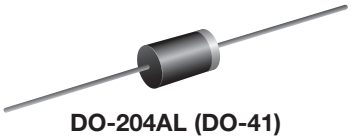
Fast Switching Plastic Rectifier



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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb e3 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 to 600 V
I_{FSM}	30 A
t_{rr}	200 ns
I_R	5.0 µA
V_F	1.2 V
T_J max.	150 °C

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					µA
		T_A= 100 °C		100					
Maximum reverse recovery time	I_F = 1.0 A, V_R = 30 V, dI/dt = 50 A/µs, I_{rr} = 10 % I_{RM}		t_{rr}	200					ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	12					pF

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

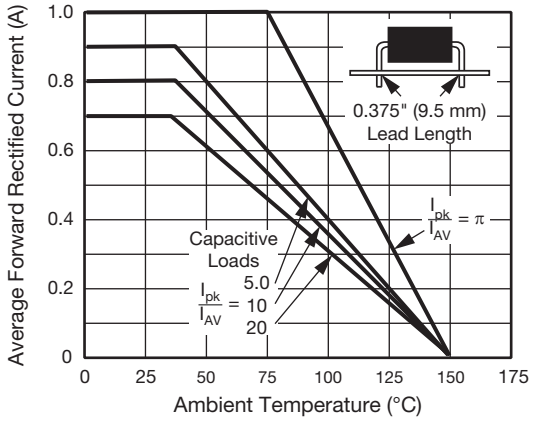

Fig. 1 - Forward Current Derating Curves

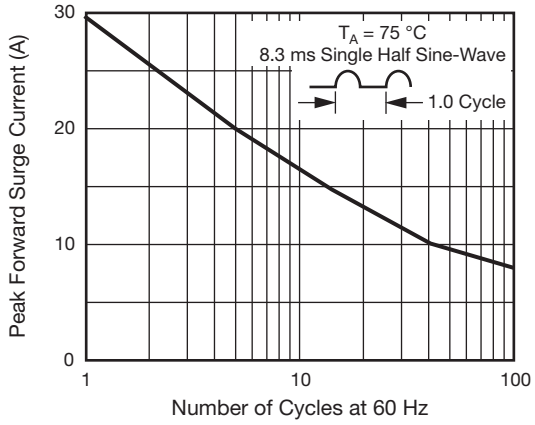

Fig. 3 - Maximum Non-repetitive Peak Forward Surge Current

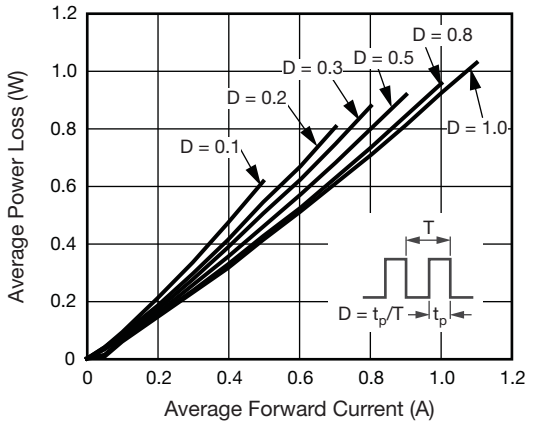

Fig. 2 - Forward Power Loss Characteristics

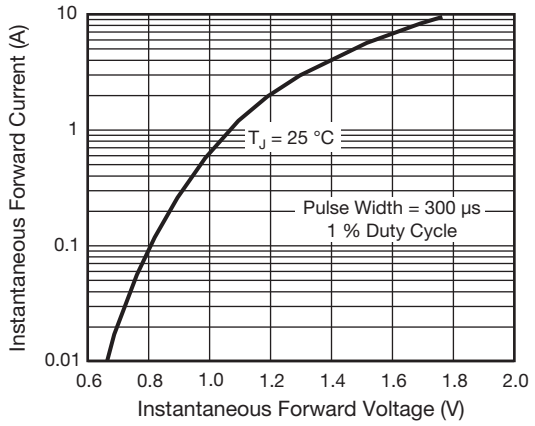

Fig. 4 - Typical Instantaneous Forward Characteristics

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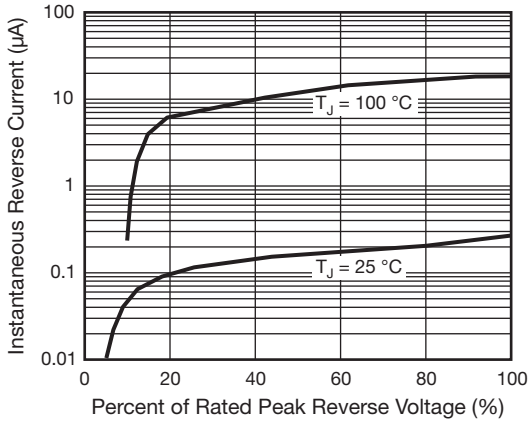


Fig. 5 - Typical Reverse Characteristics

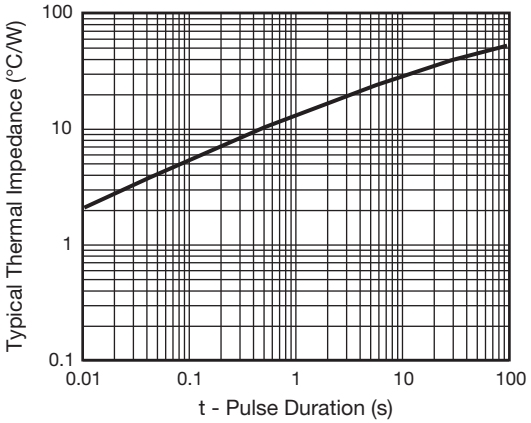


Fig. 7 - Typical Transient Thermal Impedance

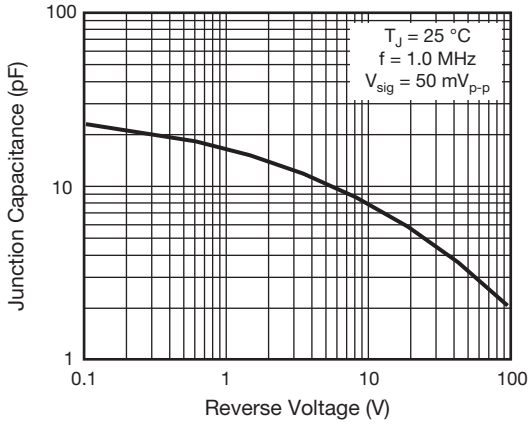
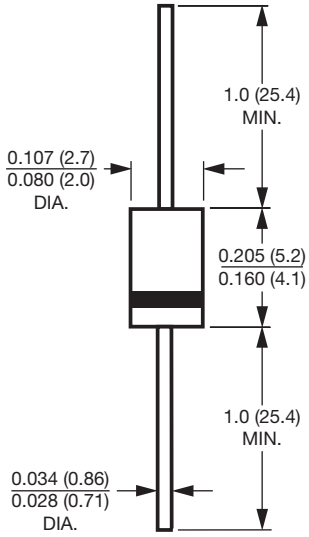


Fig. 6 - Typical Junction Capacitance

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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