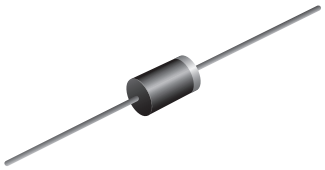
Miniature Clamper/Damper Glass Passivated Fast Plastic Rectifier

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 µA
- High forward surge capability
- 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

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 µA
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	µA
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**BY448GP**	**UNIT**
Maximum instantaneous forward voltage	I_F = 3.0 A		V_F (1)	1.6	V
Maximum reverse current	V_R = 1650 V	T_A = 25 °C	I_R	5.0	μA
		T_A = 100 °C		100	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 50 mA		t_{rr}	20	μs
Reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	typical	t_{rr}	0.5	μs
		maximum		1.5	
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 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BY448GP**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	55	°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 (1)	0.425	54	4000	13" diameter paper tape and reel
BY448GPHE3/73 (1)	0.425	73	2000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

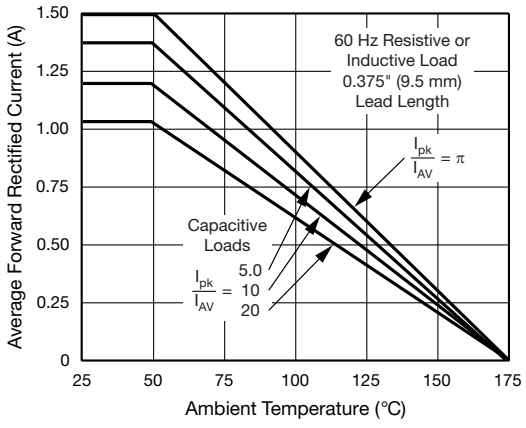


Fig. 1 - Forward Current Derating Curve

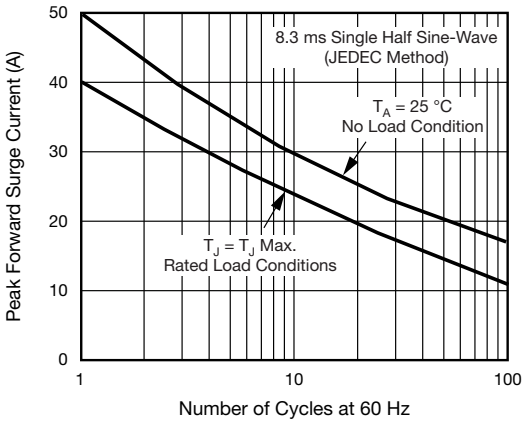


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

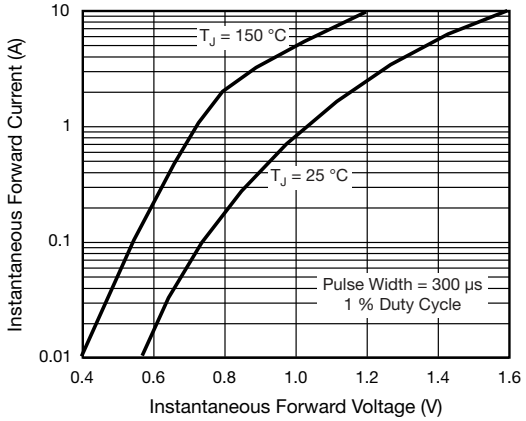


Fig. 3 - Typical Instantaneous Forward Characteristics

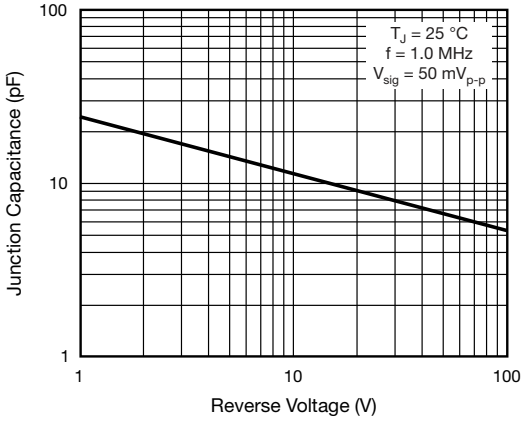


Fig. 5 - Typical Junction Capacitance

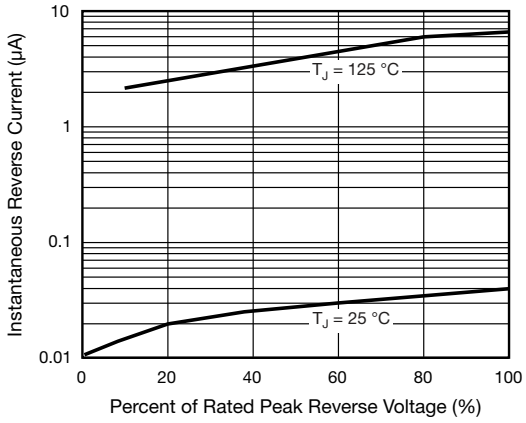
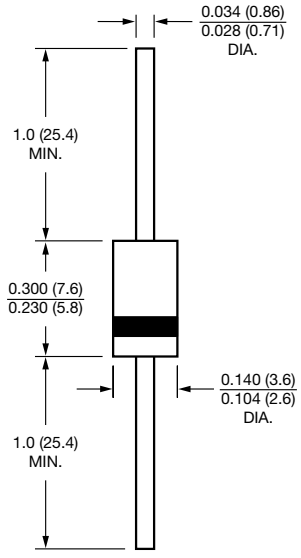


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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