

Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-41 (DO-204AL)



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Superrectifier 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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-41 (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

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V, 1100 V, 1200 V, 1300 V, 1400 V, 1500 V, 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-41 (DO-204AL)
Circuit configuration	Single

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	



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, 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

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

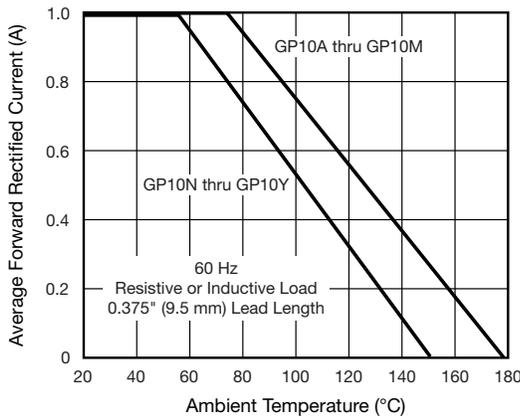


Fig. 1 - Forward Current Derating Curve

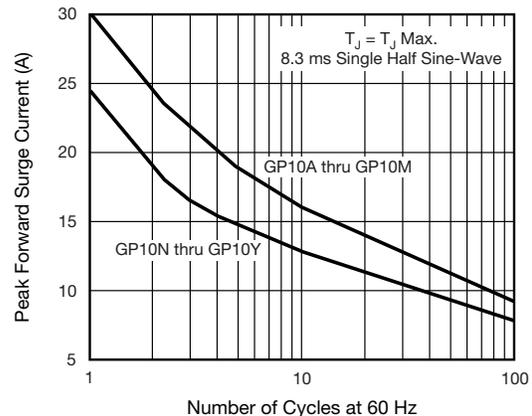


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

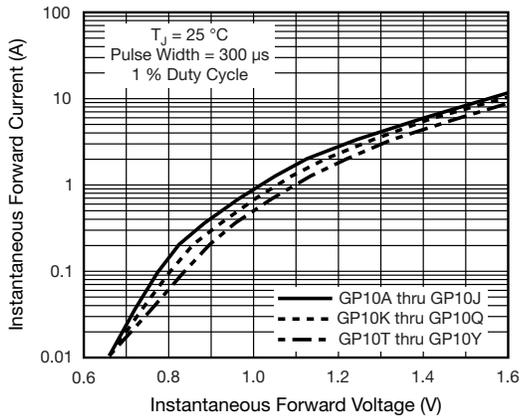


Fig. 3 - Typical Instantaneous Forward Characteristics

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}

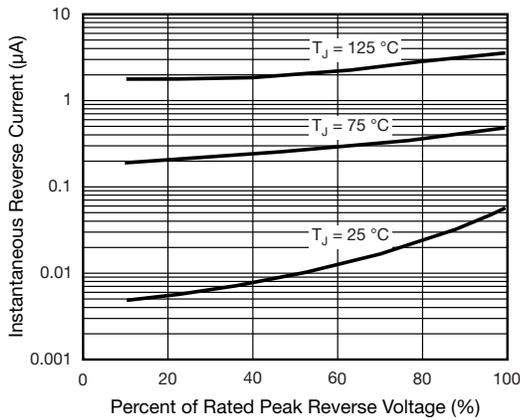


Fig. 4 - Typical Reverse Characteristics

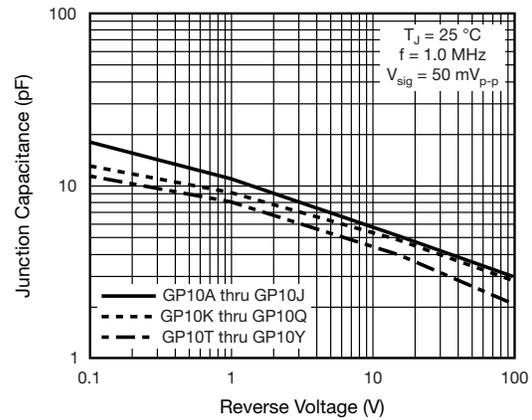
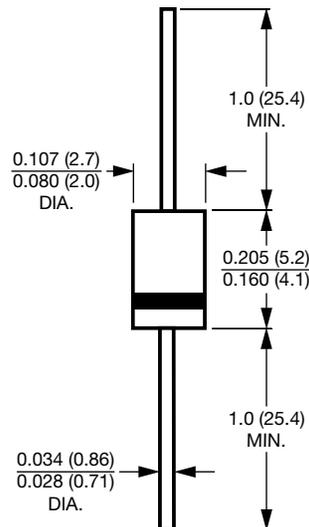


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)



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



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