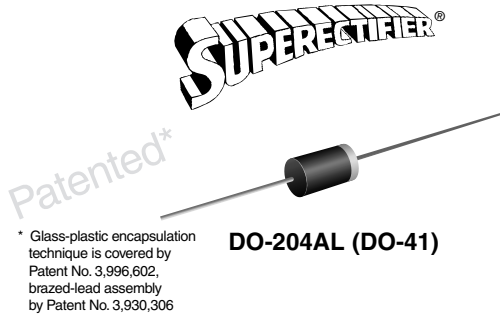


## Glass Passivated Junction Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### 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 $\mu$ A
$V_F$	1.1 V, 1.2 V, 1.3 V
$T_J$ max.	175 °C

### 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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

### 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 V (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 lengths at $T_A = 75$ °C	$I_{R(AV)}$	30													$\mu$ A		
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175					- 65 to + 150										°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 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 <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 T <sub>A</sub> = 125 °C	I <sub>R</sub>				5.0 50									μA	
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 <sub>A</sub> = 25 °C unless otherwise noted)																	
PARAMETER	SYMBOL	A	B	D	G	J	K	M	N	Q	T	V	W	Y	UNIT		
Typical thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>							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 <sup>(1)</sup>	0.335	54	5500	13" diameter paper tape and reel
GP10JHE3/73 <sup>(1)</sup>	0.335	73	3000	Ammo pack packaging

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

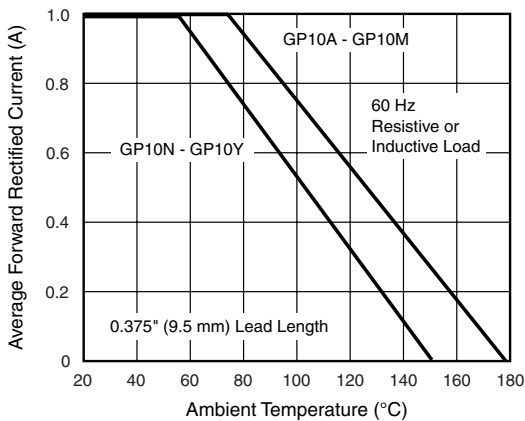


Figure 1. Forward Current Derating Curve

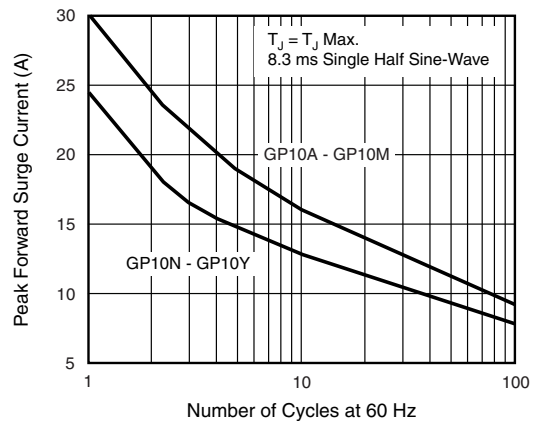


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

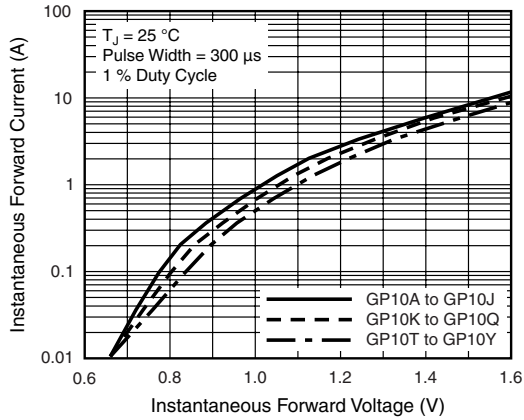


Figure 3. Typical Instantaneous Forward Characteristics

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

Figure 5. Maximum Repetitive Peak Reverse Voltage,  $V_{RRM}$

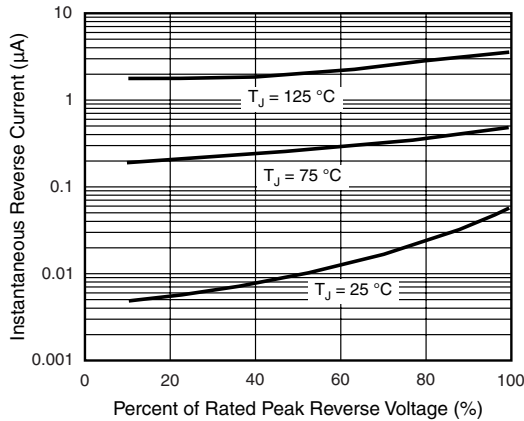


Figure 4. Typical Reverse Characteristics

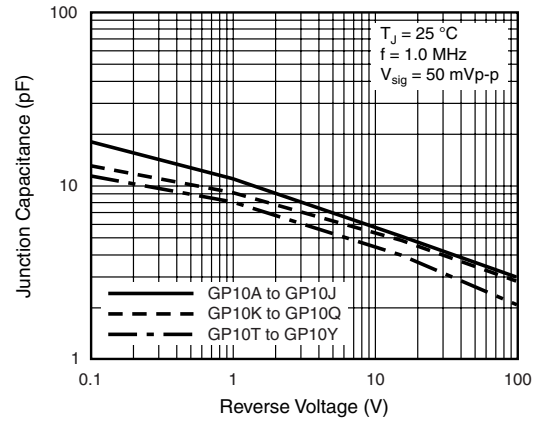
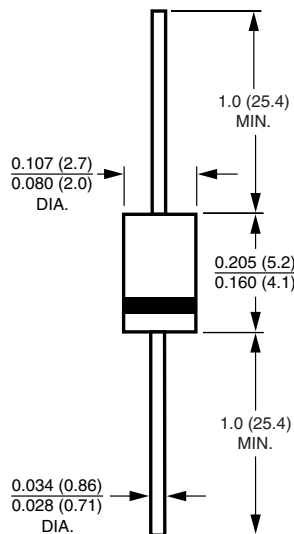


Figure 6. Typical Junction Capacitance

**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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