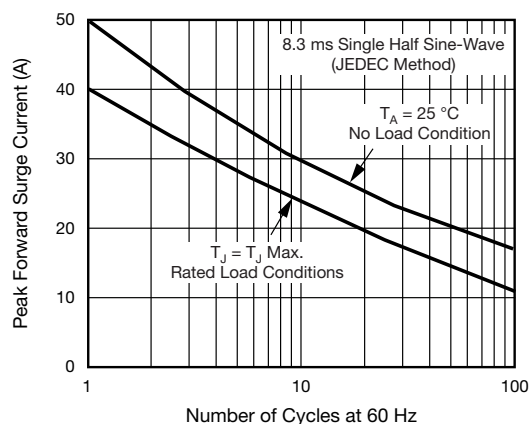


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

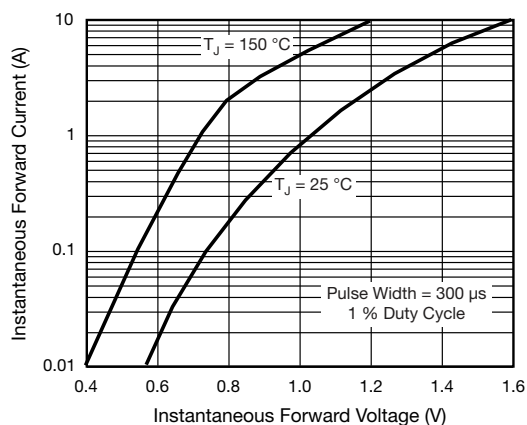


Fig. 3 - Typical Instantaneous Forward Characteristics

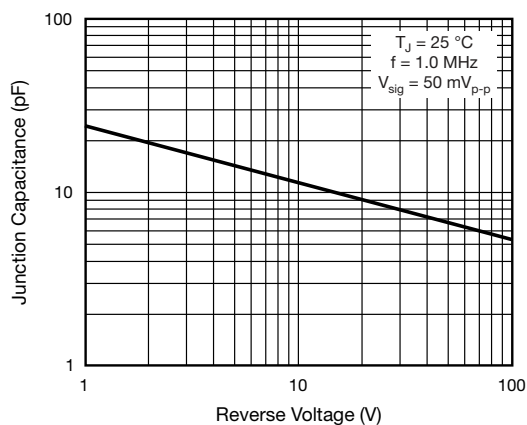


Fig. 5 - Typical Junction Capacitance

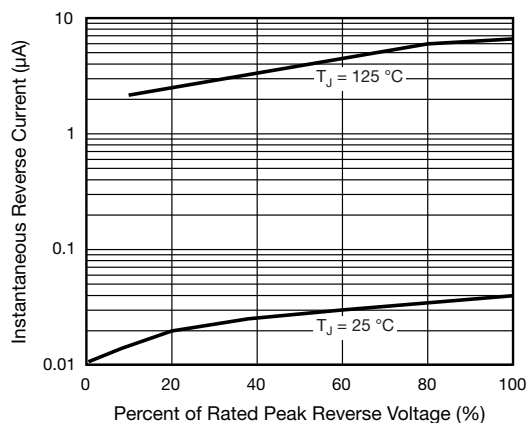
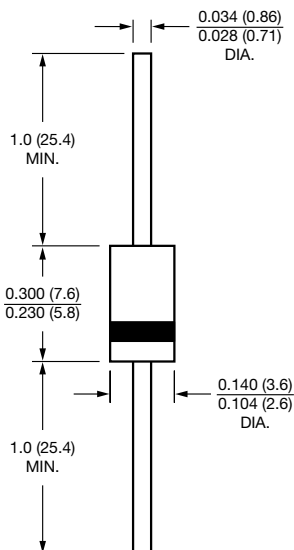


Fig. 4 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AC (DO-15)





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