

1N4933, 1N4934, 1N4935, 1N4936, 1N4937

1N4935 and 1N4937 are Preferred Devices

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.

Features

- Shipped in plastic bags, 1000 per bag
- Available Tape and Reeled, 5000 per reel, by adding a "RL" suffix to the part number
- Pb-Free Packages are Available

Mechanical Characteristics

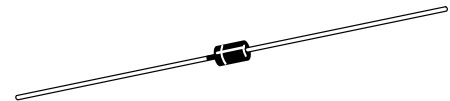
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16 in. from case
- Polarity: Cathode Indicated by Polarity Band



ON Semiconductor®

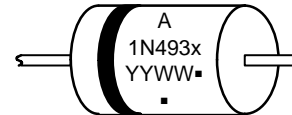
<http://onsemi.com>

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



**CASE 59-10
AXIAL LEAD
PLASTIC**

MARKING DIAGRAM



A = Assembly Location
1N493x = Device Number
x = 3, 4, 5, 6 or 7
YY = Year
WW = Work Week
■ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

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

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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MAXIMUM RATINGS (Note 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	V
†Non-Repetitive Peak Reverse Voltage RMS Reverse Voltage	V_{RSM} $V_{R(RMS)}$	75 35	150 70	250 140	450 280	650 420	V
†Average Rectified Forward Current (Single phase, resistive load, $T_A = 75^\circ\text{C}$) (Note 2)	I_O	1.0					A
†Non-Repetitive Peak Surge Current (Surge applied at rated load conditions)	I_{FSM}	30					A
Operating Junction Temperature Range Storage Temperature Range	T_J T_{stg}	- 65 to +150 - 65 to +150					$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Voltage ($I_F = 3.14$ Amp, $T_J = 150^\circ\text{C}$)	V_F	-	1.0	1.2	V
Forward Voltage ($I_F = 1.0$ Amp, $T_A = 25^\circ\text{C}$)	V_F	-	1.05	1.2	V
†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	A

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

2. Derate by 20% for capacitive loads.

†Indicates JEDEC Registered Data for 1N4933 Series.

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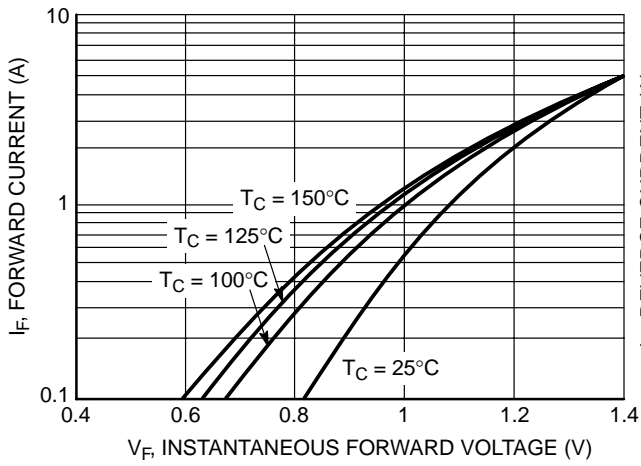


