

## Glass Passivated Junction Fast Switching Rectifier



### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical  $I_R$  less than  $0.1 \mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip  $275^\circ C$  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 fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### MECHANICAL DATA

**Case:** DO-204AC, 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	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	50 A
$t_{tr}$	150 ns, 250 ns, 500 ns
$I_R$	$5.0 \mu A$
$V_F$	1.3 V
$T_J$ max.	$175^\circ C$

MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise noted)									
PARAMETER	SYMBOL	RGP15A	RGP15B	RGP15D	RGP15G	RGP15J	RGP15K	RGP15M	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$	$I_{F(AV)}$	1.5							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50							A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$	$I_{R(AV)}$	100							$\mu A$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175							$^\circ C$

# RGP15A thru RGP15M

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS	SYMBOL	RGP15A	RGP15B	RGP15D	RGP15G	RGP15J	RGP15K	RGP15M	UNIT	
Maximum instantaneous forward voltage	1.5 A	V <sub>F</sub>	1.3								V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0								μA
	T <sub>A</sub> = 150 °C	I <sub>R</sub>	200								
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>			150		250		500	ns	
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	25								pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	RGP15A	RGP15B	RGP15D	RGP15G	RGP15J	RGP15K	RGP15M	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	45								°C/W

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient 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
RGP15J-E3/54	0.425	54	4000	13" diameter paper tape and reel
RGP15J-E3/73	0.425	73	2000	Ammo pack packaging
RGP15JHE3/54 <sup>(1)</sup>	0.425	54	4000	13" diameter paper tape and reel
RGP15JHE3/73 <sup>(1)</sup>	0.425	73	2000	Ammo pack packaging

**Note**

<sup>(1)</sup> AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

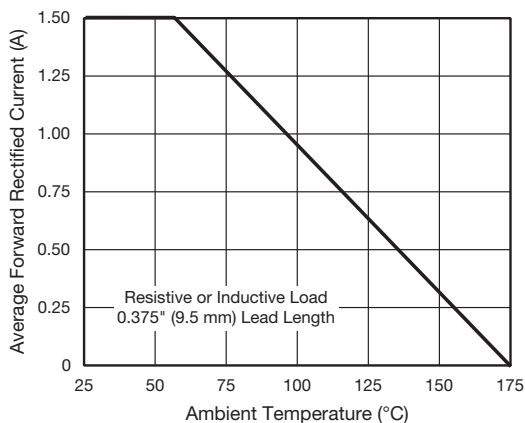


Fig. 1 - Forward Current Derating Curve

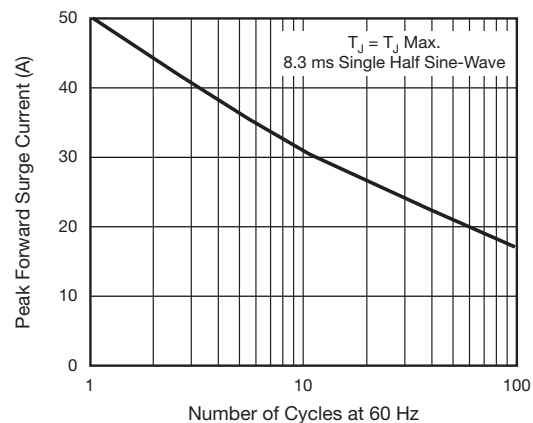


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

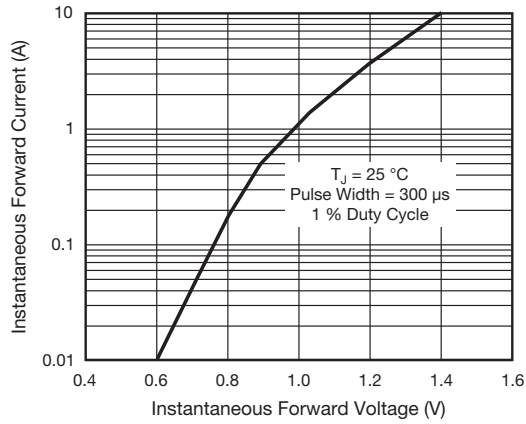


Fig. 3 - Typical Instantaneous Forward Characteristics

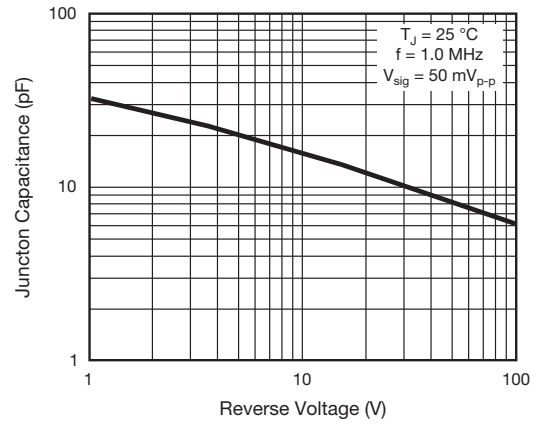


Fig. 5 - Typical Junction Capacitance

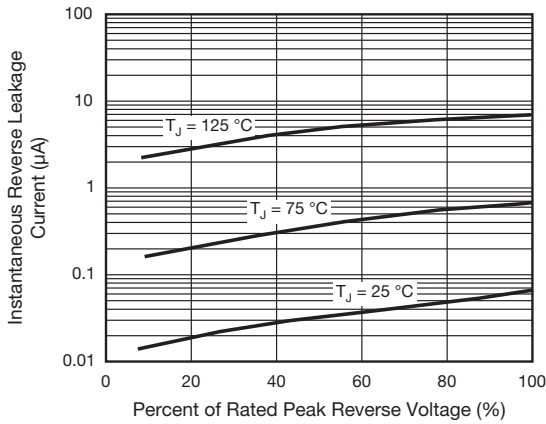


Fig. 4 - Typical Reverse Characteristics

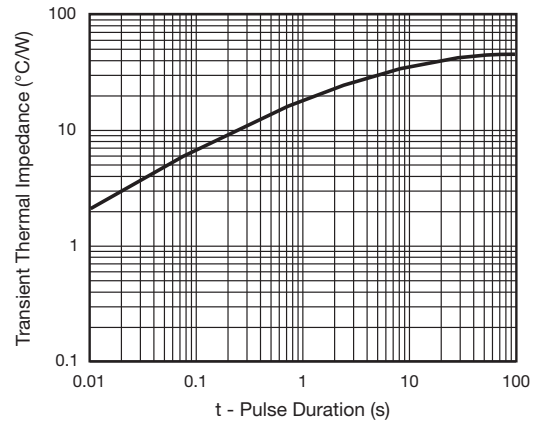
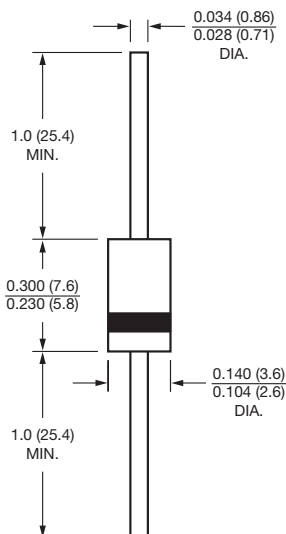


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AC (DO-15)





## Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.