

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 0.1 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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	50 V to 1000 V
I_{FSM}	50 A
I_R	5.0 μA
V_F	1.1 V
T_J max.	175 °C

TYPICAL APPLICATIONS

For use in general purpose 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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	GP15A	GP15B	GP15D	GP15G	GP15J	GP15K	GP15M	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$	$I_{F(AV)}$	1.5							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 $T_A = 55\text{ °C}$	$I_{R(AV)}$	100							μA
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175							°C

GP15A thru GP15M

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	GP15A	GP15B	GP15D	GP15G	GP15J	GP15K	GP15M	UNIT
Maximum instantaneous forward voltage	1.5 A		V_F				1.1				V
Maximum reverse current at rated DC blocking voltage		$T_A = 25\text{ }^\circ\text{C}$	I_R				5.0				μA
		$T_A = 150\text{ }^\circ\text{C}$					200				
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ V}$, $t_{rr} = 0.25\text{ A}$		t_{rr}				3.5				μs
Typical junction capacitance	4.0 V, 1 MHz		C_J				15				pF

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GP15A	GP15B	GP15D	GP15G	GP15J	GP15K	GP15M	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, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GP15J-E3/54	0.425	54	4000	13" diameter paper tape and reel
GP15J-E3/73	0.425	73	2000	Ammo pack packaging
GP15JHE3/54 (1)	0.425	54	4000	13" diameter paper tape and reel
GP15JHE3/73 (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)

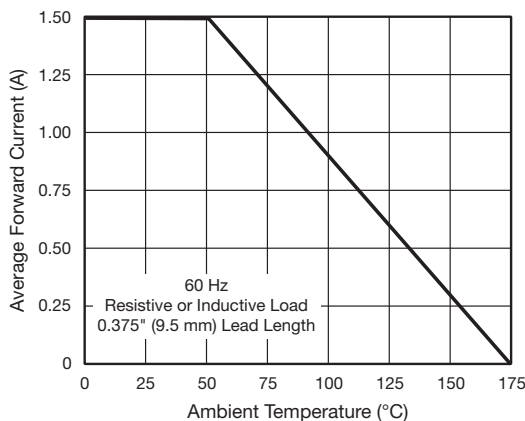


Fig. 1 - Forward Current Derating Curve

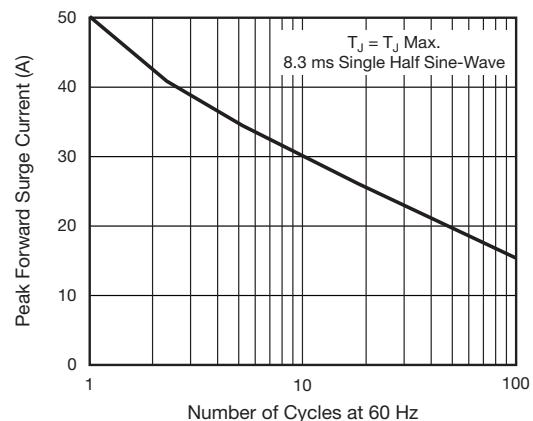


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

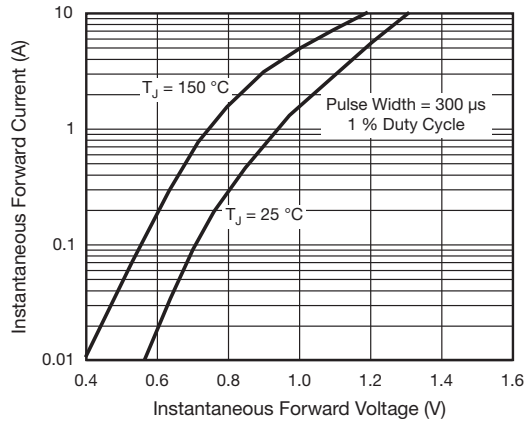


Fig. 3 - Typical Instantaneous Forward Characteristics

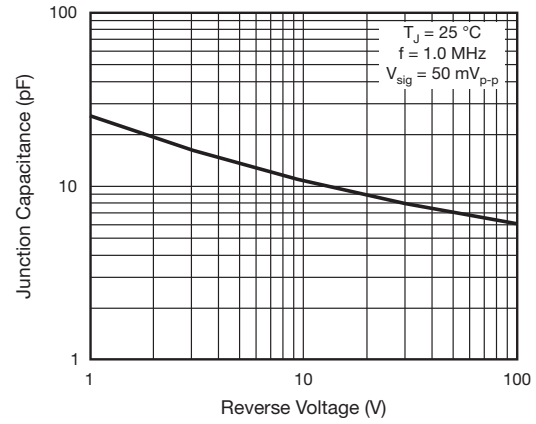


Fig. 5 - Typical Junction Capacitance

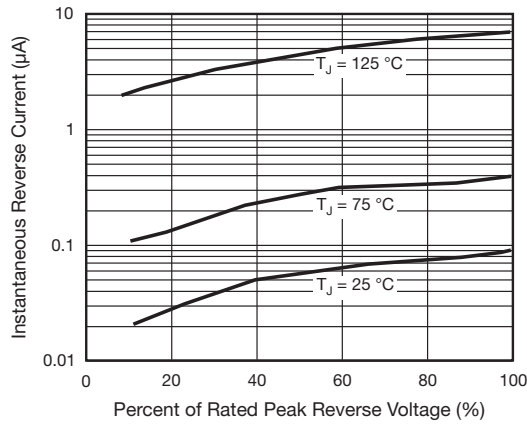


Fig. 4 - Typical Reverse Characteristics

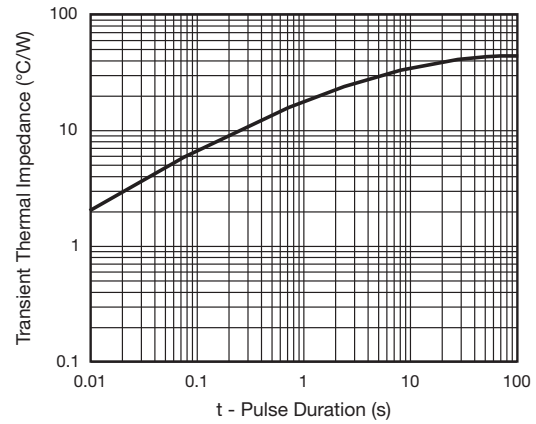
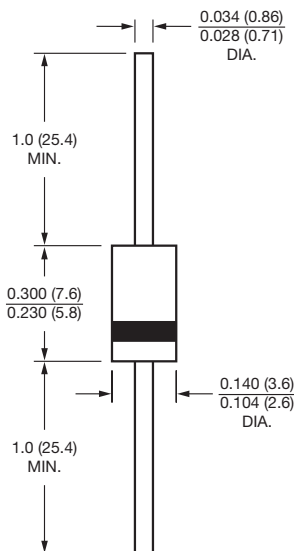


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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