

## 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 high efficiency
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	200 V to 800 V
$I_{FSM}$	30 A
$t_{tr}$	300 ns
$I_R$	10 $\mu$ A
$V_F$ at $I_F = 1.0$ A	1.4 V
$T_J$ max.	175 °C
Package	DO-204AL (DO-41)
Diode variations	Single die

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer 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, and 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	TVR10D	TVR10G	TVR10J	TVR10K	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	800	V
Maximum RMS voltage	$V_{RMS}$	140	280	420	560	V
Maximum DC blocking voltage	$V_{DC}$	200	400	600	800	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 (JEDEC® method)	$I_{FSM}$	30				A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 55$ °C	$I_{R(AV)}$	100				$\mu$ A
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175				°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	TVR10D	TVR10G	TVR10J	TVR10K	UNIT
Maximum instantaneous forward voltage	1.0 A	V <sub>F</sub>	1.4				V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub>	10				μA
	T <sub>A</sub> = 150 °C		200				
Maximum reverse recovery time	I <sub>F</sub> = 2 mA, V <sub>R</sub> = 15 V, I <sub>rr</sub> = 0.1 A	t <sub>rr</sub>	300				μs
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	15				pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	TVR10D	TVR10G	TVR10J	TVR10K	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	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
TVR10J-E3/54	0.336	54	5500	13" diameter paper tape and reel
TVR10J-E3/73	0.336	73	3000	Ammo pack packaging

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

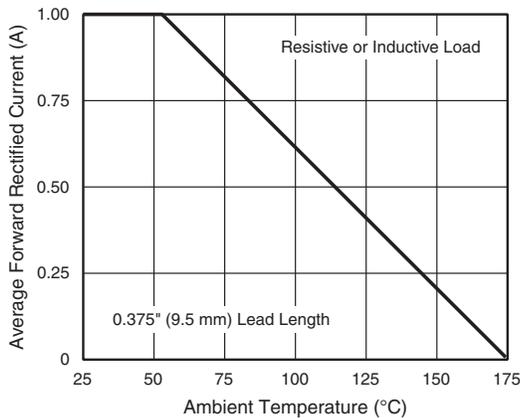


Fig. 1 - Forward Current Derating Curve

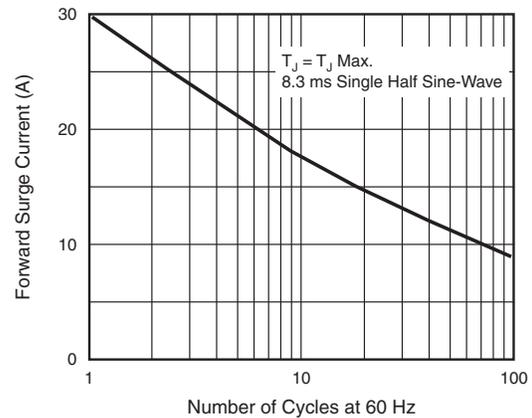


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

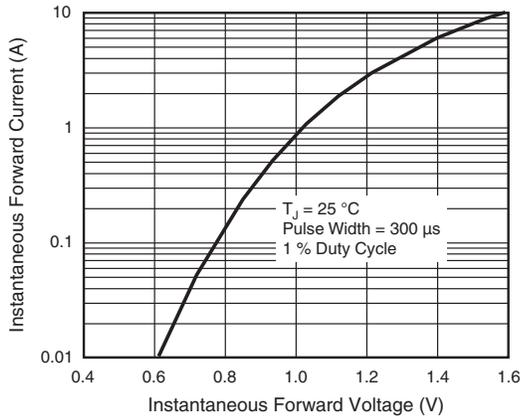


Fig. 3 - Typical Instantaneous Forward Characteristics

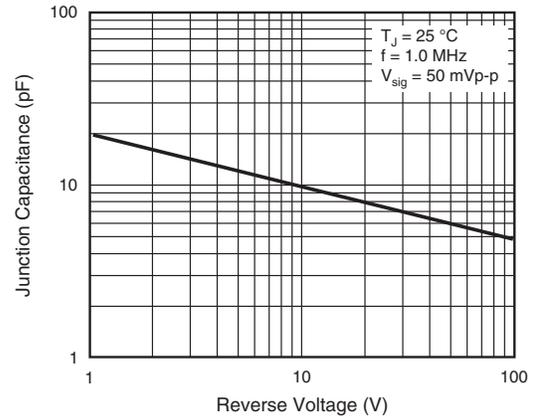


Fig. 5 - Typical Junction Capacitance

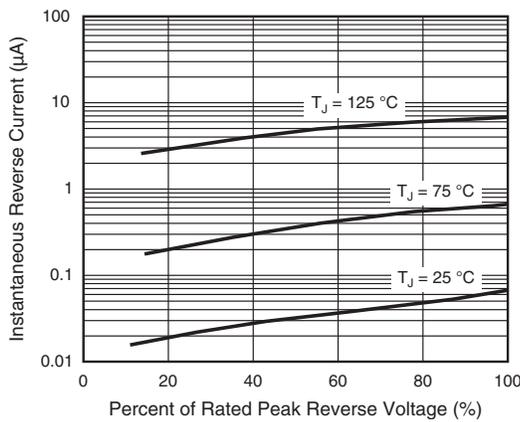


Fig. 4 - Typical Reverse Characteristics

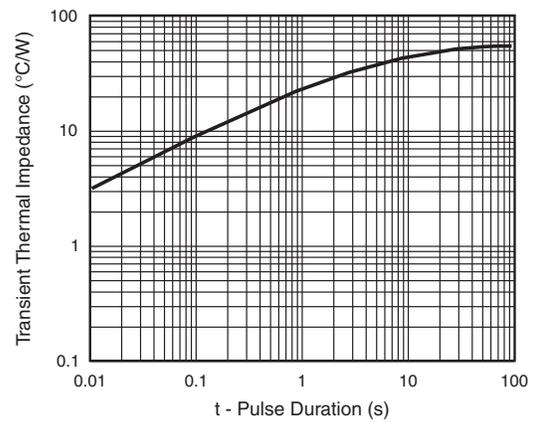
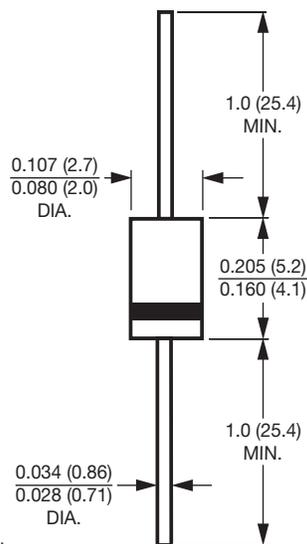


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)



**Note**

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



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