

# 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®**

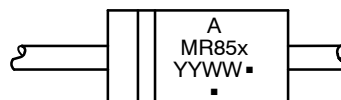
<http://onsemi.com>

**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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage        | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 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<br>(Single phase resistive load, $T_A = 80^\circ\text{C}$ ) | $I_O$                           | 3.0                          |       |       |       |       | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions)                 | $I_{FSM}$                       | 100<br>(one cycle)           |       |       |       |       | A                |
| Operating and Storage Junction Temperature Range                                              | $T_J, T_{stg}$                  | - 65 to +125<br>- 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  | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Lead (Note 1)    | $R_{\theta JL}$ | 5.5 | $^\circ\text{C/W}$ |

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

## ELECTRICAL CHARACTERISTICS

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

## REVERSE RECOVERY CHARACTERISTICS

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

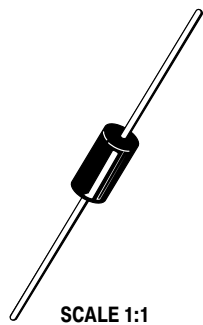
## MR850, MR851, MR852, MR854, MR856

### ORDERING INFORMATION

| Device   | Package     | Shipping <sup>†</sup> |
|----------|-------------|-----------------------|
| 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    |

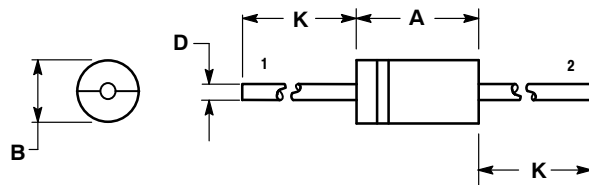
<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

\*These packages are inherently Pb-Free.



AXIAL LEAD  
CASE 267-05  
ISSUE G

DATE 06 JUN 2000



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

|                  |             |                                                                                                                                                                                     |
|------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| DESCRIPTION:     | AXIAL LEAD  | PAGE 1 OF 1                                                                                                                                                                         |

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## ADDITIONAL INFORMATION

### TECHNICAL PUBLICATIONS:

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