



**THE DATASHEET OF
BY127MGPHE3/73**



Miniature Glass Passivated Junction Rectifier



FEATURES

- Superrectifier 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.

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

$I_{F(AV)}$	1.75 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

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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	TEST CONDITIONS	SYMBOL	BY127MGP	UNIT
Maximum instantaneous forward voltage	$I_F = 5.0\text{ A}$	$V_F^{(1)}$	1.5	V
Maximum reverse current	$V_R = 1250\text{ V}$ $T_A = 25\text{ }^\circ\text{C}$	I_R	5.0	μA
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$	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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BY127MGP	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	45	$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	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

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

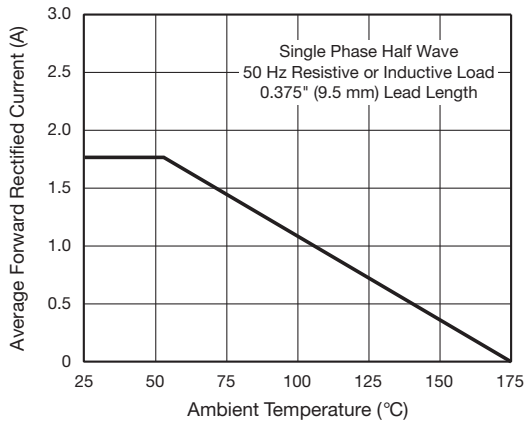


Fig. 1 - Forward Current Derating Curve

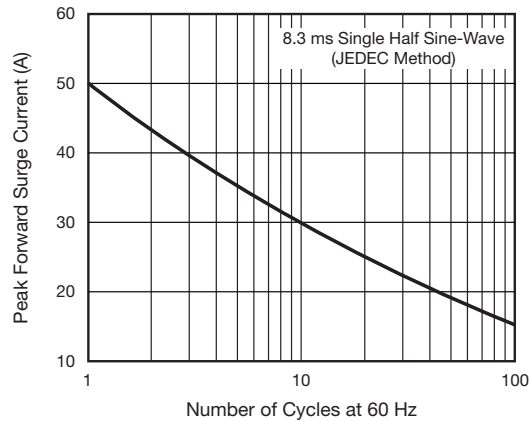


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

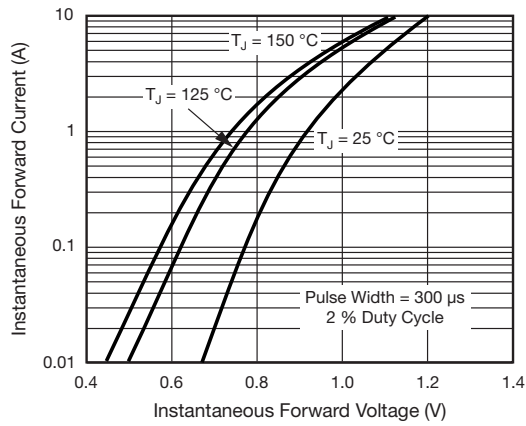


Fig. 3 - Typical Instantaneous Forward Characteristics

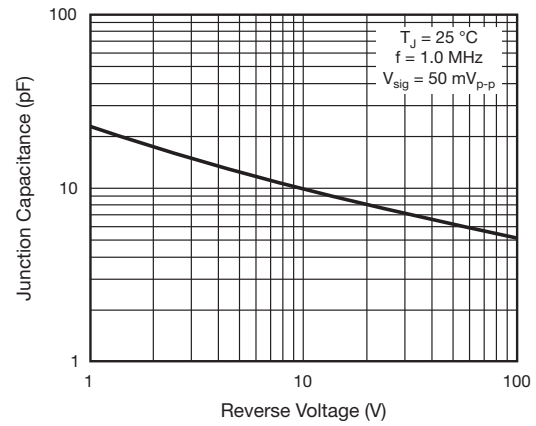


Fig. 5 - Typical Junction Capacitance

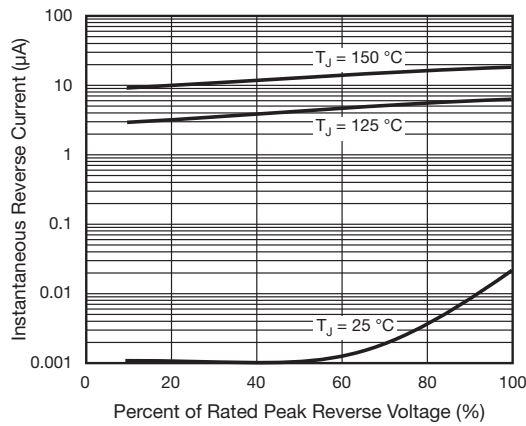


Fig. 4 - Typical Reverse Characteristics

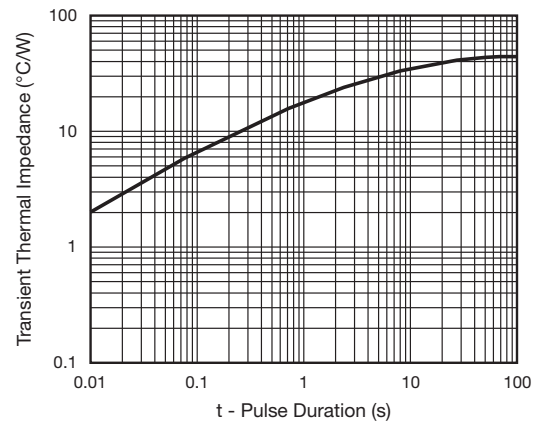
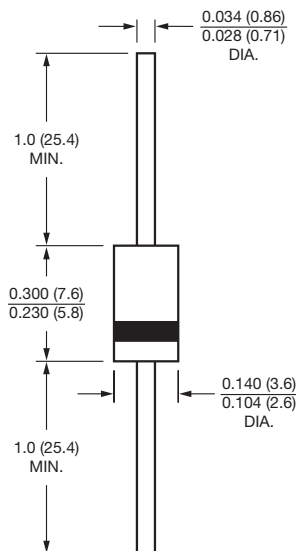


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)




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