

Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®

DO-204AL (DO-41)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

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

Note

- For part numbers with "E" suffix, they are "-E3" commercial grade only

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
Package	DO-204AL (DO-41)
Diode variations	Single die

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													μA
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 175								- 65 to + 150					°C



ELECTRICAL CHARACTERISTICS (T _A = 25 °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 °C	I _R	5.0														μA
		T _A = 125 °C		50														
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 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

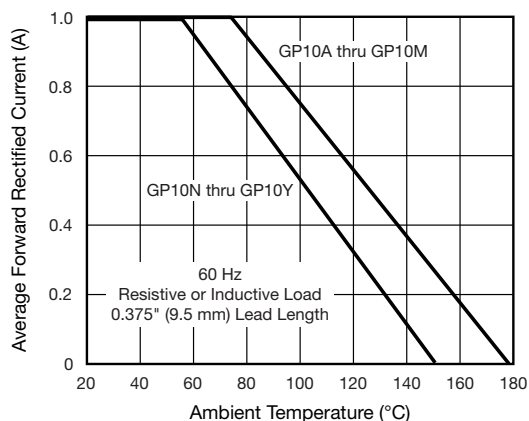
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

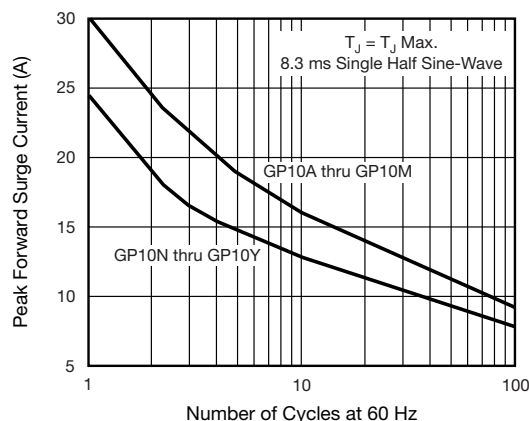


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

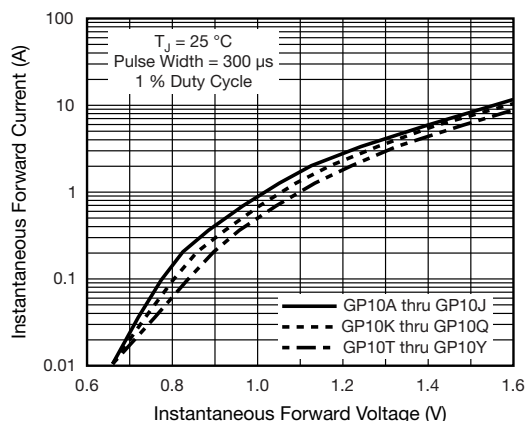


Fig. 3 - Typical Instantaneous Forward Characteristics

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

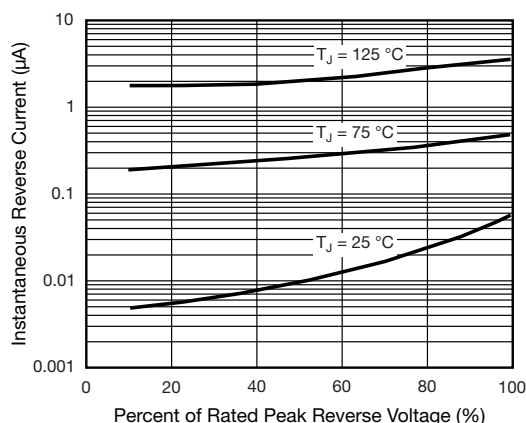
Fig. 5 - Maximum Repetitive Peak Reverse Voltage, V_{RRM}


Fig. 4 - Typical Reverse Characteristics

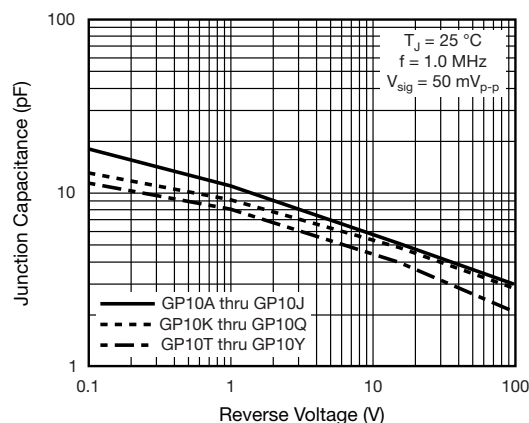
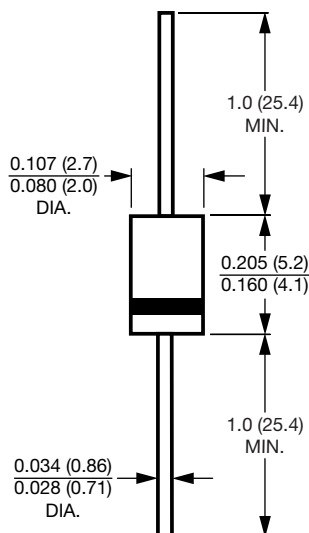


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



Note

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



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