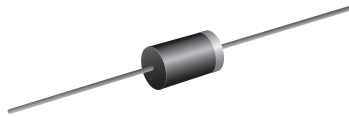


# Miniature Glass Passivated Junction Fast Switching Rectifier

**SUPERECTIFIER®**

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

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 0.36 A operation at  $T_A = 40\text{ °C}$  with no thermal runaway
- Typical  $I_R$  less than  $0.1\text{ }\mu\text{A}$
- Solder dip  $275\text{ °C}$  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

**PRIMARY CHARACTERISTICS**

$I_{F(AV)}$	0.36 A
$V_{RRM}$	1600 V
$I_{FSM}$	15 A
$t_{rr}$	2.0 $\mu\text{s}$
$I_R$	1.0 $\mu\text{A}$
$V_F$ at $I_F = 2.0\text{ A}$	1.6 V
$T_J$ max.	175 °C
Package	DO-204AL (DO-41)
Diode variation	Single die

**MAXIMUM RATINGS** ( $T_A = 25\text{ °C}$  unless otherwise noted)

PARAMETER	SYMBOL	BYX10GP	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1600	V
Maximum working reverse voltage	$V_{RWM}$	800	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 40\text{ °C}$	$I_{F(AV)}$	0.36	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	15	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	BYX10GP	UNIT
Maximum instantaneous forward voltage	$I_F = 2.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	1.6	V
Maximum peak reverse current at rated peak working reverse voltage	$V_{RWM} = 800\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	1.0	$\mu\text{A}$
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		$t_{rr}$	2.0	$\mu\text{s}$
Typical junction capacitance	$V_R = 4.0\text{ V}, 1\text{ MHz}$		$C_J$	5.0	pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BYX10GP	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	45	$^\circ\text{C/W}$

**Note**

- (1) Thermal resistance from junction to ambient 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
BYX10GP-E3/54	0.339	54	5500	13" diameter paper tape and reel
BYX10GPHE3/54 <sup>(1)</sup>	0.339	54	5500	13" diameter paper tape and reel

**Note**

- (1) AEC-Q101 qualified

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

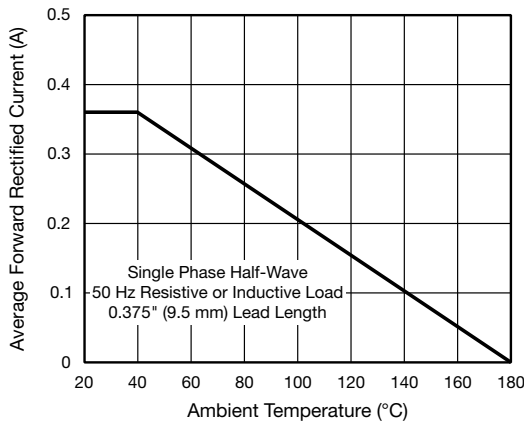


Fig. 1 - Forward Current Derating Curve

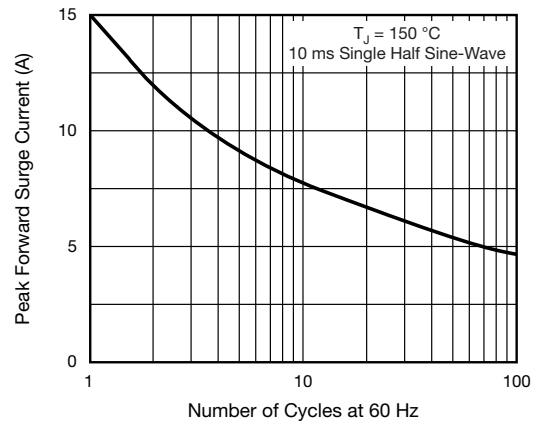


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

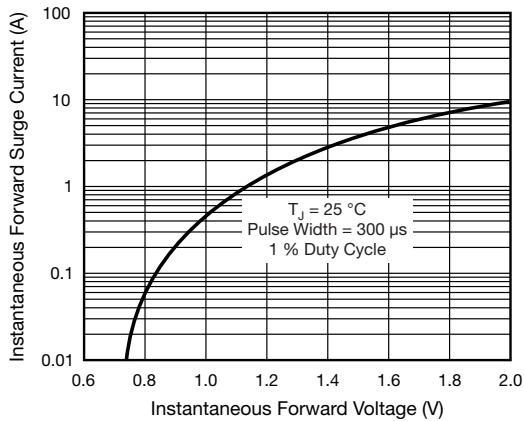


Fig. 3 - Typical Instantaneous Forward Characteristics

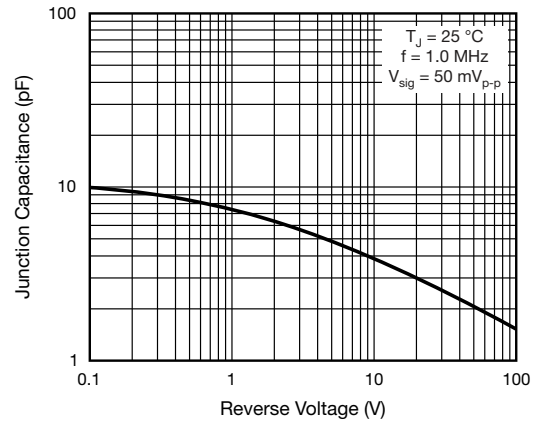


Fig. 5 - Typical Junction Capacitance

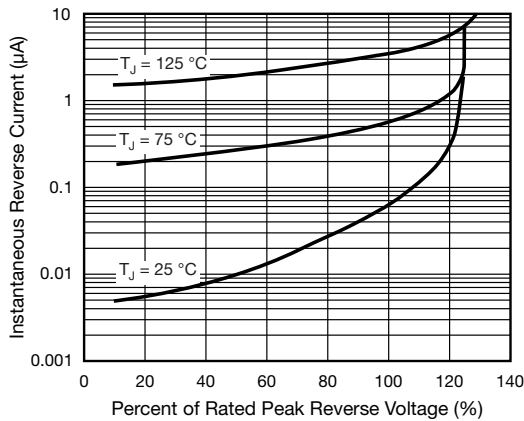
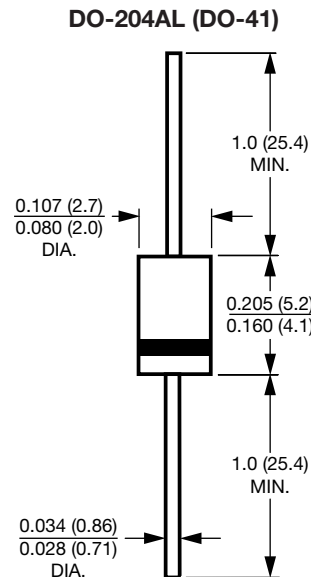


Fig. 4 - Typical Reverse Characteristics

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





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