

Vishay General Semiconductor

Glass Passivated Junction Fast Switching Rectifier



PRIMARY 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 μΑ					
V _F	1.3 V					
T _J max.	175 °C					

FEATURES





- · Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current
- High forward surge capability
- riigirioi ward 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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-204AL, 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	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					Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load IFSM 25					Α		
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 175					°C

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	1N4942GP	1N4944GP	1N4946GP	1N4947GP	1N4948GP	UNIT
Maximum instantaneous forward voltage	1.0 A		V _F	1.3				٧	
Maximum DC reverse T _A = 25 °C 1.0				μA					
blocking voltage		T _A = 150 °C	I _R	200				μΛ	
Maximum reverse recovery time	$I_F = 0.5$ $I_{rr} = 0.2$	A, I _R = 1.0 A, 5 A	t _{rr}	150 250 500				ns	
Typical junction capacitance	4.0 V, 1	MHz	CJ	15				pF	

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	1N4942GP	1N4944GP	1N4946GP	1N4947GP	1N4948GP	UNIT
Typical thermal resistance	R _{0JA} (1)	55 °C.				°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 (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
1N4946GP-E3/54	0.336	54	5500	13" diameter paper tape and reel				
1N4946GP-E3/73	0.336	73	3000	Ammo pack packaging				
1N4946GPHE3/54 ⁽¹⁾	0.336	54	5500	13" diameter paper tape and reel				
1N4946GPHE3/73 ⁽¹⁾	0.336	73	3000	Ammo pack packaging				

Note

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

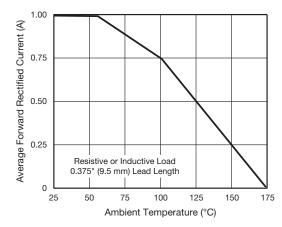


Fig. 1 - Forward Current Derating Curve

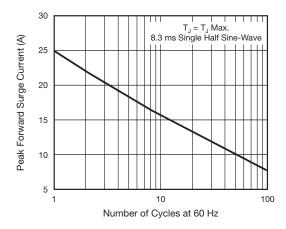


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified



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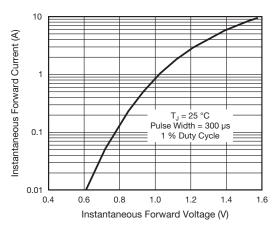


Fig. 3 - Typical Instantaneous Forward Characteristics

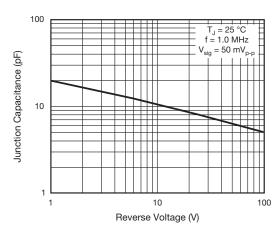


Fig. 5 - Typical Junction Capacitance

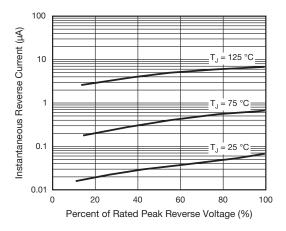


Fig. 4 - Typical Reverse Characteristics

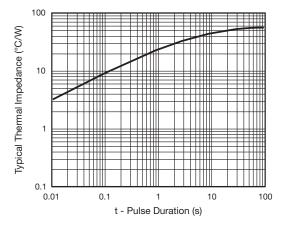


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41) 1.0 (25.4) MÌN. 0.107 (2.7) 0.080 (2.0) DIA. 0.205 (5.2) 0.160 (4.1) 1.0 (25.4) MIN. 0.034 (0.86) 0.028 (0.71) DIÀ.

0.026 (0.66) for suffix "E" part numbers Lead diameter is 0.023 (0.58)





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Document Number: 91000 www.vishay.com Revision: 11-Mar-11