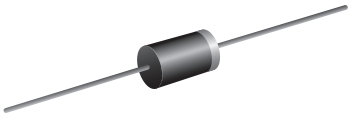
Glass Passivated Junction Fast Switching Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- 24 mils lead wire diameter
- Fast switching for high efficiency
- Low leakage current
- 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

- High voltage rectification
- Snubber circuit of camera flash
- Snubber circuit of automotive ignition module

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

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	0.5 A
V_{RRM}	1400 V, 1600 V
I_{FSM}	20 A
t_{rr}	500 ns
I_R	5.0 µA
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	BY520-14E	BY520-16E	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	1400	1600	V
Maximum RMS voltage	V_{RMS}	980	1120	V
Maximum DC blocking voltage	V_{DC}	1400	1600	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_A = 55 °C	$I_{F(AV)}$	0.5		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated	I_{FSM}	20		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	BY520-14E	BY520-16E	UNIT
Maximum instantaneous forward voltage	I_F = 0.5 A	T_A = 25 °C	V_F (1)	2.4		V
Maximum reverse current	$V_R = V_{RRM}$	T_A = 25 °C	I_R (2)	5.0		μA
		T_A = 125 °C		50		
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	500		ns

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	BY520-14E	BY520-16E	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	65		°C/W
	$R_{\theta JL}$ (1)	30		

Note

(1) Thermal resistance from junction to ambient and from junction to lead 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
BY520-14E-E3/54	0.24	54	5500	13" diameter paper tape and reel
BY520-14EHE3/54 (1)	0.24	54	5500	13" diameter paper tape and reel

Note

(1) AEC-Q101 qualified

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

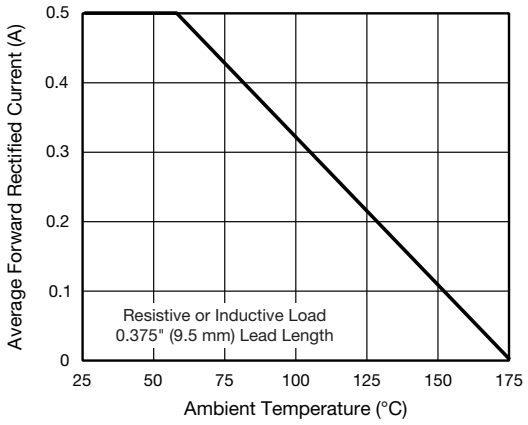


Fig. 1 - Forward Current Derating Curve

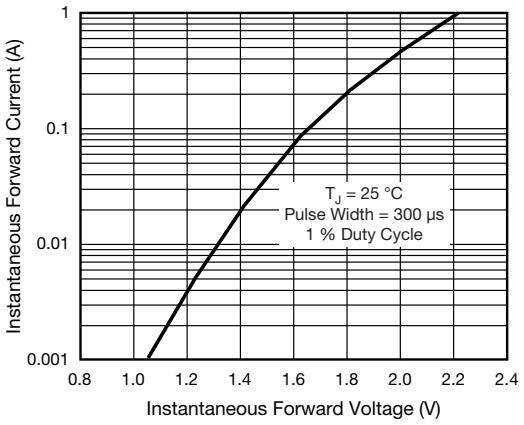


Fig. 2 - Typical Instantaneous Forward Characteristics

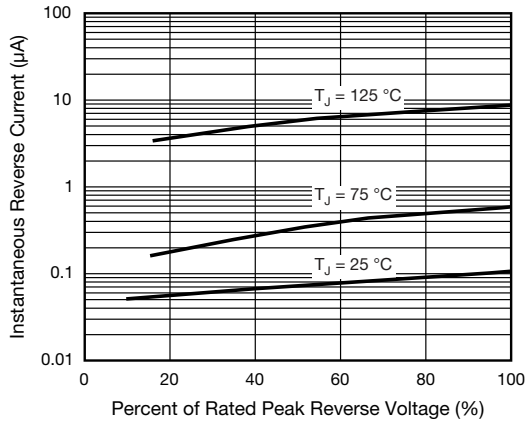


Fig. 3 - Typical Reverse Characteristics

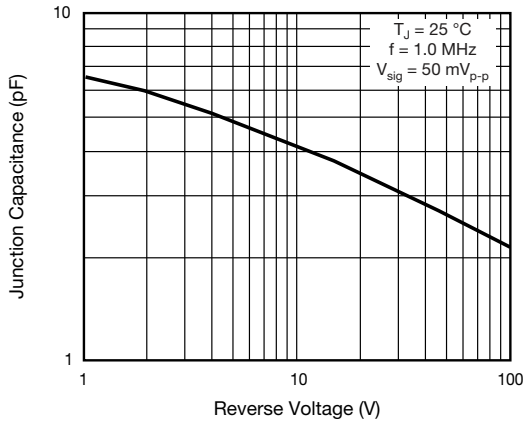
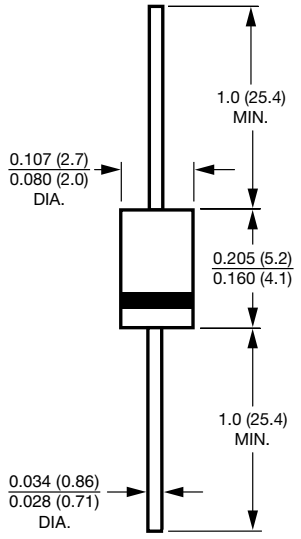


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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