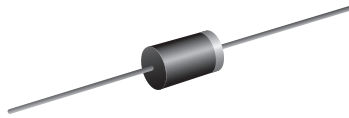


# High Voltage Glass Passivated Junction Plastic Rectifier

**SUPERECTIFIER®**



**DO-204AL (DO-41)**

## FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 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

## TYPICAL APPLICATIONS

For use in rectification of high voltage power supplies, inverters, converters, and freewheeling diodes application.

## 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

## PRIMARY CHARACTERISTICS

$I_{F(AV)}$	0.25 A
$V_{RRM}$	1000 V, 2500 V, 3000 V, 3500 V, 4000 V
$I_{FSM}$	15 A
$I_R$	5.0 $\mu$ A
$V_F$	3.0 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	GP02-20	GP02-25	GP02-30	GP02-35	GP02-40	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	2000	2500	3000	3500	4000	V
Maximum RMS voltage	$V_{RMS}$	1400	1750	2100	2450	2800	V
Maximum DC blocking voltage	$V_{DC}$	2000	2500	3000	3500	4000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C	$I_{F(AV)}$	0.25					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	15					A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175					°C

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	GP02-20	GP02-25	GP02-30	GP02-35	GP02-40	UNIT
Maximum instantaneous forward voltage	1.0 A		V <sub>F</sub>	3.0					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> = 100 °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>	2.0					μs
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	3.0					pF

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	GP02-20	GP02-25	GP02-30	GP02-35	GP02-40	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	130					$^{\circ}\text{C/W}$

**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
GP02-20E3/54	0.339	54	5500	13" diameter paper tape and reel
GP02-20E3/73	0.339	73	3000	Ammo pack packaging
GP02-20HE3/54 <sup>(1)</sup>	0.339	54	5500	13" diameter paper tape and reel
GP02-20HE3/73 <sup>(1)</sup>	0.339	73	3000	Ammo pack packaging

**Note**

(1) AEC-Q101 qualified

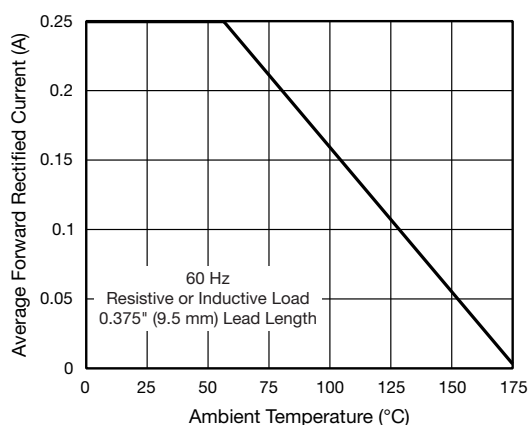
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

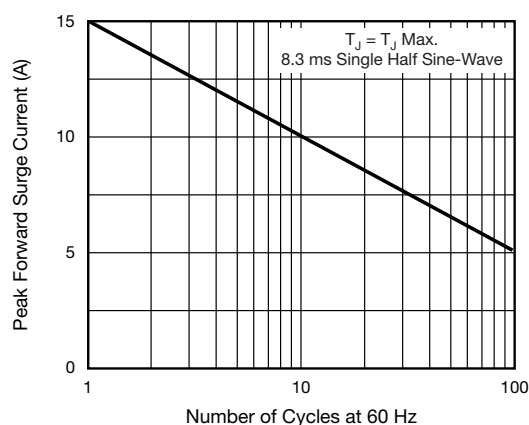


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

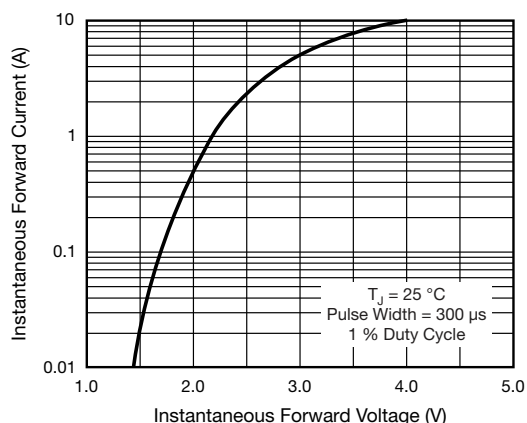


Fig. 3 - Typical Instantaneous Forward Characteristics

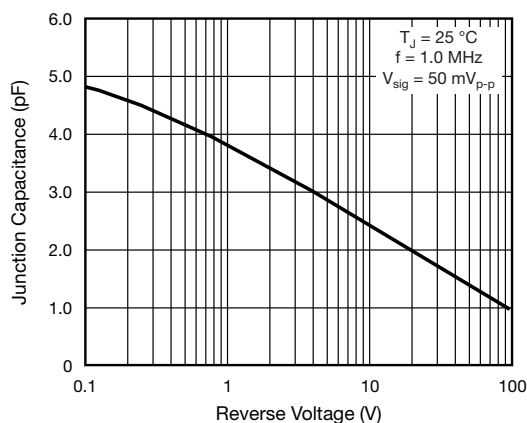


Fig. 5 - Typical Junction Capacitance

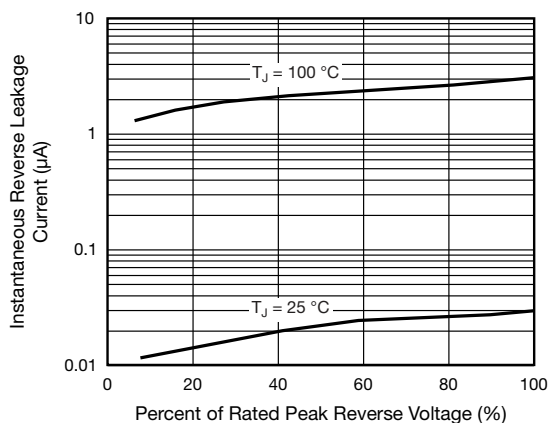
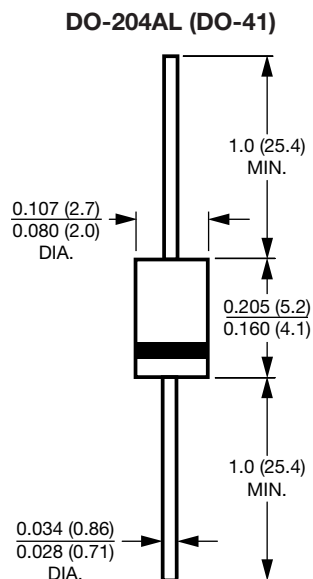


Fig. 4 - Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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