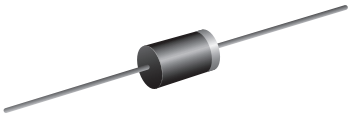
Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

FEATURES

- Superectifier structure for high reliability condition
- 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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for both consumer and automotive applications.

PRIMARY CHARACTERISTICS	
Package	DO-204AL (DO-41)
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V to 1600 V
I_{FSM}	30 A, 25 A
I_R	5.0 µA
V_F	1.1 V, 1.2 V, 1.3 V
T_J max.	175 °C
Diode variations	Single die

MECHANICAL DATA

Case: DO-204AL, molded epoxy over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade
Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

Note

- For part numbers with “E” suffix, they are”-M3” commercial grade only

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 °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													°C/W

Note

(1) Thermal resistance from junction to ambient 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**
GP10J-M3/54	0.335	54	5500	13" diameter paper tape and reel
GP10J-M3/73	0.335	73	3000	Ammo pack packaging
GP10JHM3/54 (1)	0.335	54	5500	13" diameter paper tape and reel
GP10JHM3/73 (1)	0.335	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

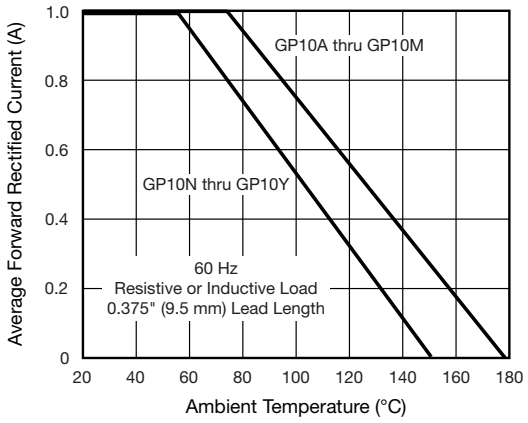


Fig. 1 - Forward Current Derating Curve

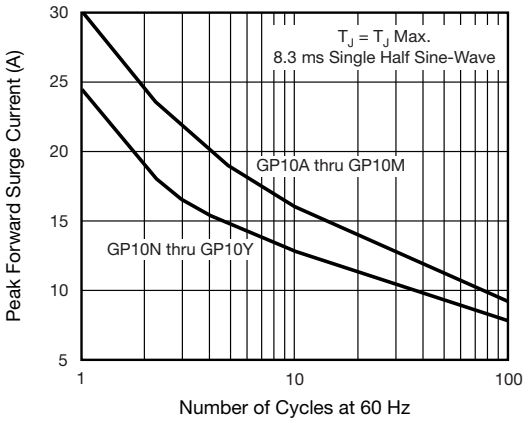


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

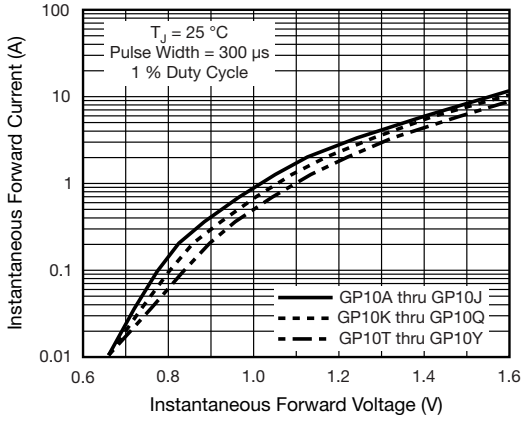


Fig. 3 - Typical Instantaneous Forward Characteristics

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}

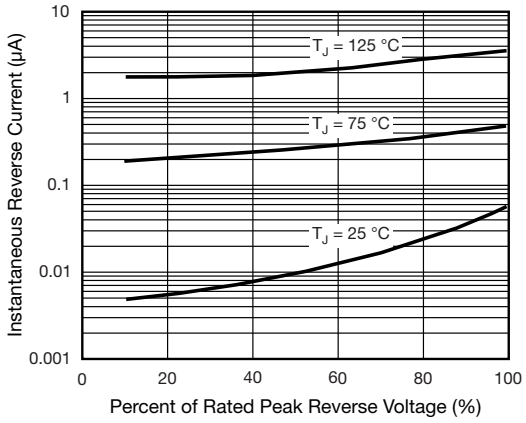


Fig. 4 - Typical Reverse Characteristics

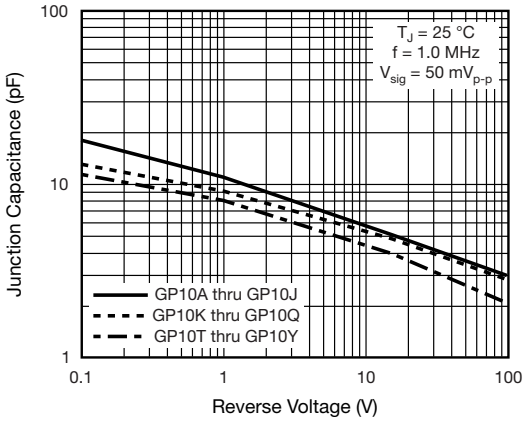
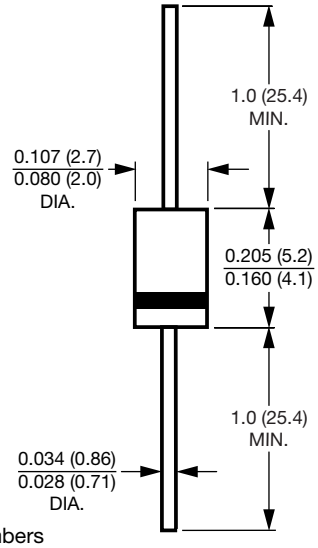


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



Note

• Lead diameter is $\frac{0.026\ (0.66)}{0.023\ (0.58)}$ for suffix “E” part numbers

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