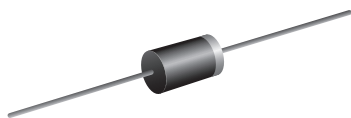


## Glass Passivated Junction Plastic Rectifier

**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](http://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 $\mu$ A
$V_F$	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)

MAXIMUM RATINGS (T <sub>A</sub> = 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 <sub>RRM</sub>	50 to 1600 (fig. 5)														V
Maximum average forward rectified current 0.375" (9.5 mm) lead length (fig. 1)	I <sub>F(AV)</sub>	1.0														A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30								25						A
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at T <sub>A</sub> = 75 °C	I <sub>R(AV)</sub>	30														μA
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 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 <sub>F</sub>	1.1					1.2				1.3				V
Maximum DC reverse current at rated DC blocking voltage		T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0													μA
		T <sub>A</sub> = 125 °C		50													
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	3.0													μs
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	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
GP10JHM3/54 <sup>(1)</sup>	0.335	54	5500	13" diameter paper tape and reel
GP10JHM3/73 <sup>(1)</sup>	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)

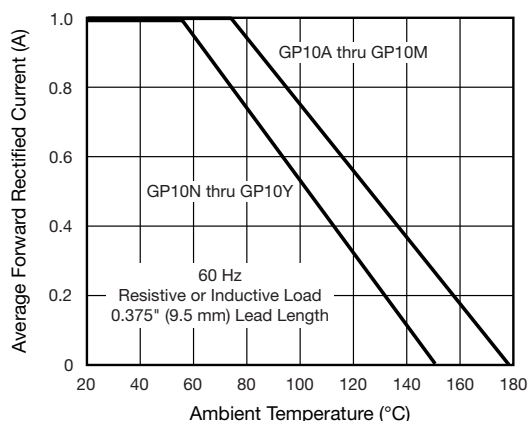


Fig. 1 - Forward Current Derating Curve

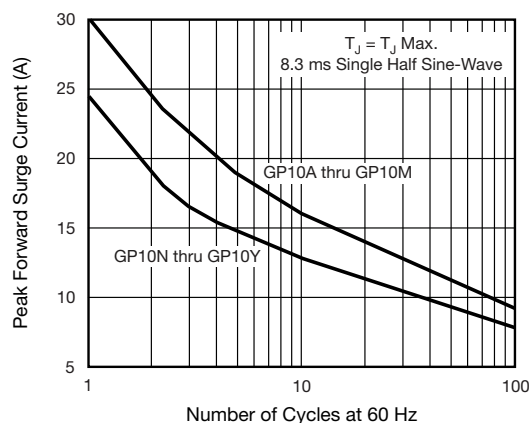


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

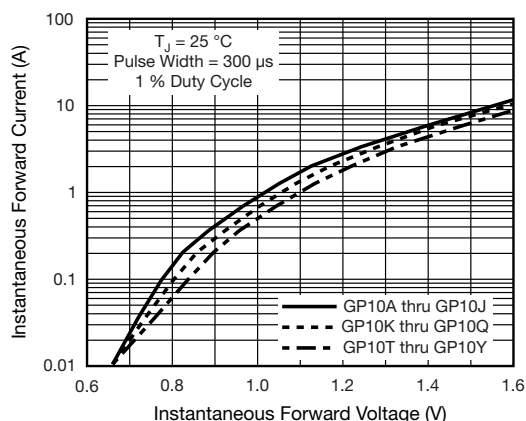


Fig. 3 - Typical Instantaneous Forward Characteristics

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,  $V_{RRM}$

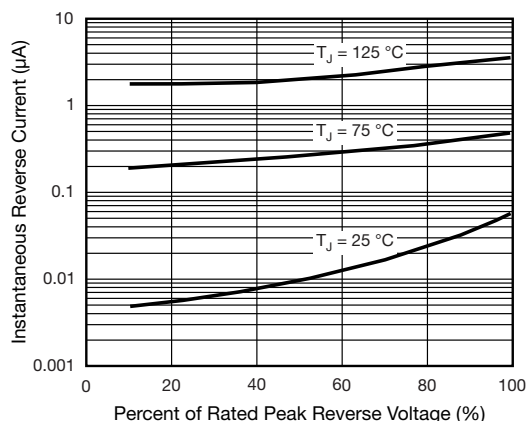


Fig. 4 - Typical Reverse Characteristics

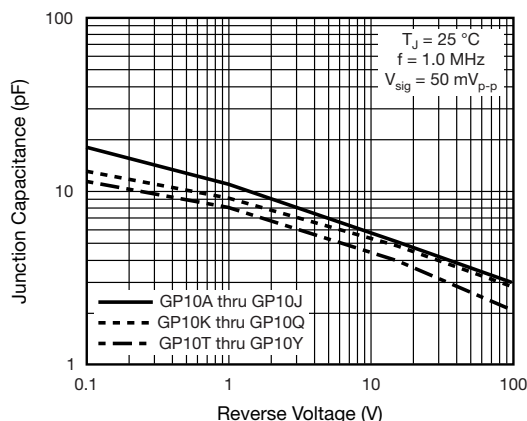
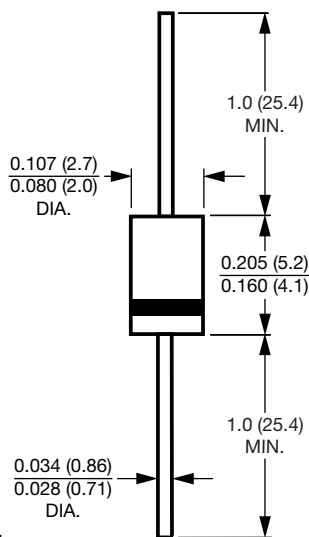


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AL (DO-41)



#### Note

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



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