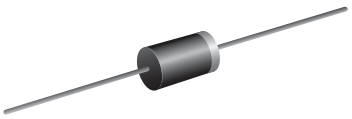
Glass Passivated Junction Fast Switching Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

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 µA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °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.

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 µA
T_J max.	175 °C

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

MAXIMUM RATINGS (T_A = 25 °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 °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							°C

ELECTRICAL CHARACTERISTICS (T_A = 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_F	1.8							V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	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}	300							ns

THERMAL CHARACTERISTICS (T_A = 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	$R_{\theta JA}$ (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, 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 (1)	0.24	54	5500	13" diameter paper tape and reel
RGP02-12EHE3/73 (1)	0.24	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

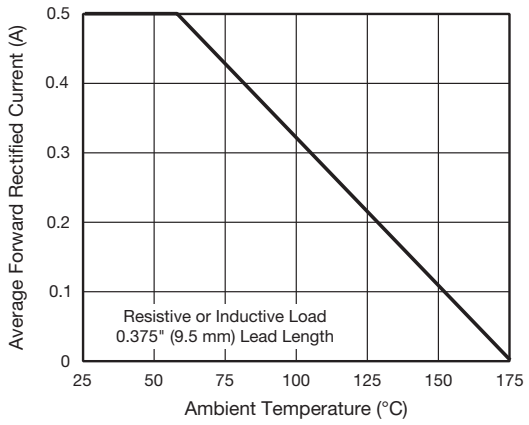


Fig. 1 - Forward Current Derating Curve

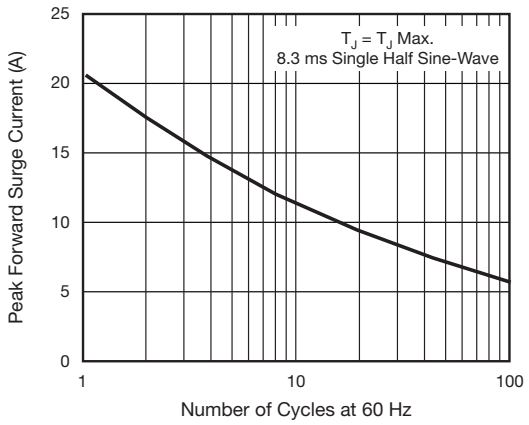


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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Document Number: 88699
Revision: 15-Mar-11

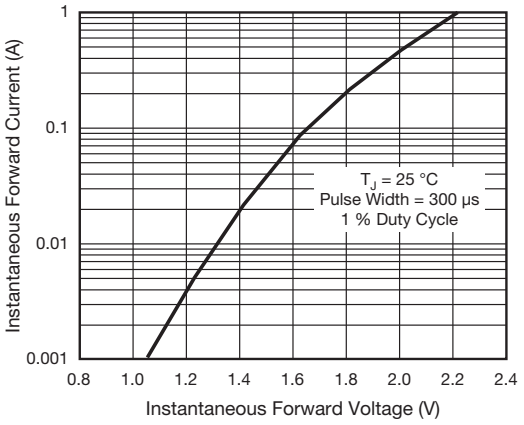


Fig. 3 - Typical Instantaneous Forward Characteristics

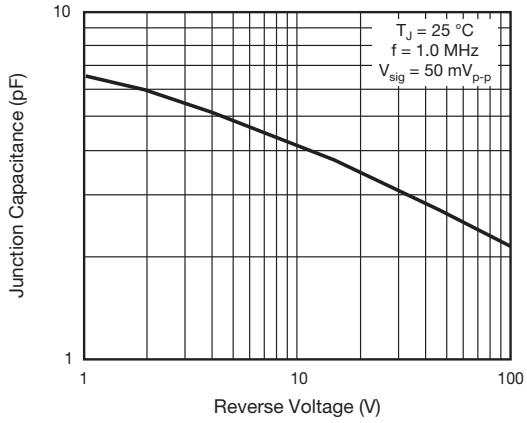


Fig. 5 - Typical Junction Capacitance

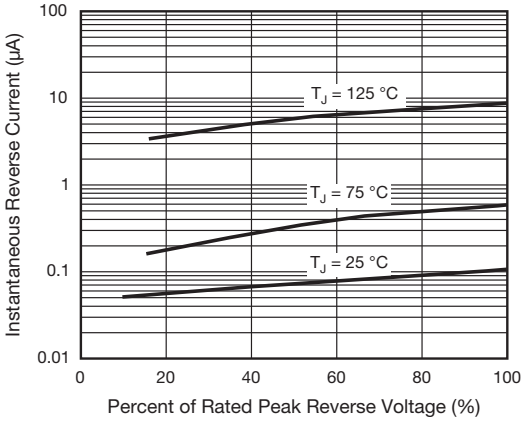
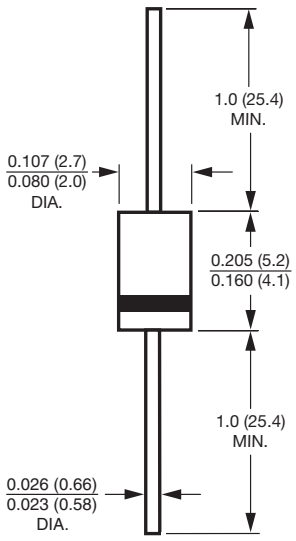


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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