

## Fast Switching Plastic Rectifier



DO-204AL (DO-41)

### FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- 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 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

#### Note

- These devices are not AEC-Q101 qualified.

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V, 100 V, 200 V, 400 V, 600 V
$I_{FSM}$	30 A
$t_{rr}$	200 ns
$I_R$	5.0 $\mu$ A
$V_F$	1.2 V
$T_J$ max.	150 °C
Package	DO-204AL (DO-41)
Diode variation	Single die

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	1N4933	1N4934	1N4935	1N4936	1N4937	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	V
Maximum RMS voltage	$V_{RMS}$	35	70	145	280	420	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 75$ °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
Maximum reverse recovery current	$I_{RM}$	2.0					A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 50 to + 150					°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	1N4933	1N4934	1N4935	1N4936	1N4937	UNIT
Maximum instantaneous forward voltage	1.0 A	$V_F$	1.2					V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25$ °C	$I_R$	5.0					$\mu$ A
	$T_A = 100$ °C		100					
Maximum reverse recovery time	$I_F = 1.0$ A, $V_R = 30$ V, $di/dt = 50$ A/ $\mu$ s, $I_{rr} = 10$ % $I_{RM}$	$t_{rr}$	200					ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	12					pF



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	1N4933	1N4934	1N4935	1N4936	1N4937	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	55					$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	25					

**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
1N4933-E3/54	0.33	54	5500	13" diameter paper tape and reel
1N4933-E3/73	0.33	73	3000	Ammo pack packaging

