

## Glass Passivated Junction Plastic Rectifier



### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current,  $I_R$  less than 0.1  $\mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- 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 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 to 1300 V
$I_{FSM}$	100 A
$I_R$	5.0 $\mu A$
$V_F$	1.1 V
$T_J$ max.	175 °C

### 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					$\mu A$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175					°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	BY251GP	BY252GP	BY253GP	BY254GP	BY255GP	UNIT
Maximum instantaneous forward voltage	3.0 A		V <sub>F</sub>	1.1					V
Maximum reverse current at rated DC blocking voltage		T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0					μA
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 V, 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>	40					pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BY251GP	BY252GP	BY253GP	BY254GP	BY255GP	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	20					°C/W
	R <sub>θJL</sub> <sup>(1)</sup>	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
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)

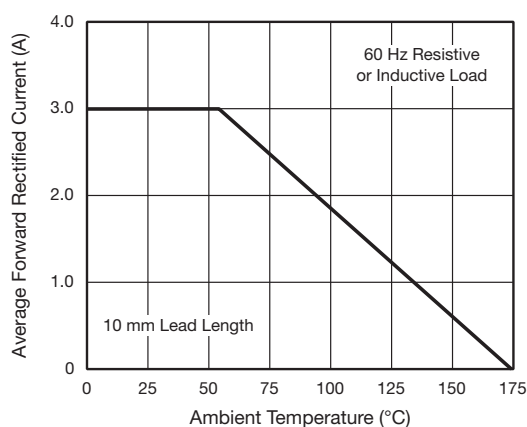


Fig. 1 - Forward Current Derating Curve

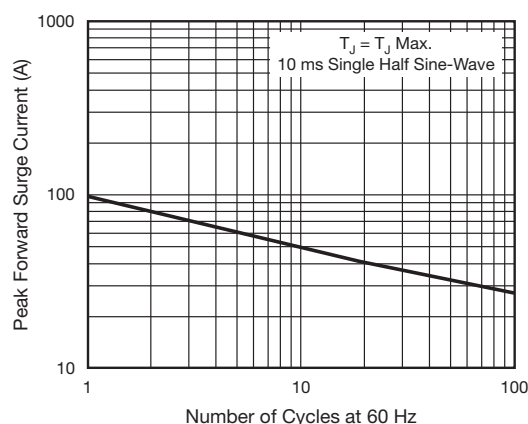


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

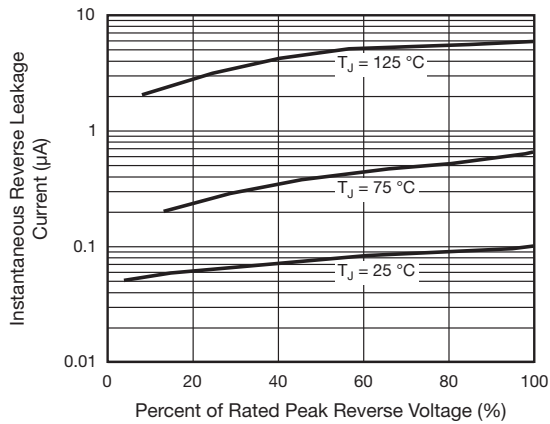


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

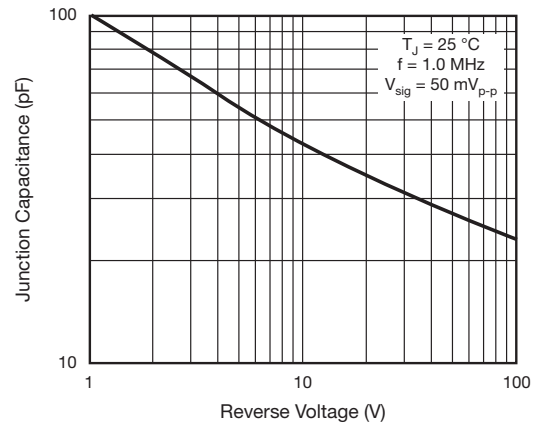


Fig. 5 - Typical Junction Capacitance

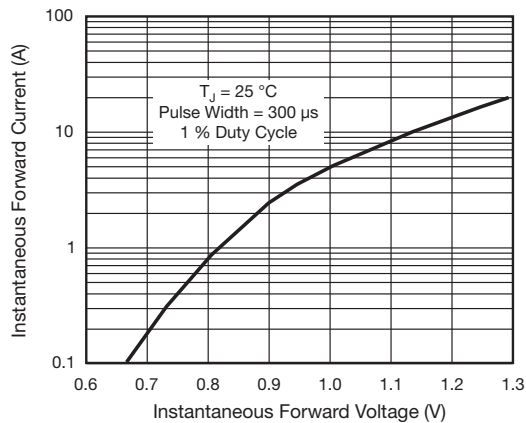
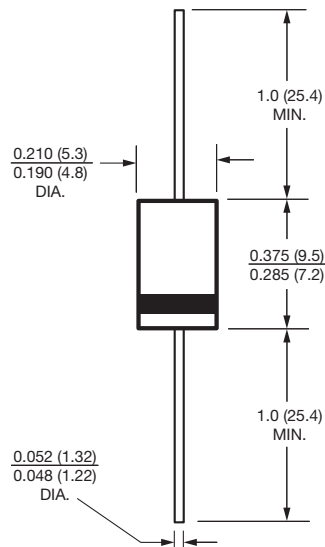


Fig. 4 - Typical Instantaneous Forward Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters) DO-201AD





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