

## Glass Passivated Junction Plastic Rectifier



### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Low leakage current, typical  $I_R$  less than  $0.1 \mu\text{A}$
- Low forward voltage drop
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip  $275^\circ\text{C}$  max. 10 s, per JESD 22-B102
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-201AD, 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	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	125 A
$I_R$	$5.0 \mu\text{A}$
$V_F$	1.2 V, 1.1 V
$T_J$ max.	$175^\circ\text{C}$

MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	GP30A	GP30B	GP30D	GP30G	GP30J	GP30K	GP30M	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55^\circ\text{C}$	$I_{F(AV)}$	3.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	125							A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55^\circ\text{C}$	$I_{R(AV)}$	100							$\mu\text{A}$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175							$^\circ\text{C}$

# GP30A thru GP30M

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	GP30A	GP30B	GP30D	GP30G	GP30J	GP30K	GP30M	UNIT
Maximum instantaneous forward voltage	3.0 A	$V_F$	1.2					1.1		V
Maximum reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R$						5.0		$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$							100		
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ V}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$						5.0		$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$						40		pF

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GP30A	GP30B	GP30D	GP30G	GP30J	GP30K	GP30M	UNIT	
Typical thermal resistance	$R_{\theta JA}^{(1)}$							20	$^\circ\text{C/W}$	
	$R_{\theta JL}^{(1)}$							10		

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead 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
GP30J-E3/54	1.28	54	1400	13" diameter paper tape and reel
GP30J-E3/73	1.28	73	1000	Ammo pack packaging
GP30JHE3/54 <sup>(1)</sup>	1.28	54	1400	13" diameter paper tape and reel
GP30JHE3/73 <sup>(1)</sup>	1.28	73	1000	Ammo pack packaging

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

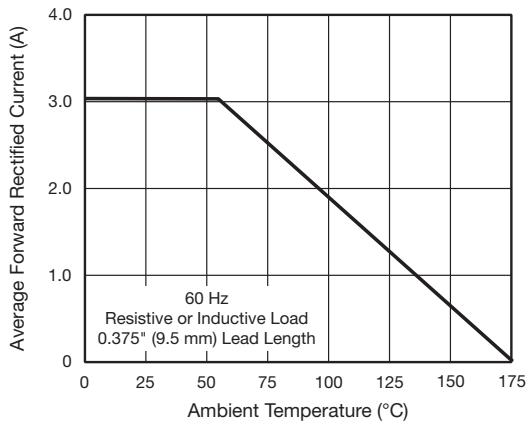


Fig. 1 - Forward Current Derating Curve

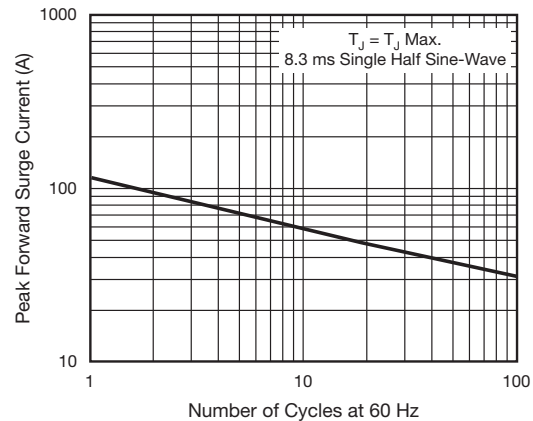


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

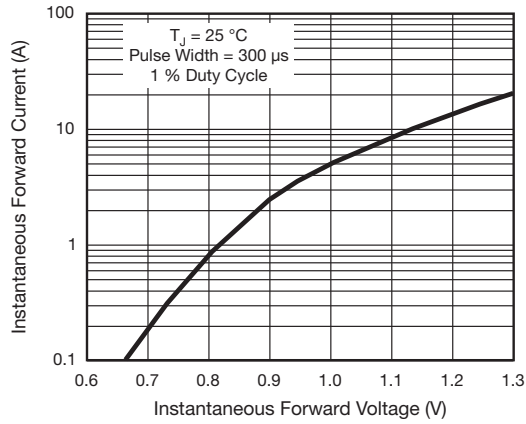


Fig. 3 - Typical Instantaneous Forward Characteristics

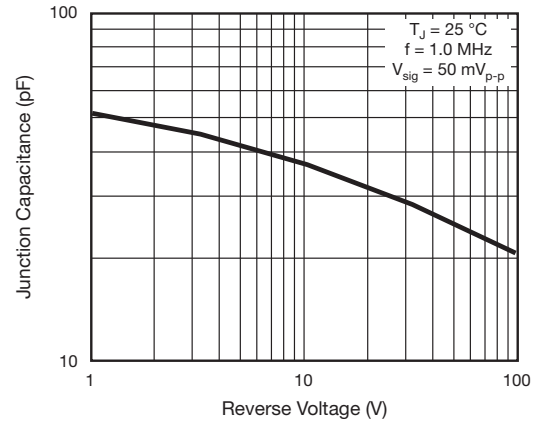


Fig. 5 - Typical Junction Capacitance

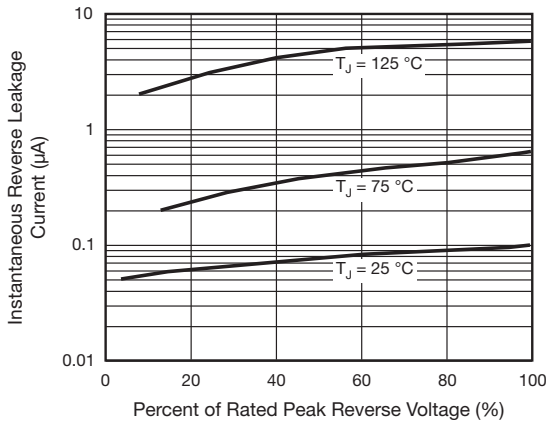


Fig. 4 - Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-201AD





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