

## Glass Passivated Junction Plastic Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current,  $I_R$  less than 0.1  $\mu\text{A}$
- High forward surge capability
- 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 general purpose rectification of power supplies, inverters, converters and freewheeling diodes for both consumer, and automotive applications.

### 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
$V_{RRM}$	200 V, 400 V, 600 V, 800 V, 1300 V
$I_{FSM}$	100 A
$I_R$	5.0 $\mu\text{A}$
$V_F$	1.1 V
$T_J$ max.	175 °C
Package	DO-201AD
Diode variations	Single die

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	BY251GP	BY252GP	BY253GP	BY254GP	BY255GP	UNIT
Maximum non repetitive peak reverse voltage	$V_{RSM}$	220	440	660	880	1430	V
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	800	1300	V
Maximum RMS voltage	$V_{RMS}$	140	280	420	560	910	V
Maximum DC blocking voltage	$V_{DC}$	200	400	600	800	1300	V
Maximum average forward rectified current 10 mm lead length at $T_A = 55$ °C	$I_{F(AV)}$	3.0					A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100					A
Maximum full load reverse current, full cycle average 10 mm lead length at $T_A = 55$ °C	$I_{R(AV)}$	100					$\mu\text{A}$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175					°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	BY251GP	BY252GP	BY253GP	BY254GP	BY255GP	UNIT
Maximum instantaneous forward voltage	3.0 A	$V_F$	1.1					V
Maximum reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	5.0					$\mu\text{A}$
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ V}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	3.0					$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	40					pF

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	BY251GP	BY252GP	BY253GP	BY254GP	BY255GP	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, PCB mounted

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BY253GP-E3/54	1.28	54	1400	13" diameter paper tape and reel
BY253GP-E3/73	1.28	73	1000	Ammo pack packaging
BY253GPHE3/54 <sup>(1)</sup>	1.28	54	1400	13" diameter paper tape and reel
BY253GPHE3/73 <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)

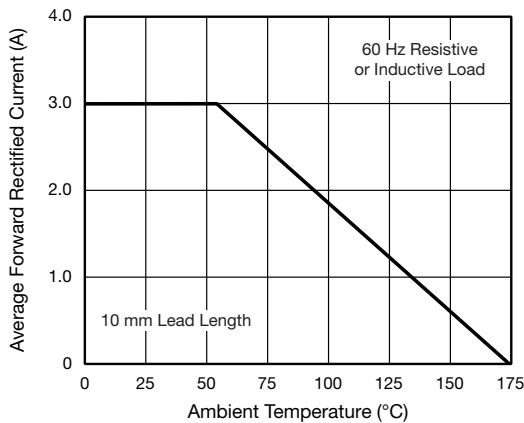


Fig. 1 - Forward Current Derating Curve

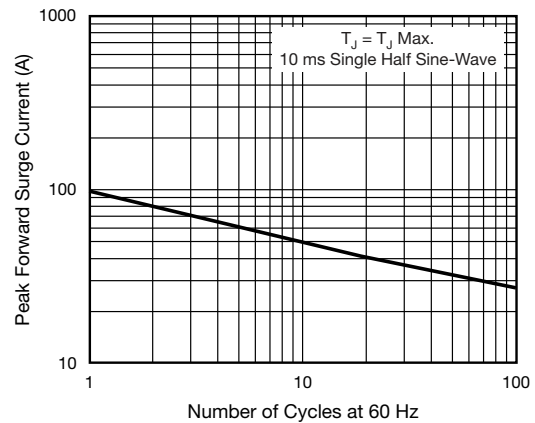


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

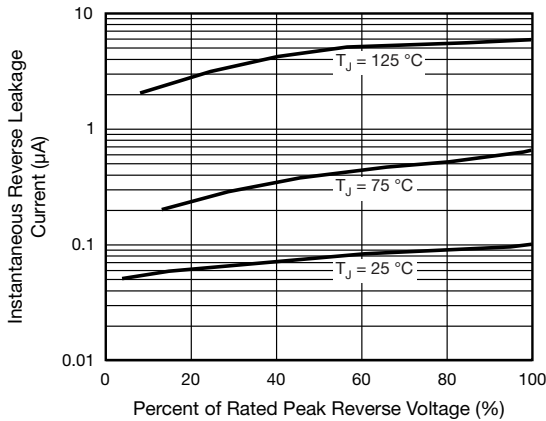


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

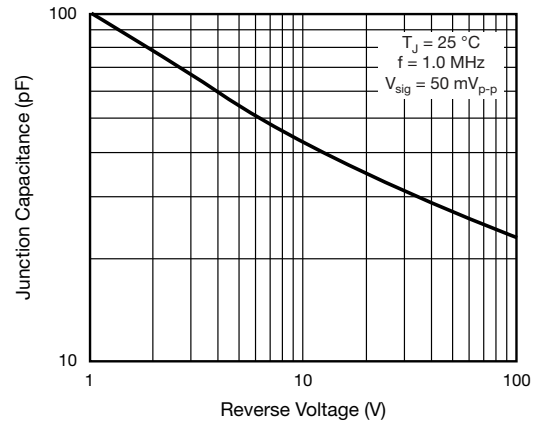


Fig. 5 - Typical Junction Capacitance

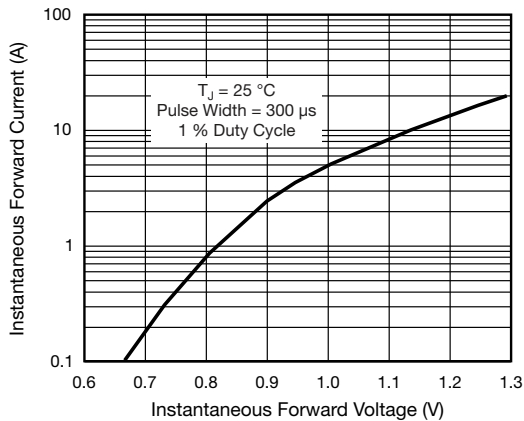
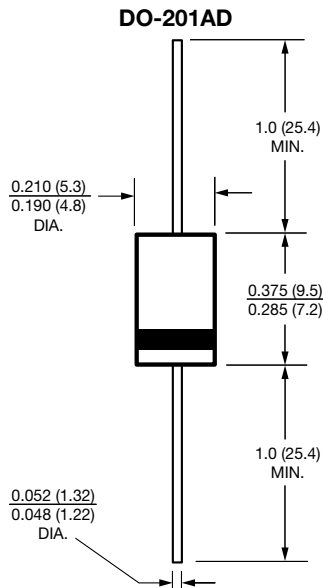


Fig. 4 - Typical Instantaneous Forward Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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