

# Axial-Lead Fast-Recovery Rectifiers

Axial-lead, fast-recovery rectifiers are designed for special applications such as dc power supplies, inverters, converters, ultrasonic systems, choppers, low RF interference and free wheeling diodes. A complete line of fast recovery rectifiers having typical recovery time of 150 nanoseconds providing high efficiency at frequencies to 250 kHz.

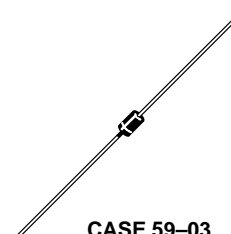
## Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16" from case
- Shipped in plastic bags, 1000 per bag.
- Available Tape and Reeled, 5000 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode Indicated by Polarity Band
- Marking: 1N4933, 1N4934, 1N4935, 1N4936, 1N4937

**1N4933  
thru  
1N4937**

1N4935 and 1N4937 are  
Motorola Preferred Devices

**FAST RECOVERY  
RECTIFIERS  
50-600 VOLTS  
1.0 AMPERE**



CASE 59-03  
DO-41

## MAXIMUM RATINGS (1)

Rating	Symbol	1N4933	1N4934	1N4935	1N4936	1N4937	Unit
*Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	200	400	600	Volts
*Non-Repetitive Peak Reverse Voltage RMS Reverse Voltage	$V_{RSM}$ $V_{R(RMS)}$	75 35	150 70	250 140	450 280	650 420	Volts
*Average Rectified Forward Current (Single phase, resistive load, $T_A = 75^\circ\text{C}$ ) (2)	$I_O$	1.0					Amp
*Non-Repetitive Peak Surge Current (Surge applied at rated load conditions)	$I_{FSM}$	30					Amps
Operating Junction Temperature Range Storage Temperature Range	$T_J$ $T_{stg}$	- 65 to +150 - 65 to +150					$^\circ\text{C}$

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient (Typical Printed Circuit Board Mounting)	$R_{\theta JC}$	65	$^\circ\text{C/W}$

\* Indicates JEDEC Registered Data for 1N4933 Series.

(1) Ratings at 25°C ambient temperature unless otherwise specified.

(2) Derate by 20% for capacitive loads.

**Preferred** devices are Motorola recommended choices for future use and best overall value.

# 1N4933 thru 1N4937

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Voltage ( $I_F = 3.14$ Amp, $T_J = 125^\circ\text{C}$ )	$V_F$	—	1.0	1.2	Volts
Forward Voltage ( $I_F = 1.0$ Amp, $T_A = 25^\circ\text{C}$ )	$V_F$	—	1.0	1.1	Volts
*Reverse Current (Rated dc Voltage) $T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$	$I_R$	— —	1.0 50	5.0 100	$\mu\text{A}$

## \*REVERSE RECOVERY CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Recovery Time ( $I_F = 1.0$ Amp to $V_R = 30$ Vdc) ( $I_{FM} = 15$ Amp, $di/dt = 10$ A/ $\mu\text{s}$ )	$t_{rr}$	— —	150 175	200 300	ns
Reverse Recovery Current ( $I_F = 1.0$ Amp to $V_R = 30$ Vdc)	$I_{RM}(\text{REC})$	—	1.0	2.0	Amp

\* Indicates JEDEC Registered Data for 1N4933 Series.

## PACKAGE DIMENSIONS

NOTES:

- ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY.
- POLARITY DENOTED BY CATHODE BAND.
- LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.07	5.20	0.160	0.205
B	2.04	2.71	0.080	0.107
D	0.71	0.86	0.028	0.034
F	—	1.27	—	0.050
K	27.94	—	1.100	—

**CASE 59-03  
(DO-41)  
ISSUE M**

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