

# MR850, MR851, MR852, MR854, MR856

## Axial Lead Fast Recovery Rectifiers

Axial lead mounted fast recovery power 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 100 nanoseconds providing high efficiency at frequencies to 250 kHz.

### Features

- These are Pb-Free Devices\*

### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.1 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Available Tape and Reel, 1200 per Reel, by adding a "RL" Suffix to the Part Number
- Polarity: Cathode Indicated by Polarity Band



**ON Semiconductor®**

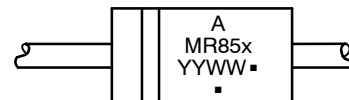
<http://onsemi.com>

**FAST RECOVERY  
POWER RECTIFIERS  
3.0 AMPERES, 50–600 VOLTS**



**AXIAL LEAD  
CASE 267  
STYLE 1**

### MARKING DIAGRAM



A = Assembly Location  
MR85x = Device Number  
x = 0, 1, 2, 4 or 6  
YY = Year  
WW = Work Week  
■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

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

# MR850, MR851, MR852, MR854, MR856

## MAXIMUM RATINGS

Rating	Symbol	MR850	MR851	MR852	MR854	MR856	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	$V_{RSM}$	75	150	250	450	650	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	V
Average Rectified Forward Current (Single phase resistive load, $T_A = 80^\circ\text{C}$ )	$I_O$	3.0					A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions)	$I_{FSM}$	100 (one cycle)					A
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	- 65 to +125 - 65 to +150					$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	28	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Lead (Note 1)	$R_{\theta JL}$	5.5	$^\circ\text{C}/\text{W}$

1. Mounted with minimum recommended pad size, PC board FR-4.

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Forward Voltage ( $I_F = 3.0\text{ A}$ , $T_J = 25^\circ\text{C}$ )	$V_F$	-	1.04	1.25	V
Reverse Current (rated DC voltage) $T_J = 25^\circ\text{C}$ $T_J = 80^\circ\text{C}$ { MR850 MR851 MR852 MR854 MR856	$I_R$	-	2.0	10	$\mu\text{A}$
		-	-	150	
		-	60	150	
		-	-	200	
		-	-	250	
		-	100	300	

## REVERSE RECOVERY CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Recovery Time ( $I_F = 1.0\text{ A}$ to $V_R = 30\text{ Vdc}$ ) ( $I_F = 15\text{ A}$ , $di/dt = 10\text{ A}/\mu\text{s}$ )	$t_{rr}$	-	100	200	ns
		-	150	300	
Reverse Recovery Current ( $I_F = 1.0\text{ A}$ to $V_R = 30\text{ Vdc}$ )	$I_{RM(REC)}$	-	-	2.0	A

# MR850, MR851, MR852, MR854, MR856

## ORDERING INFORMATION

Device	Package	Shipping†
MR850	Axial Lead*	500 Units / Box
MR851	Axial Lead*	500 Units / Box
MR851G	Axial Lead*	500 Units / Box
MR851RL	Axial Lead*	1200 / Tape & Reel
MR851RLG	Axial Lead*	1200 / Tape & Reel
MR852	Axial Lead*	500 Units / Box
MR852G	Axial Lead*	500 Units / Box
MR852RL	Axial Lead*	1200 / Tape & Reel
MR852RLG	Axial Lead*	1200 / Tape & Reel
MR854	Axial Lead*	500 Units / Box
MR854G	Axial Lead*	500 Units / Box
MR854RL	Axial Lead*	1200 / Tape & Reel
MR854RLG	Axial Lead*	1200 / Tape & Reel
MR856	Axial Lead*	500 Units / Box
MR856G	Axial Lead*	500 Units / Box
MR856RL	Axial Lead*	1200 / Tape & Reel
MR856RLG	Axial Lead*	1200 / 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.

\*These packages are inherently Pb-Free.



**AXIAL LEAD**  
**CASE 267-05**  
**ISSUE G**

**DATE 06/06/2000**



SCALE 1:1



- NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. 267-04 OBSOLETE, NEW STANDARD 267-05.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.287	0.374	7.30	9.50
B	0.189	0.209	4.80	5.30
D	0.047	0.051	1.20	1.30
K	1.000	---	25.40	---

STYLE 1:  
 PIN 1. CATHODE (POLARITY BAND)  
 2. ANODE

STYLE 2:  
 NO POLARITY

<b>DOCUMENT NUMBER:</b>	<b>98ASB42170B</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>AXIAL LEAD</b>	<b>PAGE 1 OF 1</b>

ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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 special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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 special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** 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. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

Technical Library: [www.onsemi.com/design/resources/technical-documentation](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at [www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)