

Glass Passivated Junction Rectifier



FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- 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

$I_{F(AV)}$	1.0 A
V_{RRM}	50 V to 1600 V
I_{FSM}	30 A, 25 A
I_R	5.0 μ A
V_F	1.1 V, 1.2 V, 1.3 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-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	A	B	D	G	J	K	M	N	Q	T	V	W	Y	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50 to 1600 (fig. 5)													V
Maximum average forward rectified current 0.375" (9.5 mm) lead length (fig. 1)	$I_{F(AV)}$	1.0													A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30						25						A	
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A = 75$ °C	$I_{R(AV)}$	30													μ A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175						- 65 to + 150						°C	

GP10A thru GP10Y

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)																
PARAMETER	TEST CONDITIONS	SYMBOL	A	B	D	G	J	K	M	N	Q	T	V	W	Y	UNIT
Maximum instantaneous forward voltage	1.0 A	V_F			1.1				1.2				1.3			V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	I_R	5.0													μA
	$T_A = 125\text{ }^\circ\text{C}$		50													
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	3.0													μs
Typical junction capacitance	4.0 V, 1 MHz	C_J			8.0				7.0				5.0			pF

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)															
PARAMETER	SYMBOL	A	B	D	G	J	K	M	N	Q	T	V	W	Y	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	55													$^\circ\text{C/W}$

Note

(1) Thermal resistance from junction to ambient 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
GP10J-E3/54	0.335	54	5500	13" diameter paper tape and reel
GP10J-E3/73	0.335	73	3000	Ammo pack packaging
GP10JHE3/54 (1)	0.335	54	5500	13" diameter paper tape and reel
GP10JHE3/73 (1)	0.335	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

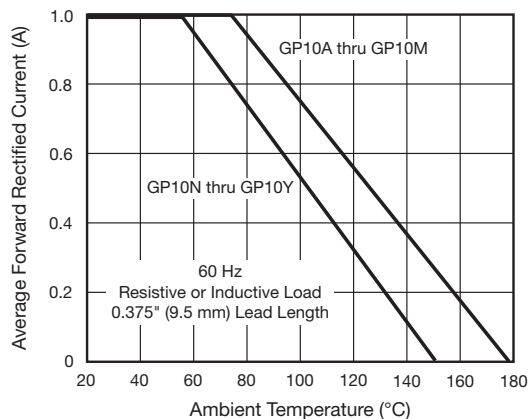


Fig. 1 - Forward Current Derating Curve

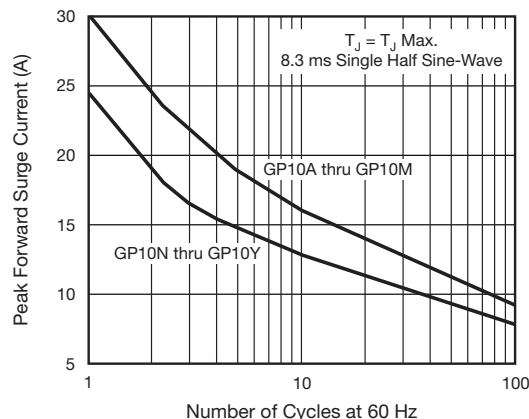


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

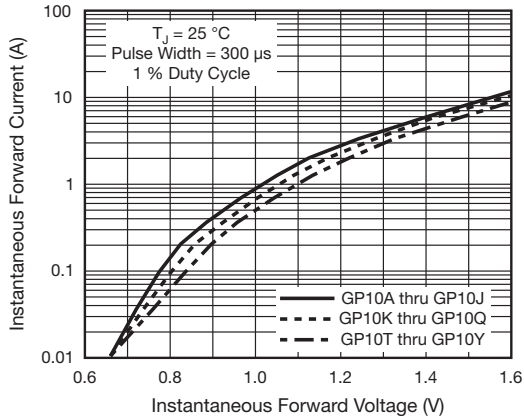


Fig. 3 - Typical Instantaneous Forward Characteristics

GP10A.....	50 V
GP10B.....	100 V
GP10D.....	200 V
GP10G.....	400 V
GP10J.....	600 V
GP10K.....	800 V
GP10M.....	1000 V
GP10N.....	1100 V
GP10Q.....	1200 V
GP10T.....	1300 V
GP10V.....	1400 V
GP10W.....	1500 V
GP10Y.....	1600 V

Fig. 5 - Maximum Repetitive Peak Reverse Voltage, V_{RRM}

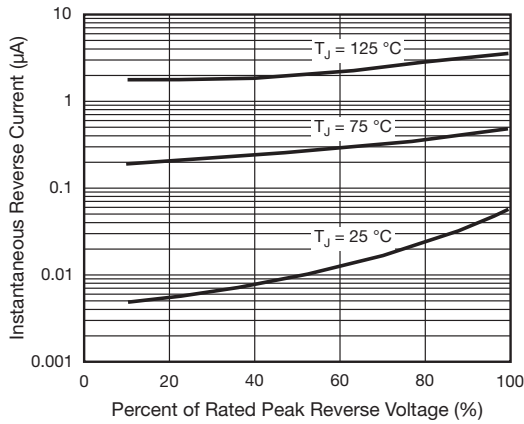


Fig. 4 - Typical Reverse Characteristics

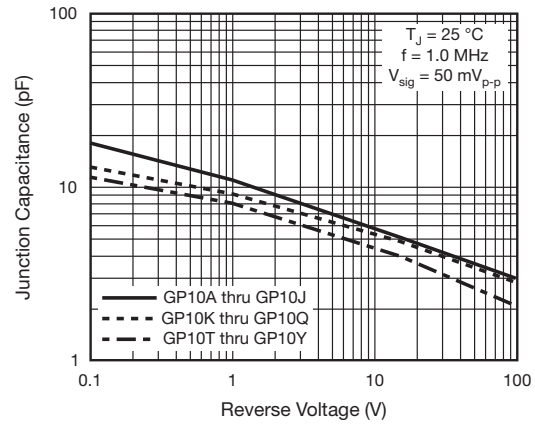
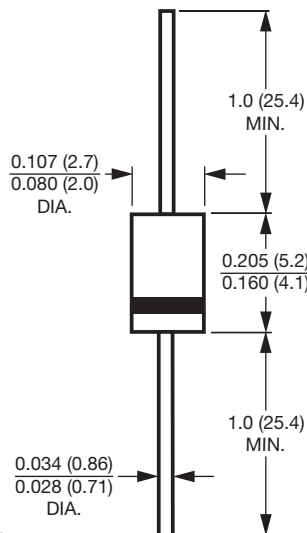


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



Note

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



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