

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.

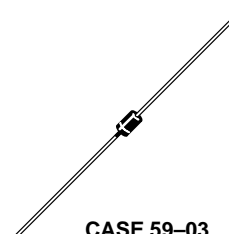
Mechanical Characteristics

- 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	μA

*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/ μs)	t_{rr}	— —	150 175	200 300	ns
Reverse Recovery Current ($I_F = 1.0$ Amp to $V_R = 30$ Vdc)	$I_{RM(REC)}$	—	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**

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 303-675-2140 or 1-800-441-2447

JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 4-32-1,
Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan. 81-3-5487-8488

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
– US & Canada ONLY 1-800-774-1848

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

INTERNET: <http://motorola.com/sps>

