Miniature Glass Passivated Junction Rectifier

DO-204AC (DO-15)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, I_R less than 1 µA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters and freewheeling diodes for both consumer and automotive applications.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.75 A
V_{RRM}	1250 V
I_{FSM}	50 A
I_R	5.0 µA
V_F at I_F = 5.0 A	1.5 V
T_J max.	175 °C

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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BY127MGP**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	1250	V
Maximum RMS voltage	V_{RMS}	875	V
Maximum DC blocking voltage	V_{DC}	1250	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_A = 55 °C	$I_{F(AV)}$	1.75	A
Peak forward surge current 8.3 ms single half sine wave superimposed on rated load	I_{FSM}	50	A
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at T_A = 55 °C	$I_{R(AV)}$	100	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**	**BY127MGP**	**UNIT**
Maximum instantaneous forward voltage	I_F = 5.0 A		V_F (1)	1.5	V
Maximum reverse current	V_R = 1250 V	T_A = 25 °C	I_R	5.0	μA
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	2.0	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 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BY127MGP**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	45	°C/W
	$R_{\theta JL}$ (1)	20	

Note

(1) Thermal resistance from junction to ambient and from junction to lead 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**
BY127MGP-E3/54	0.425	54	4000	13" diameter paper tape and reel
BY127MGP-E3/73	0.425	73	2000	Ammo pack packaging
BY127MGPHE3/54 (1)	0.425	54	4000	13" diameter paper tape and reel
BY127MGPHE3/73 (1)	0.425	73	2000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

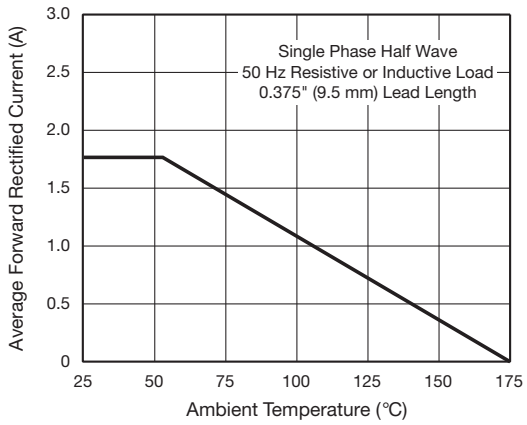

Fig. 1 - Forward Current Derating Curve

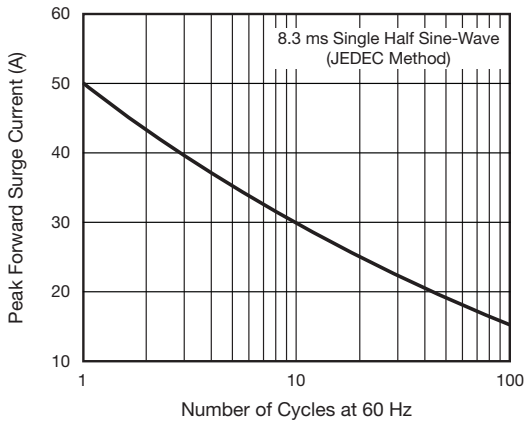

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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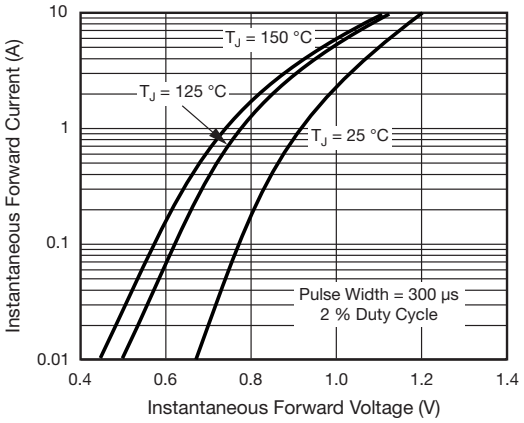


Fig. 3 - Typical Instantaneous Forward Characteristics

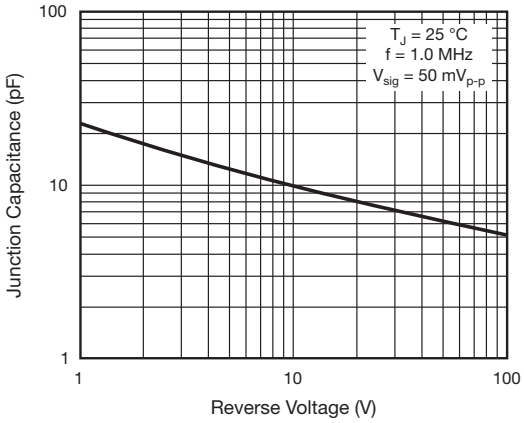


Fig. 5 - Typical Junction Capacitance

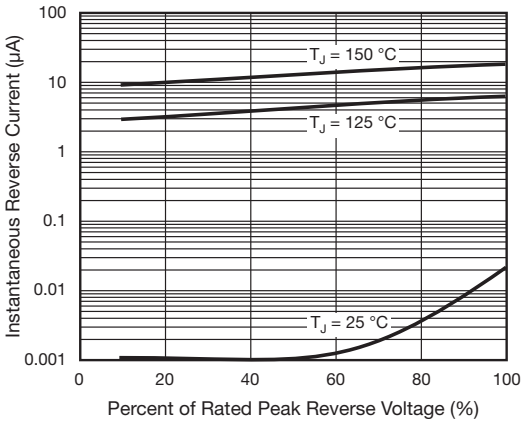


Fig. 4 - Typical Reverse Characteristics

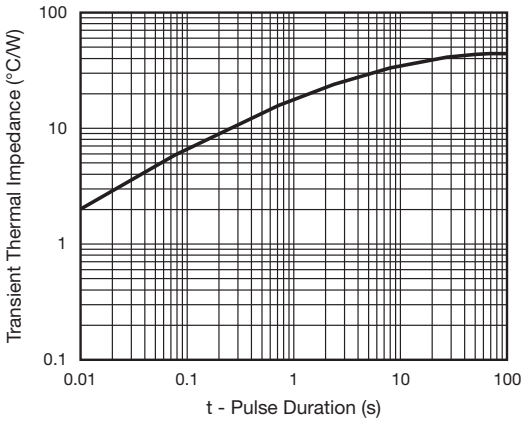
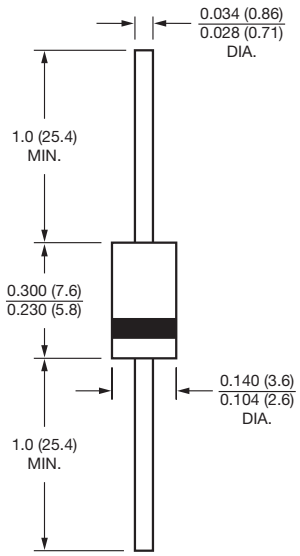


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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