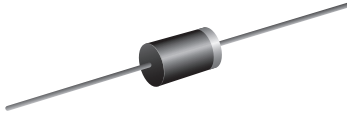




# Glass Passivated Junction Fast Switching Rectifier

SUPERECTIFIER®



DO-41 (DO-204AL)

### 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### TYPICAL APPLICATIONS

- High voltage rectification
- Snubber circuit of camera flash

### MECHANICAL DATA

**Case:** DO-41 (DO-204AL), molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A 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
$V_F$	2.4 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	175 °C
Package	DO-41 (DO-204AL)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ 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 $T_A = 55\text{ }^\circ\text{C}$	$I_{F(AV)}$	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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	BY520-14E	BY520-16E	UNIT
Maximum instantaneous forward voltage	$I_F = 0.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	2.4		V
Maximum reverse current	$V_R = V_{RRM}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	5.0		$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		50		
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		$t_{rr}$	500		ns

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

**Note**

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

<b>ORDERING INFORMATION</b> (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

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

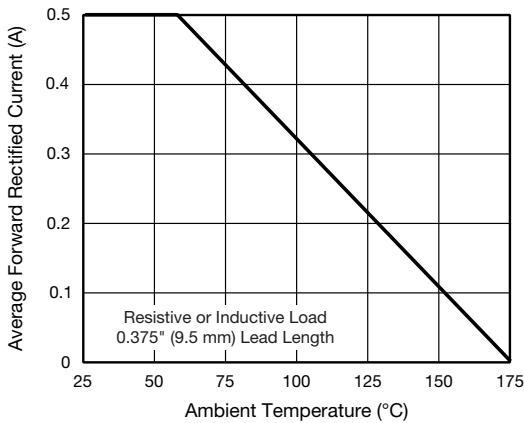


Fig. 1 - Forward Current Derating Curve

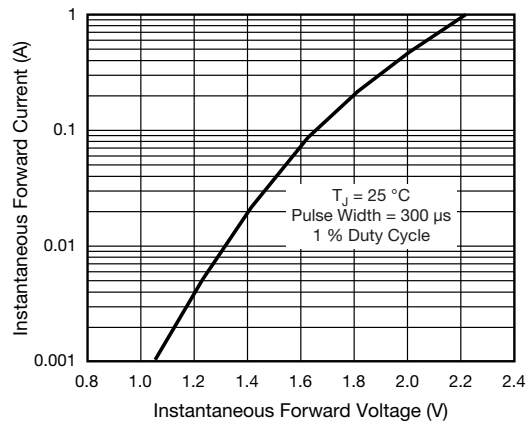


Fig. 2 - Typical Instantaneous Forward Characteristics

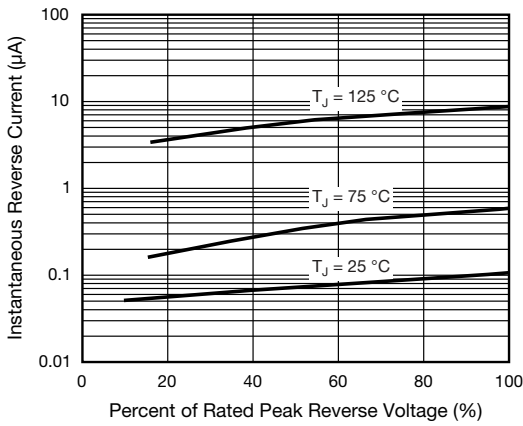


Fig. 3 - Typical Reverse Characteristics

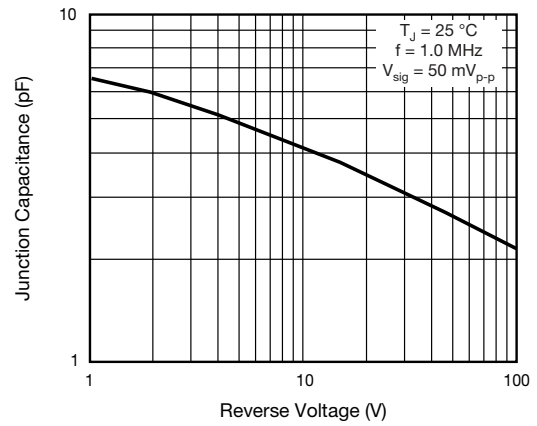
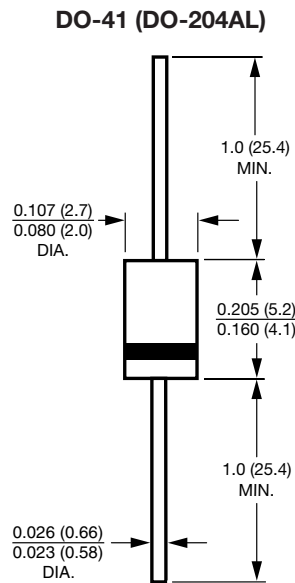


Fig. 4 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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