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Vishay General Semiconductor

Glass Passivated Junction Fast Switching Plastic Rectifier



DO-41 (DO-204AL)

PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.0 A						
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I _{FSM}	30 A						
t _{rr}	150 ns, 250 ns, 500 ns						
I _R	5.0 μA						
V _F	1.3 V						
T _J max.	175 °C						
Package	DO-41 (DO-204AL)						
Circuit configuration	Single						

FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- · Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer and telecommunication.

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

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	RGP10A	RGP10B	RGP10D	RGP10G	RGP10J	RGP10K	RGP10M	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 $^{\circ}\text{C}$	I _{F(AV)}	1.0							
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30							A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 55 \ ^\circ C$	I _{R(AV)}	100							μA
Operating junction and storage temperature range	T _J , T _{STG}	-65 to +175						°C	



COMPLIANT

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	RGP10A	RGP10B	RGP10D	RGP10G	RGP10J	RGP10K	RGP10M	UNIT
Maximum instantaneous forward voltage	1.0 A	V _F	V _F 1.3						V	
Maximum DC reverse current	T _A = 25 °C	- I _B	5.0						μΑ	
at rated DC blocking voltage	T _A = 150 °C	¹ B 200								
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t _{rr}	150 250 500					ns		
Typical junction capacitance	4.0 V, 1 MHz	CJ	15					pF		

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL RGP10A RGP10B RGP10D RGP10G RGP10J RGP10K RGP10M UNIT						UNIT	
Typical thermal resistance	R _{0JA} ⁽¹⁾	55					°C/W	

Note

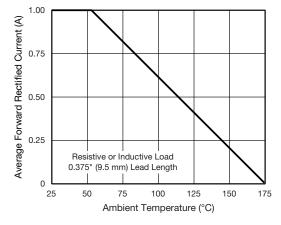
⁽¹⁾ Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
RGP10J-E3/54	0.336	54	5500	13" diameter paper tape and reel					
RGP10J-E3/73	0.336	73	3000	Ammo pack packaging					

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



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Fig. 1 - Forward Current Derating Curve

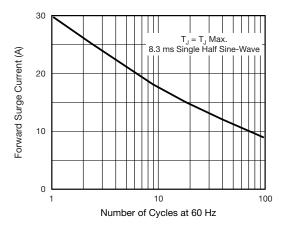


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

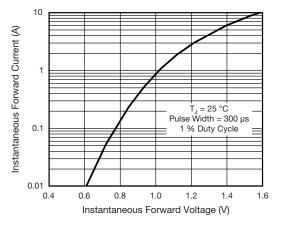


Fig. 3 - Typical Instantaneous Forward Characteristics

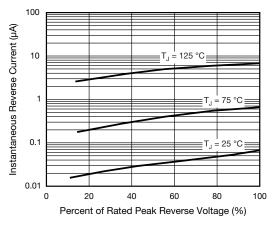


Fig. 4 - Typical Reverse Characteristics

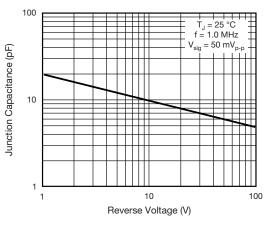


Fig. 5 - Typical Junction Capacitance

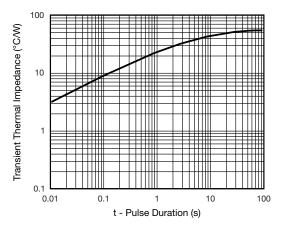


Fig. 6 - Typical Transient Thermal Impedance

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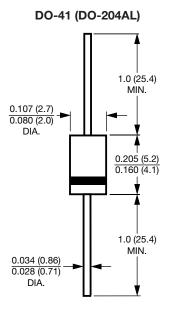
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PACKAGING OUTLINE DIMENSIONS in inches (millimeters)



Note

• Lead diameter is $\frac{0.026 (0.66)}{0.023 (0.58)}$ for suffix "E" part numbers



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