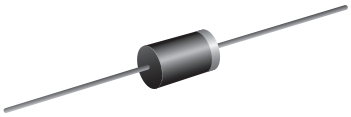
Glass Passivated Junction Plastic Rectifier

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 µA
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 °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, 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 °C unless otherwise noted)

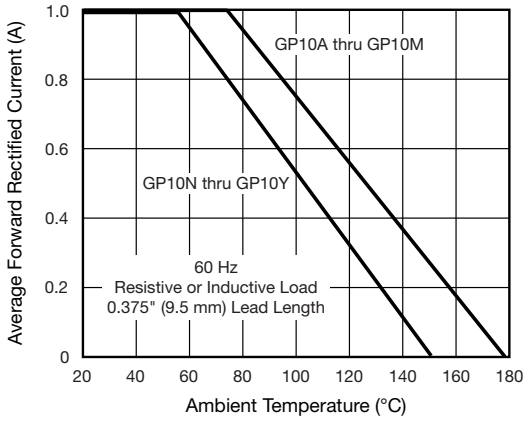


Fig. 1 - Forward Current Derating Curve

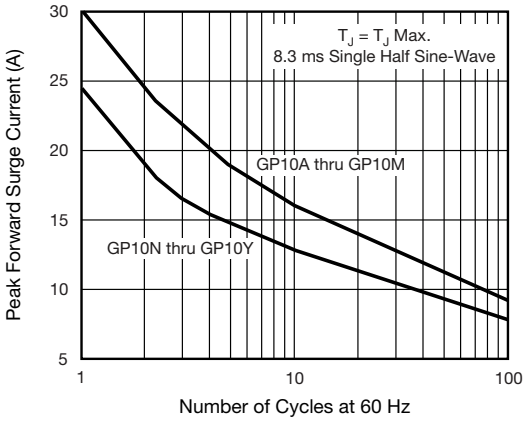


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

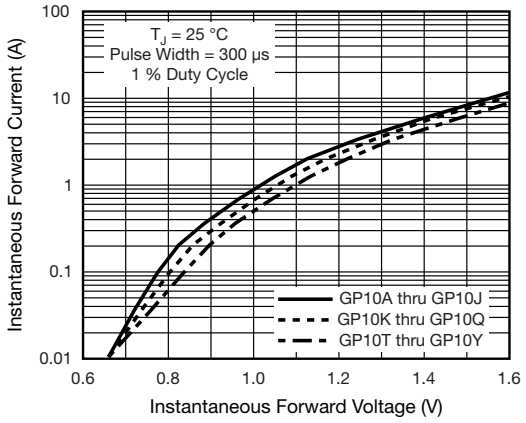


Fig. 3 - Typical Instantaneous Forward Characteristics

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}

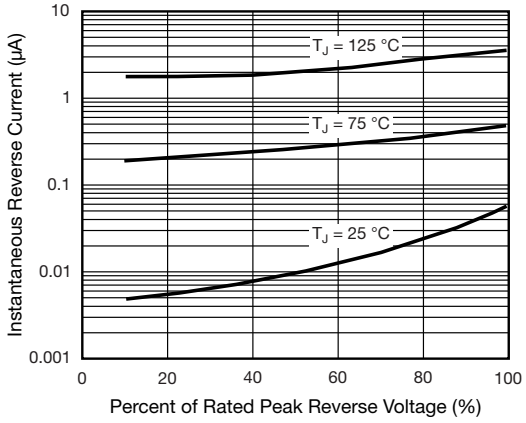


Fig. 4 - Typical Reverse Characteristics

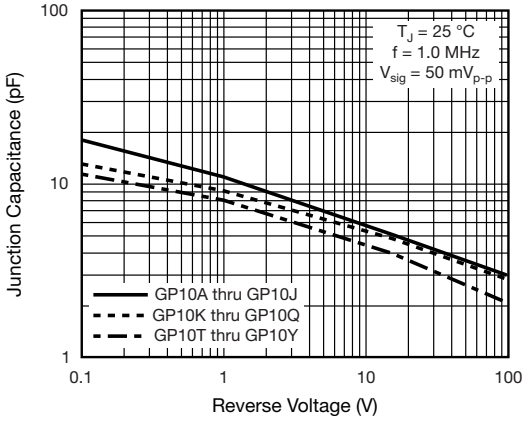
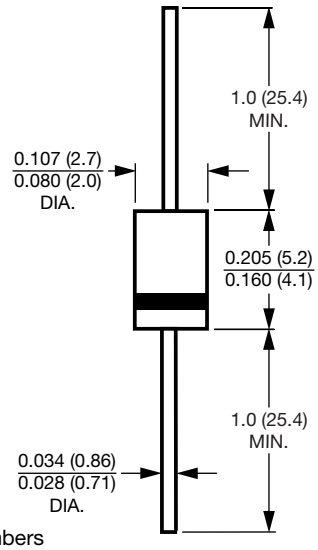


Fig. 6 - Typical Junction Capacitance

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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