Figure 1. Typical Forward Voltage

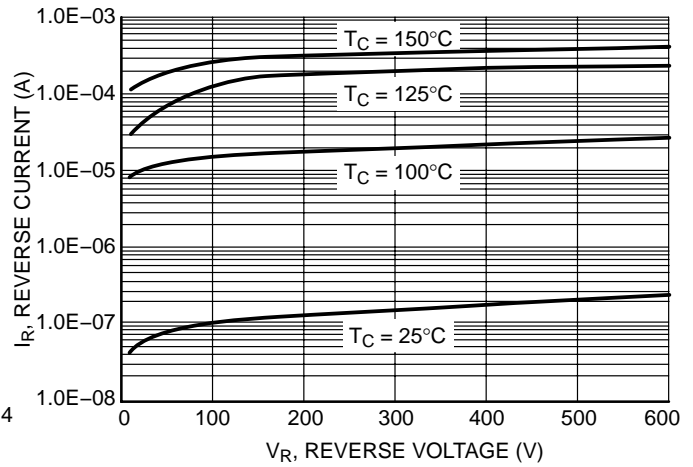


Figure 2. Typical Reverse Current

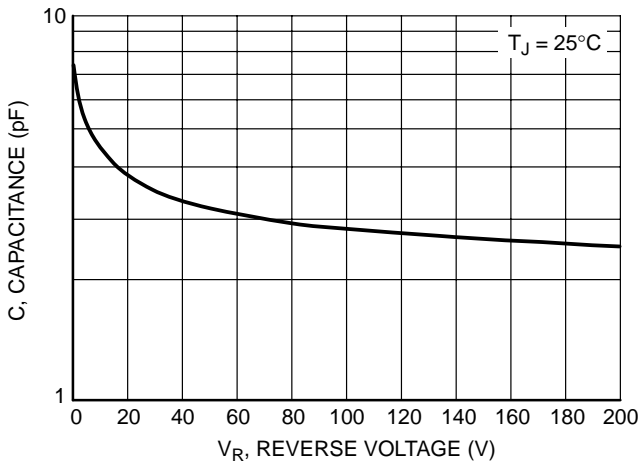


Figure 3. Typical Capacitance

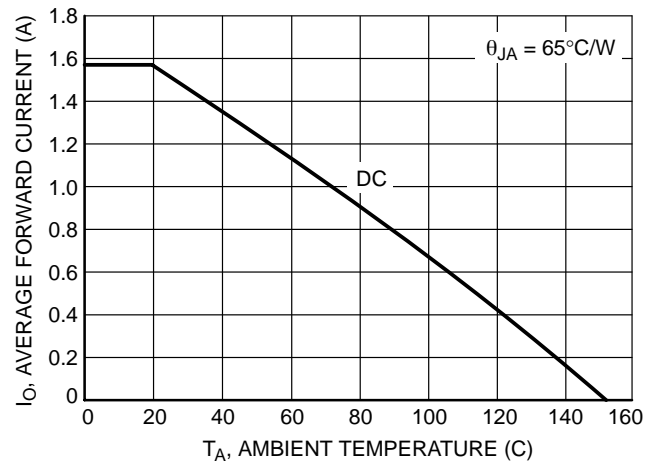


Figure 4. Current Derating

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ORDERING INFORMATION

Device	Package	Shipping†
1N4933	Axial Lead*	1000 Units/Bag
1N4933G	Axial Lead* (Pb-Free)	1000 Units/Bag
1N4933RL	Axial Lead*	5000/Tape & Reel
1N4933RLG	Axial Lead* (Pb-Free)	5000/Tape & Reel
1N4934	Axial Lead*	1000 Units/Bag
1N4934G	Axial Lead* (Pb-Free)	1000 Units/Bag
1N4934RL	Axial Lead*	5000/Tape & Reel
1N4934RLG	Axial Lead* (Pb-Free)	5000/Tape & Reel
1N4935	Axial Lead*	1000 Units/Bag
1N4935G	Axial Lead* (Pb-Free)	1000 Units/Bag
1N4935RL	Axial Lead*	5000/Tape & Reel
1N4935RLG	Axial Lead* (Pb-Free)	5000/Tape & Reel
1N4936	Axial Lead*	1000 Units/Bag
1N4936G	Axial Lead* (Pb-Free)	1000 Units/Bag
1N4936RL	Axial Lead*	5000/Tape & Reel
1N4936RLG	Axial Lead* (Pb-Free)	5000/Tape & Reel
1N4937	Axial Lead*	1000 Units/Bag
1N4937G	Axial Lead* (Pb-Free)	1000 Units/Bag
1N4937RL	Axial Lead*	5000/Tape & Reel
1N4937RLG	Axial Lead* (Pb-Free)	5000/Tape & Reel

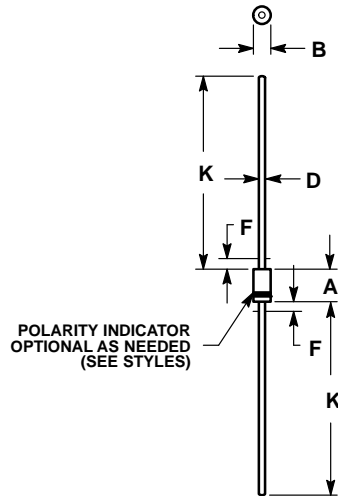
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*This package is inherently Pb-Free.

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PACKAGE DIMENSIONS

AXIAL LEAD CASE 59-10 ISSUE U



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY
 4. POLARITY DENOTED BY CATHODE BAND.
 5. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.161	0.205	4.10	5.20
B	0.079	0.106	2.00	2.70
D	0.028	0.034	0.71	0.86
F	----	0.050	----	1.27
K	1.000	----	25.40	----

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