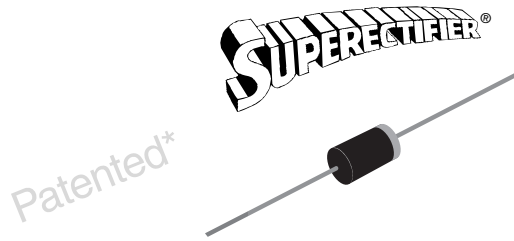


## Miniature Clamper/Damper Glass Passivated Rectifier


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

\* Glass-plastic encapsulation technique is covered by Patent No. 3,996,602 of 1976; brazed-lead assembly by Patent No. 3,930,306 of 1976 and glass composition by Patent No. 3,752,701 of 1973

### FEATURES

- Superectifier 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
- Meets environmental standard MIL-S-19500
- 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 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

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	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	1650 V
$I_{FSM}$	40 A
$I_R$	5.0 $\mu\text{A}$
$V_F$	1.6 V
$T_J$ max.	175 °C

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	$\mu\text{A}$
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 <sup>(1)</sup>	$I_F = 3.0\text{ A}$		$V_F$	1.6	V
Maximum reverse current	$V_R = 1650\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$	$I_R$	5.0 100	$\mu\text{A}$
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 maximum	$t_{rr}$	0.5 1.5	$\mu\text{s}$
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 <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

<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
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) Automotive grade AEC Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES

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

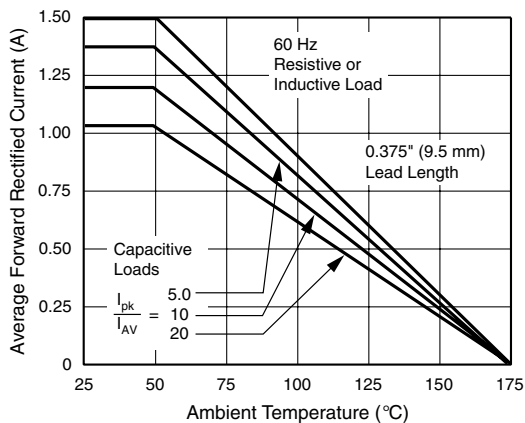


Figure 1. Forward Current Derating Curve

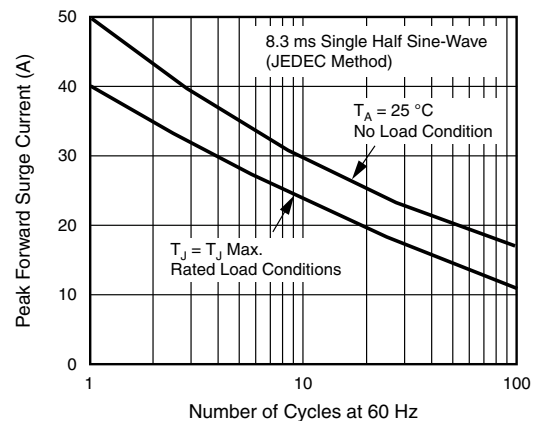


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

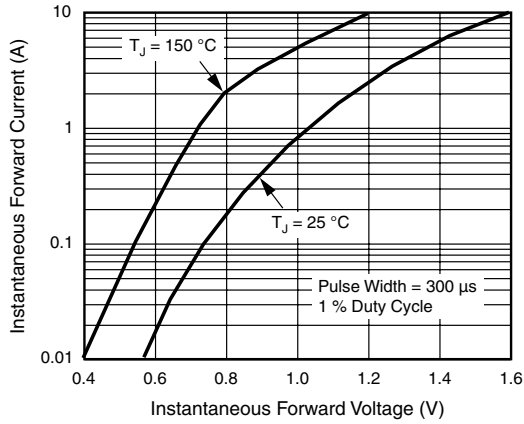


Figure 3. Typical Instantaneous Forward Characteristics

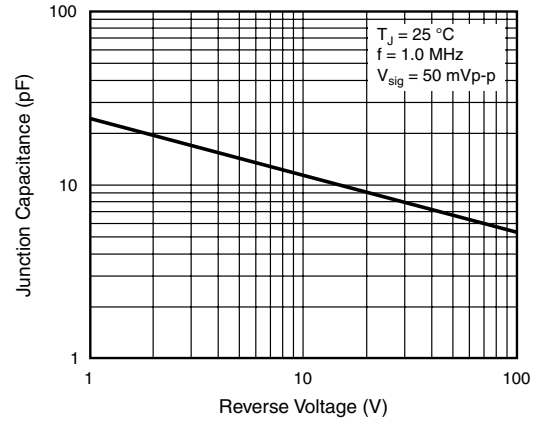


Figure 5. Typical Junction Capacitance

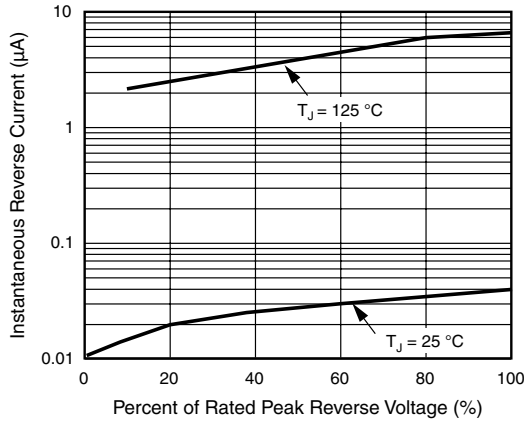
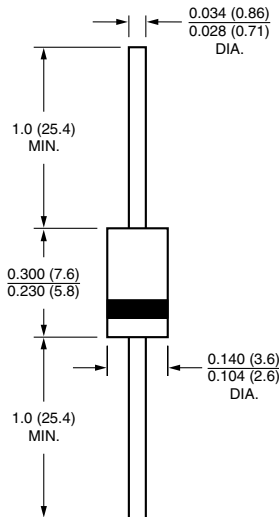


Figure 4. Typical Reverse Characteristics

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

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




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