

## Glass Passivated Ultrafast Plastic Rectifier

**SUPERECTIFIER®**

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

### FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

### 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	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	100 V, 150 V, 200 V
$I_{FSM}$	30 A
$t_{rr}$	35 ns
$V_F$	0.95 V
$I_R$	2.0 $\mu$ A
$T_J \text{ max.}$	175 °C
Package	DO-204AL (DO-41)
Diode variations	Single die

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP10B	FGP10C	FGP10D	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	100	150	200	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C	$I_{F(AV)}$	1.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30			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	FGP10B	FGP10C	FGP10D	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F^{(1)}$	0.95			V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(1)}$	2.0			$\mu\text{A}$
	$T_A = 100\text{ }^\circ\text{C}$		50			
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$	$t_{rr}$	35			ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	25			pF

**Note**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	FGP10B	FGP10C	FGP10D	UNIT	
Maximum thermal resistance	$R_{\theta JA}^{(1)}$	70			$^\circ\text{C/W}$	
	$R_{\theta JL}^{(1)}$	20				

**Note**

(1) Units mounted on PCB 10 mm x 10 mm copper pads

<b>ORDERING INFORMATION</b> (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
FGP10D-E3/54	0.30	54	5500	13" diameter paper tape and reel	
FGP10D-E3/73	0.30	73	3000	Ammo pack packaging	
FGP10DHE3/54 (1)	0.30	54	5500	13" diameter paper tape and reel	
FGP10DHE3/73 (1)	0.30	73	3000	Ammo pack packaging	

**Note**

(1) AEC-Q101 qualified

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

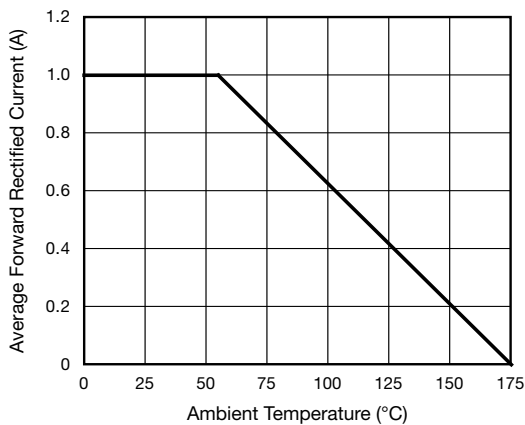


Fig. 1 - Maximum Forward Current Derating Curve

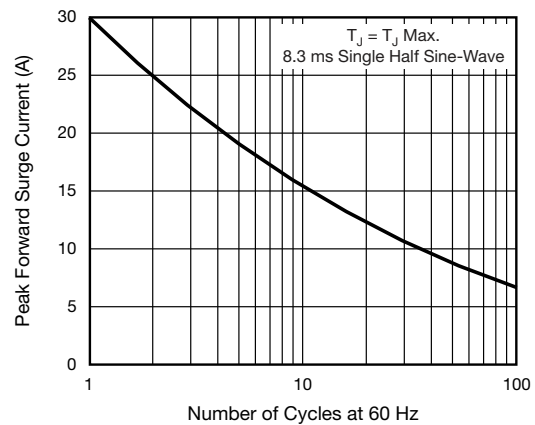


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

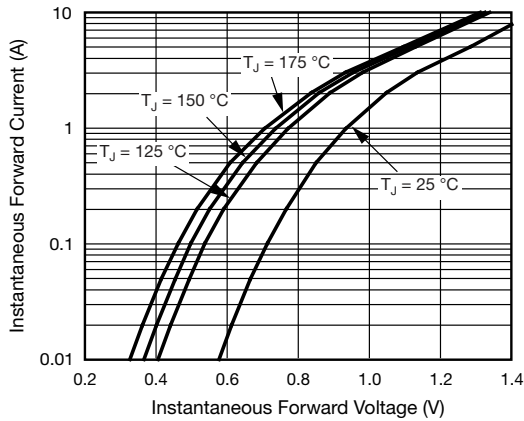


Fig. 3 - Typical Instantaneous Forward Characteristics

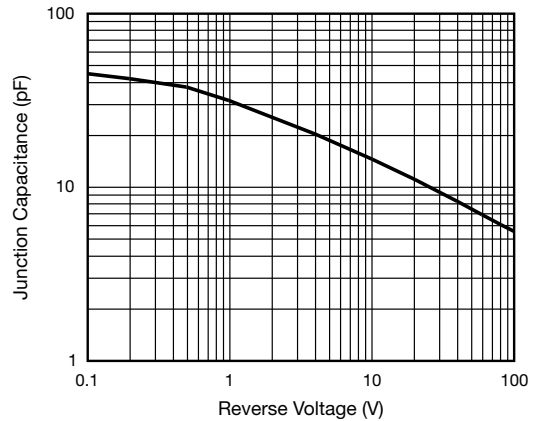


Fig. 5 - Typical Junction Capacitance

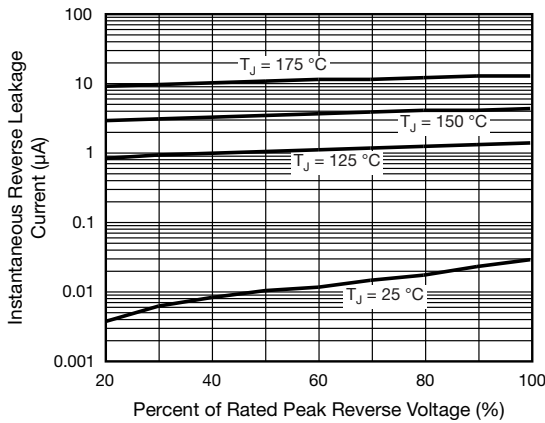


Fig. 4 - Typical Reverse Leakage Characteristics

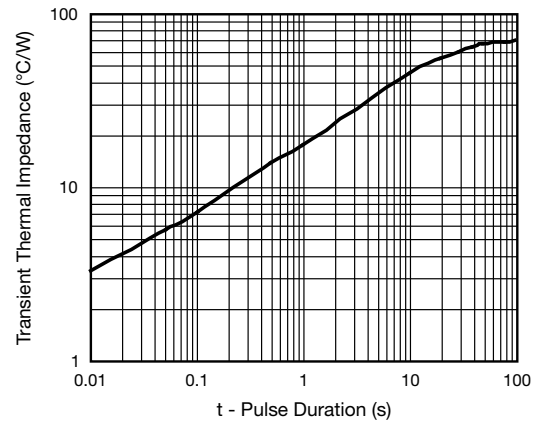
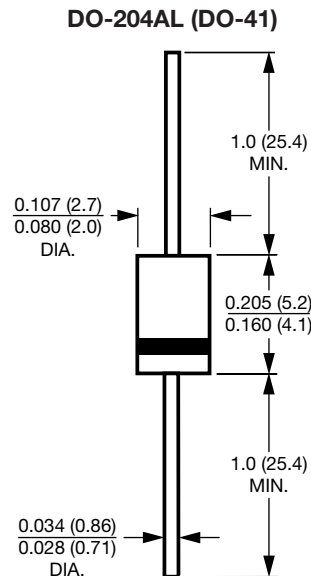


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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