

## Glass Passivated Junction Fast Switching Rectifier



### FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical  $I_R$  less than  $0.2 \mu\text{A}$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip  $275^\circ\text{C}$  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

High voltage rectification of G2 grid CRT and TV, 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
$V_{RRM}$	1200 V to 2000 V
$I_{FSM}$	20 A
$t_{rr}$	300 ns
$I_R$	$5.0 \mu\text{A}$
$T_J$ max.	$175^\circ\text{C}$

MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	RGP02-12E	RGP02-14E	RGP02-15E	RGP02-16E	RGP02-17E	RGP02-18E	RGP02-20E	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1200	1400	1500	1600	1700	1800	2000	V
Maximum RMS voltage	$V_{RMS}$	840	980	1050	1120	1190	1260	1400	V
Maximum DC blocking voltage	$V_{DC}$	1200	1400	1500	1600	1700	1800	2000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55^\circ\text{C}$	$I_{F(AV)}$	0.5							A
Peak forward surge current 8.3 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							$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	RGP02-12E	RGP02-14E	RGP02-15E	RGP02-16E	RGP02-17E	RGP02-18E	RGP02-20E	UNIT
Maximum instantaneous forward voltage	0.1 A		V <sub>F</sub>	1.8						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> = 125 °C			50							
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>	300						ns	

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	RGP02-12E	RGP02-14E	RGP02-15E	RGP02-16E	RGP02-17E	RGP02-18E	RGP02-20E	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	65						°C/W		
	R <sub>θJL</sub> <sup>(1)</sup>	30								

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead 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
RGP02-12E-E3/54	0.24	54	5500	13" diameter paper tape and reel
RGP02-12E-E3/73	0.24	73	3000	Ammo pack packaging
RGP02-12EHE3/54 <sup>(1)</sup>	0.24	54	5500	13" diameter paper tape and reel
RGP02-12EHE3/73 <sup>(1)</sup>	0.24	73	3000	Ammo pack packaging

**Note**

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

## RATINGS AND CHARACTERISTICS CURVES

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

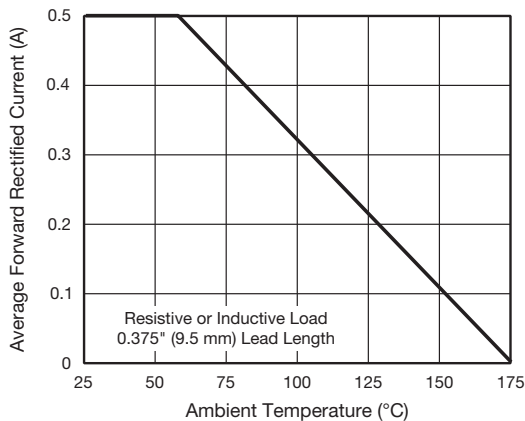


Fig. 1 - Forward Current Derating Curve

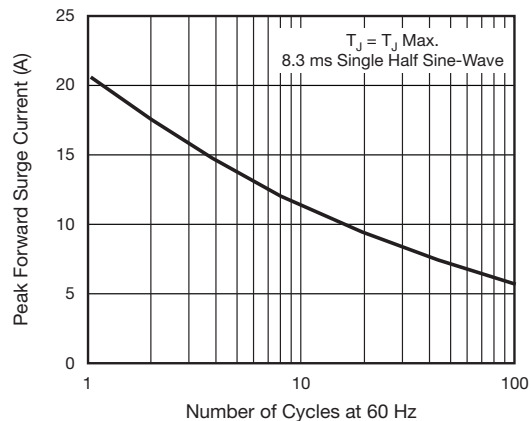


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

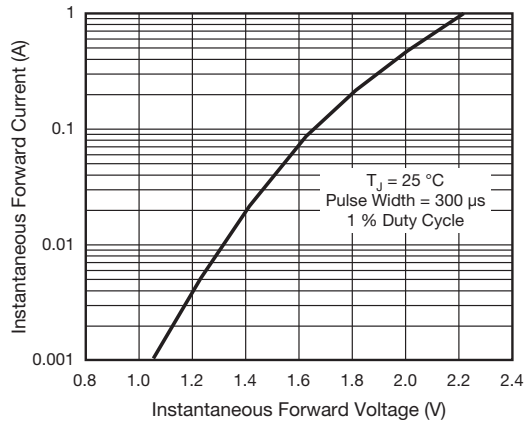


Fig. 3 - Typical Instantaneous Forward Characteristics

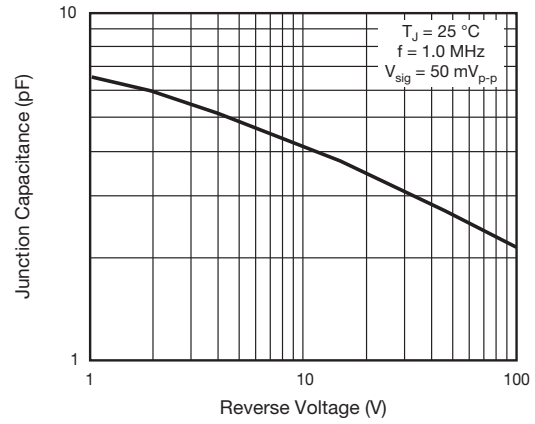


Fig. 5 - Typical Junction Capacitance

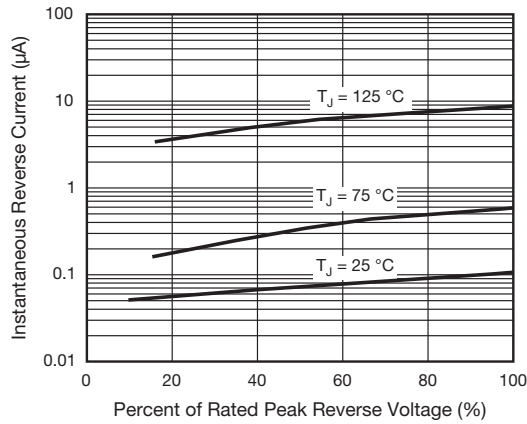
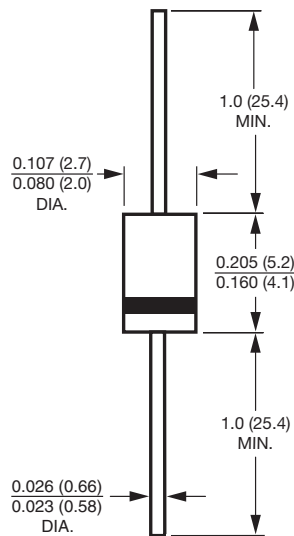


Fig. 4 - Typical Reverse Characteristics

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

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





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