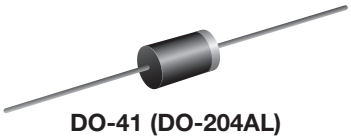
# Fast Switching Plastic Rectifier



DO-41 (DO-204AL)

## 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

RoHS COMPLIANT

## LINKS TO ADDITIONAL RESOURCES

Related Documents

Marking

## 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 µA |
| $V_F$ | 1.2 V |
| $T_J$ max. | 150 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configuration | Single |

## 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 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
3 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 | 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, PCB 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)

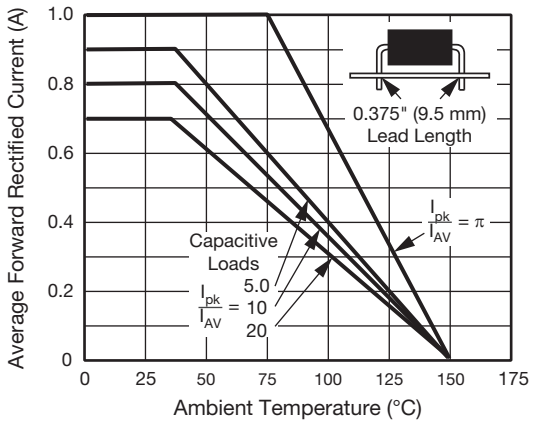



Fig. 1 - Forward Current Derating Curves

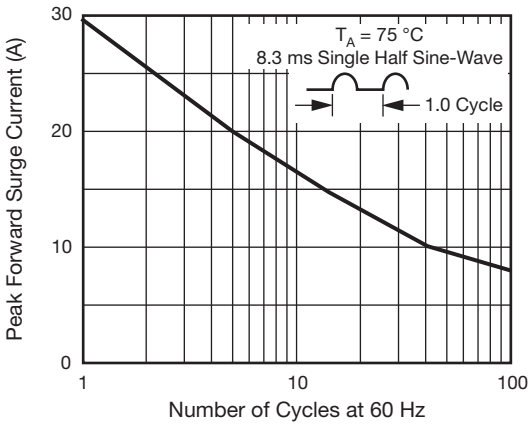



Fig. 3 - Maximum Non-repetitive Peak Forward Surge Current

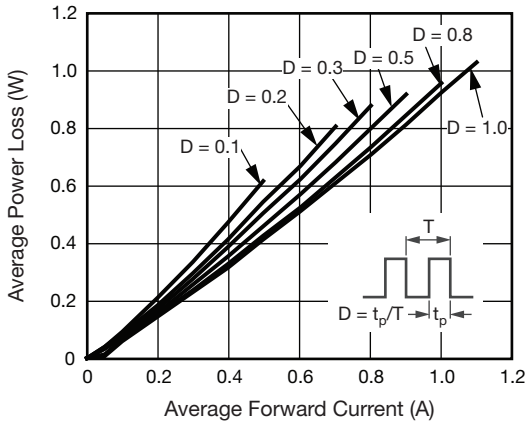



Fig. 2 - Forward Power Loss Characteristics

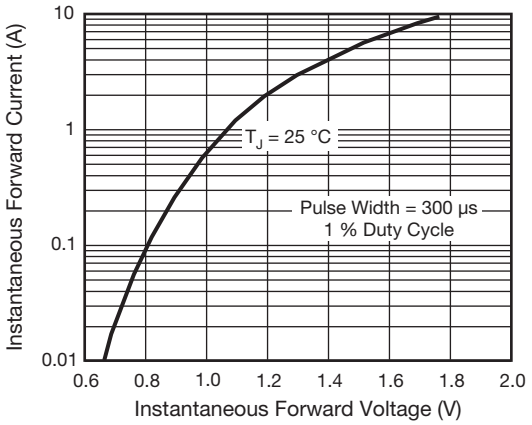



Fig. 4 - Typical Instantaneous Forward Characteristics


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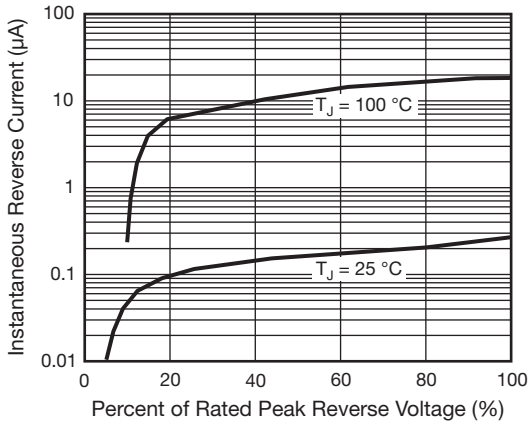



Fig. 5 - Typical Reverse Characteristics

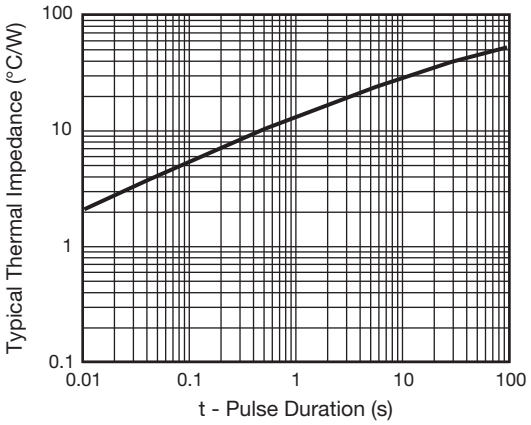



Fig. 7 - Typical Transient Thermal Impedance

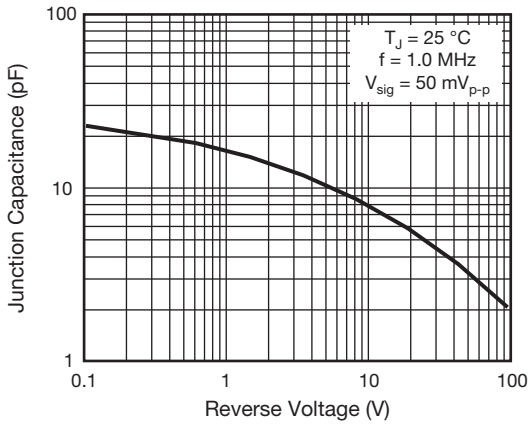
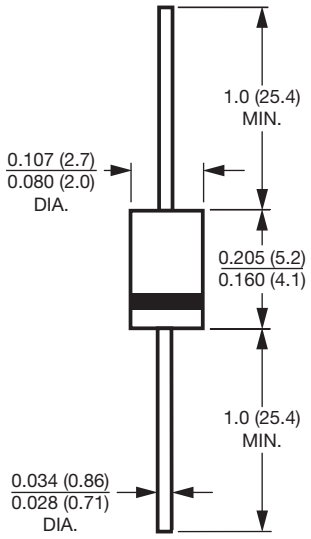



Fig. 6 - Typical Junction Capacitance

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

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




**Note**

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


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