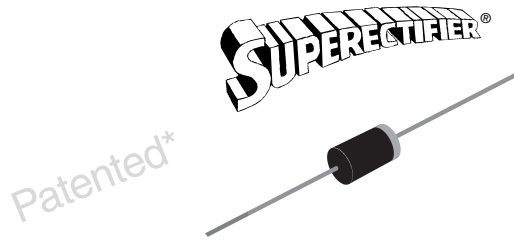


Miniature Clamper/Damper Glass Passivated Rectifier


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

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical I_R less than 0.1 μA
- 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 μA
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	μA
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 ⁽¹⁾	$I_F = 3.0\text{ A}$		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	μA
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 50\text{ mA}$		t_{rr}	20	μs
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	μs
Typical junction capacitance	4.0 V, 1 MHz		C_J	15	pF

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BY448GP	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	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
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 ⁽¹⁾	0.425	54	4000	13" diameter paper tape and reel
BY448GPHE3/73 ⁽¹⁾	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)

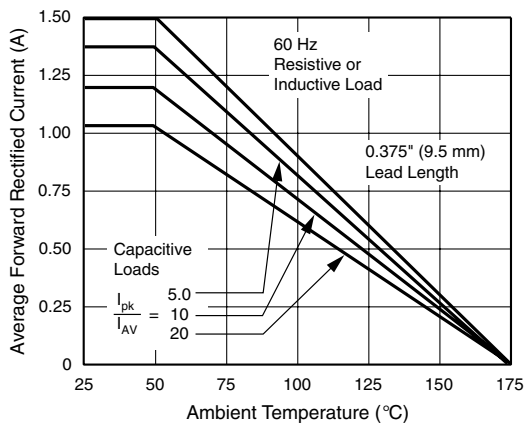


Figure 1. Forward Current Derating Curve

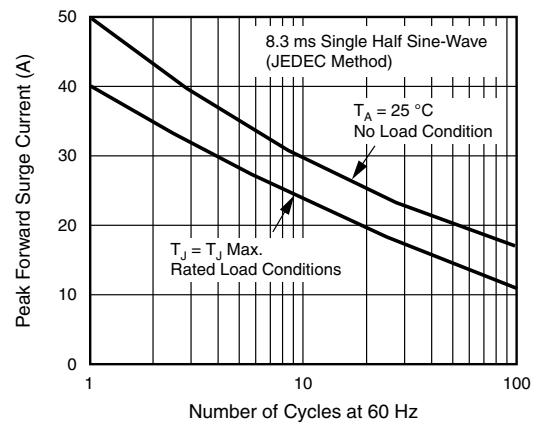


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

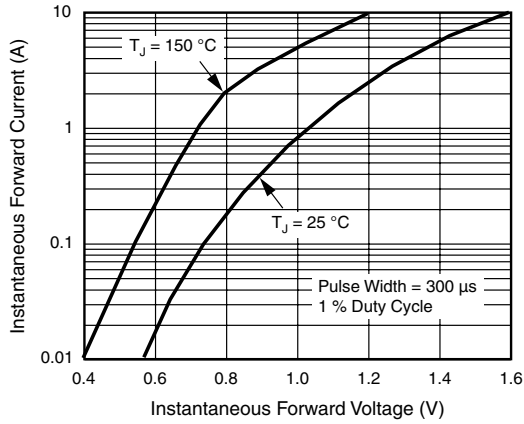


Figure 3. Typical Instantaneous Forward Characteristics

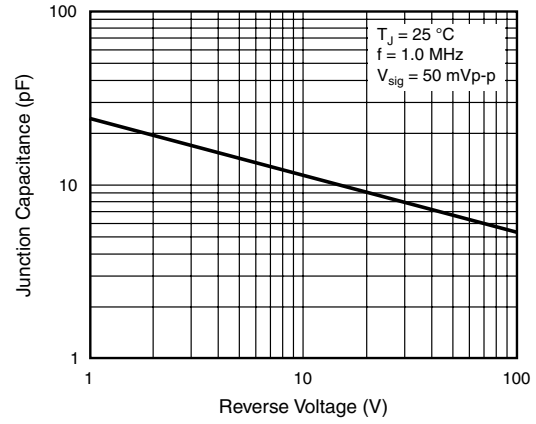


Figure 5. Typical Junction Capacitance

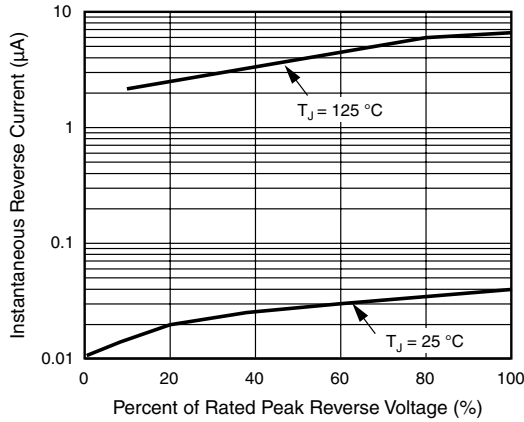
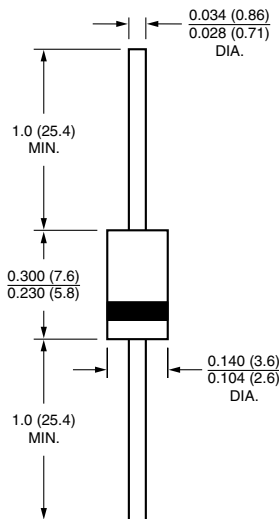


Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)




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