

Glass Passivated Junction Fast Switching Rectifier



FEATURES

- Superelectifier structure for High Reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and free-wheeling diodes for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-204AL, molded epoxy over glass body
Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes cathode end

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	200 V to 1000 V
I_{FSM}	25 A
t_{rr}	150 ns, 250 ns, 500 ns
I_R	1.0 μ A
V_F	1.3 V
T_j max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	1N4942GP	1N4944GP	1N4946GP	1N4947GP	1N4948GP	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C	$I_{F(AV)}$	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	25					A
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	1N4942GP	1N4944GP	1N4946GP	1N4947GP	1N4948GP	UNIT
Maximum instantaneous forward voltage	at 1.0 A	V _F	1.3					V
Maximum DC reverse current at rated DC blocking voltage	T _A = 25 °C T _A = 150 °C	I _R	1.0 200					μA
Maximum reverse recovery time	at I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	t _{rr}	150		250		500	ns
Typical junction capacitance	at 4.0 V, 1 MHz	C _J	15					pF

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	1N4942GP	1N4944GP	1N4946GP	1N4947GP	1N4948GP	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	55					$^{\circ}\text{C/W}$

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				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
1N4946GP-E3/54	0.336	54	5500	13" Diameter Paper Tape & Reel
1N4946GP-E3/73	0.336	73	3000	Ammo Pack Packaging

RATINGS AND CHARACTERISTICS CURVES

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

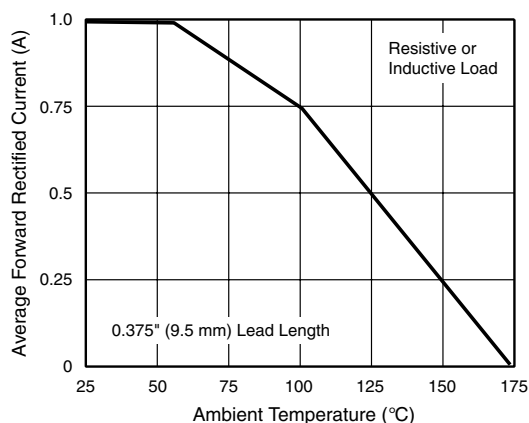


Figure 1. Forward Current Derating Curve

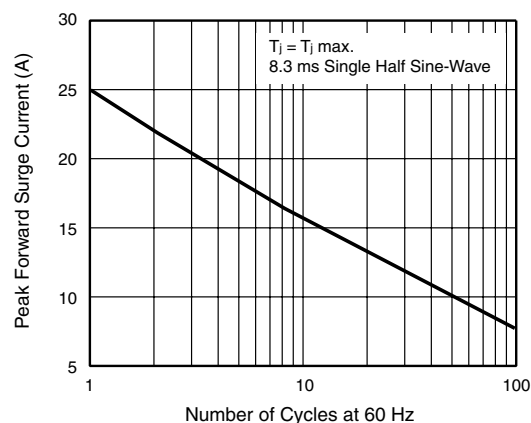


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

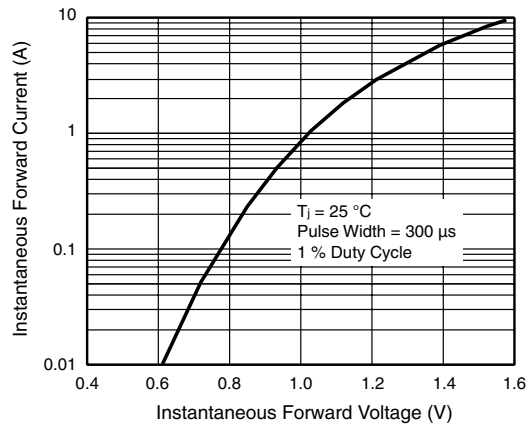


Figure 3. Typical Instantaneous Forward Characteristics

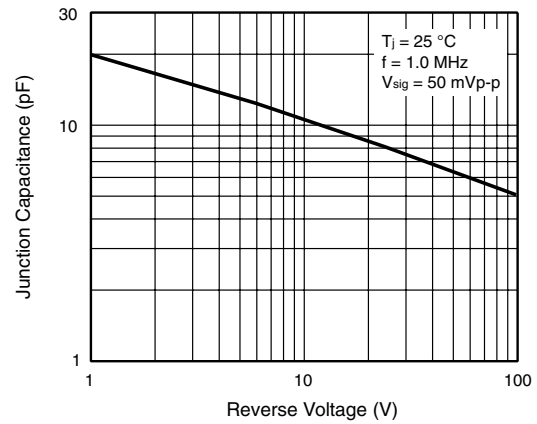


Figure 5. Typical Junction Capacitance

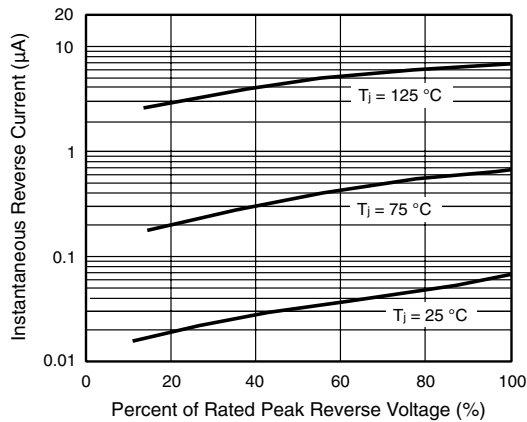


Figure 4. Typical Reverse Characteristics

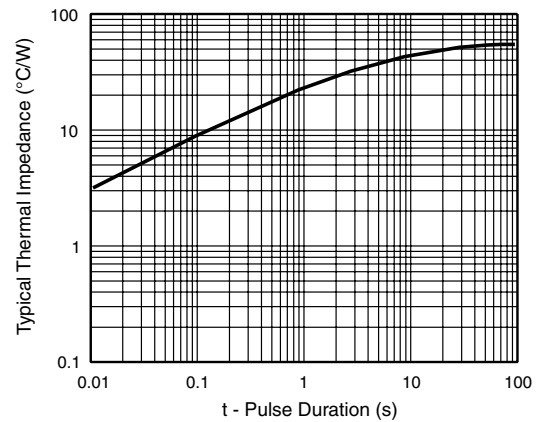
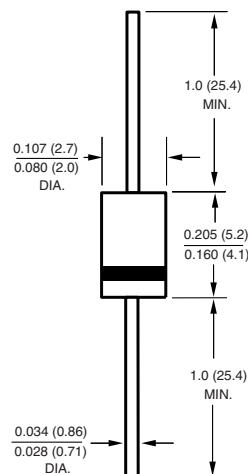


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



NOTE: Lead diameter is $\frac{0.026 (0.66)}{0.023 (0.58)}$ for suffix "E" part numbers



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