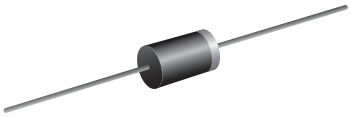
Miniature Glass Passivated Junction Fast Switching Rectifier

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 °C with no thermal runaway
- Typical I_R less than 0.1 µA
- 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

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 µs
I_R	1.0 µA
V_F at I_F = 2.0 A	1.6 V
T_J max.	175 °C
Package	DO-204AL (DO-41)
Diode variation	Single die

MAXIMUM RATINGS (T_A = 25 °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 °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

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**BYX10GP**	**UNIT**
Maximum instantaneous forward voltage	I_F = 2.0 A	T_A = 25 °C	V_F (1)	1.6	V
Maximum peak reverse current at rated peak working reverse voltage	V_{RWM} = 800 V	T_A = 25 °C	I_R (2)	1.0	μA
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	2.0	μs
Typical junction capacitance	V_R = 4.0 V, 1 MHz		C_J	5.0	pF

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BYX10GP**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	45	°C/W

Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (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 (1)	0.339	54	5500	13" diameter paper tape and reel

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_C = 25 °C unless otherwise noted)

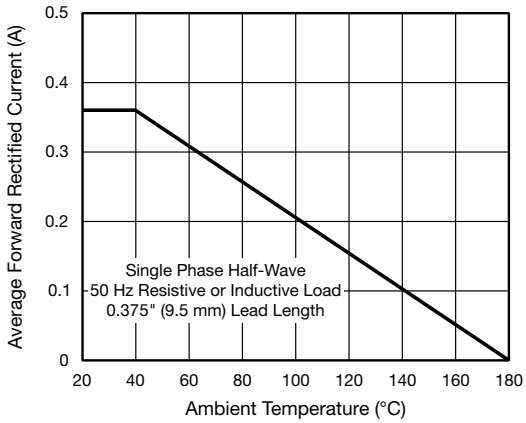


Fig. 1 - Forward Current Derating Curve

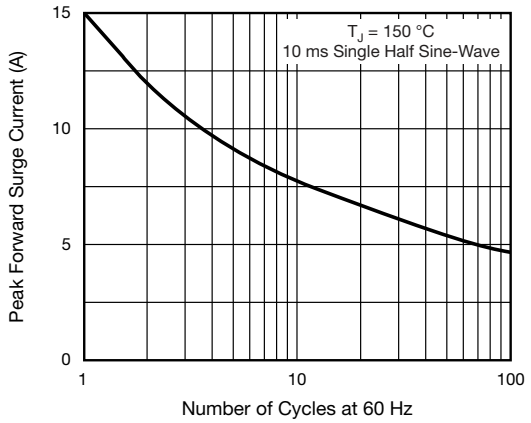


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

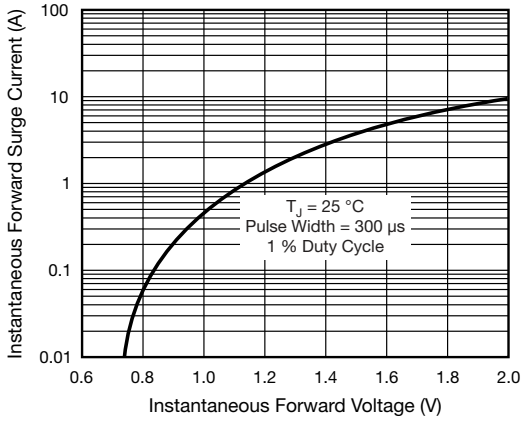


Fig. 3 - Typical Instantaneous Forward Characteristics

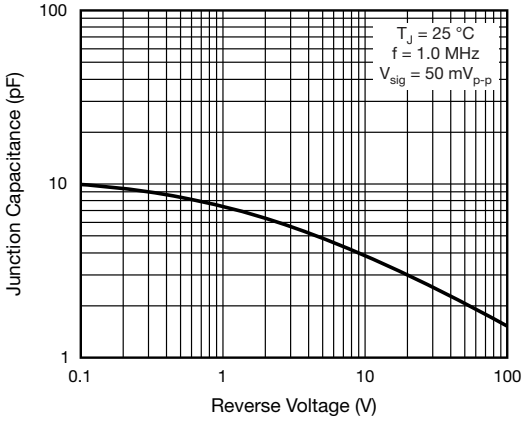


Fig. 5 - Typical Junction Capacitance

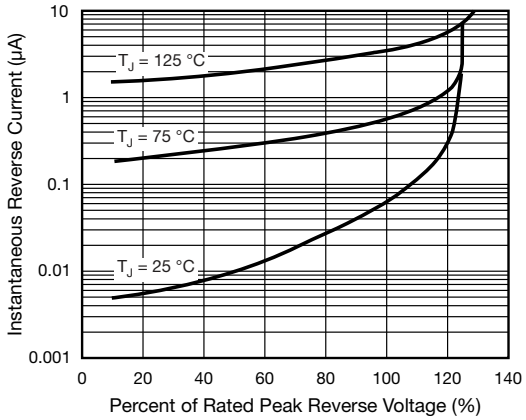
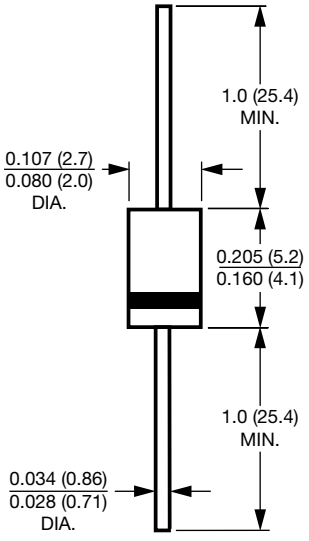


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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