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

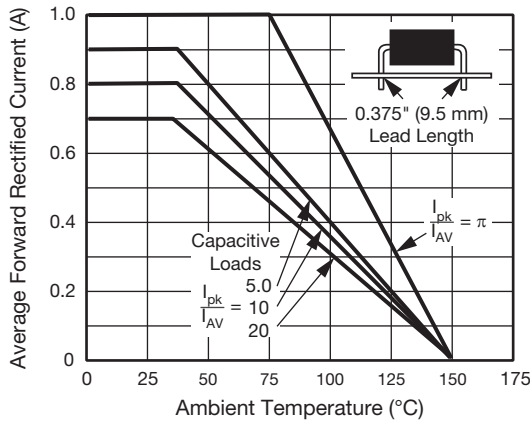


Fig. 1 - Forward Current Derating Curves

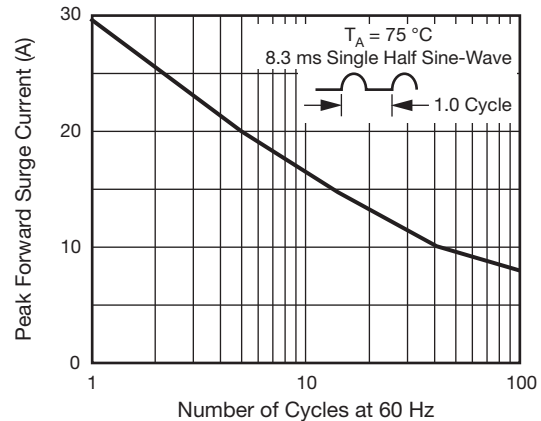


Fig. 3 - Maximum Non-repetitive Peak Forward Surge Current

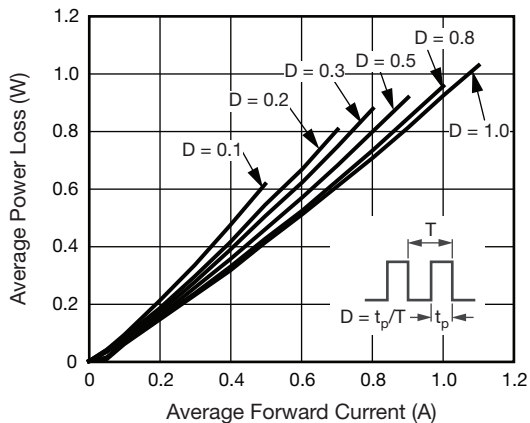


Fig. 2 - Forward Power Loss Characteristics

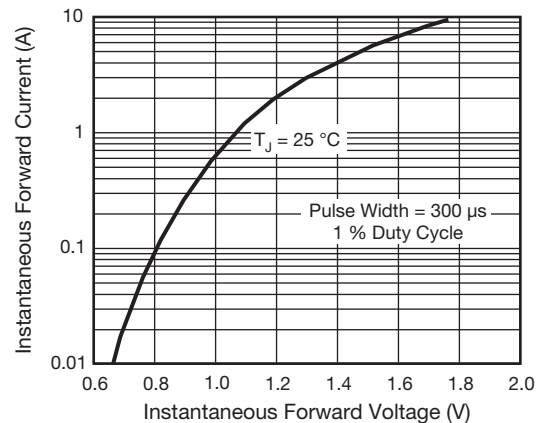


Fig. 4 - Typical Instantaneous Forward Characteristics

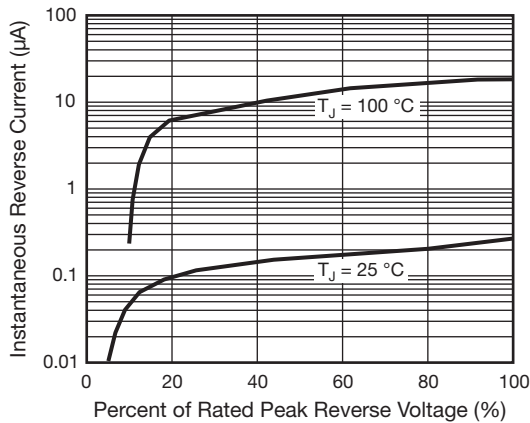


Fig. 5 - Typical Reverse Characteristics

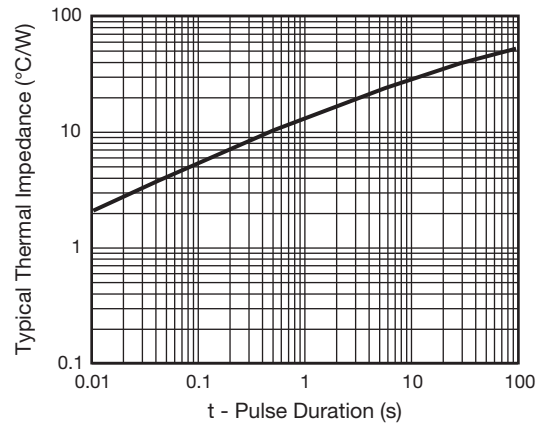


Fig. 7 - Typical Transient Thermal Impedance

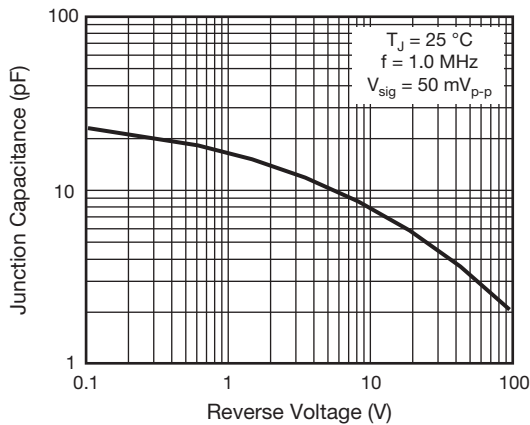
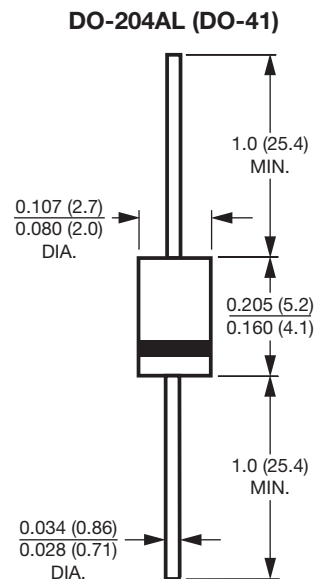


Fig. 6 - Typical Junction Capacitance

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



**Note**

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



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