

# MR850, MR851, MR852, MR854, MR856

MR852 and MR856 are Preferred Devices

## 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.

### Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 1.1 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, 500 per box
- Available Tape and Reeled, 1200 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode Indicated by Polarity Band
- Marking: MR850, MR851, MR852, MR854, MR856

### MAXIMUM RATINGS

Please See the Table on the Following Page



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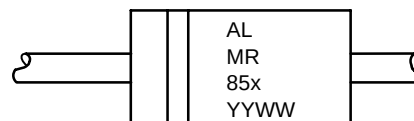
<http://onsemi.com>

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



AXIAL LEAD  
CASE 267-05  
STYLE 1

### MARKING DIAGRAM



AL = Assembly Location  
MR85x = Device Number  
x = 0, 1, 2, 4 or 6  
YY = Year  
WW = Work Week

### ORDERING INFORMATION

| Device  | Package    | Shipping         |
|---------|------------|------------------|
| MR850   | Axial Lead | 500 Units/Box    |
| MR850RL | Axial Lead | 1200/Tape & Reel |
| MR851   | Axial Lead | 500 Units/Box    |
| MR851RL | Axial Lead | 1200/Tape & Reel |
| MR852   | Axial Lead | 500 Units/Box    |
| MR852RL | Axial Lead | 1200/Tape & Reel |
| MR854   | Axial Lead | 500 Units/Box    |
| MR854RL | Axial Lead | 1200/Tape & Reel |
| MR856   | Axial Lead | 500 Units/Box    |
| MR856RL | Axial Lead | 1200/Tape & Reel |

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

# 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   | Volts            |
| Non-Repetitive Peak Reverse Voltage                                                           | $V_{RSM}$                       | 75                           | 150   | 250   | 450   | 650   | Volts            |
| RMS Reverse Voltage                                                                           | $V_{R(RMS)}$                    | 35                           | 70    | 140   | 280   | 420   | Volts            |
| Average Rectified Forward Current<br>(Single phase resistive load, $T_A = 80^\circ\text{C}$ ) | $I_O$                           | 3.0                          |       |       |       |       | Amp              |
| Non-Repetitive Peak Surge Current<br>(surge applied at rated load conditions)                 | $I_{FSM}$                       | 100<br>(one cycle)           |       |       |       |       | Amp              |
| Operating and Storage Junction<br>Temperature Range                                           | $T_J$ ,<br>$T_{stg}$            | – 65 to +125<br>– 65 to +150 |       |       |       |       | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| Characteristic                                                                          | Symbol          | Max | Unit               |
|-----------------------------------------------------------------------------------------|-----------------|-----|--------------------|
| Thermal Resistance, Junction to Ambient<br>(Recommended Printed Circuit Board Mounting) | $R_{\theta JA}$ | 28  | $^\circ\text{C/W}$ |

## ELECTRICAL CHARACTERISTICS

| Characteristic                                                                                                                         | Symbol | Min                   | Typ                             | Max                                   | Unit          |
|----------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------|---------------------------------|---------------------------------------|---------------|
| Forward Voltage<br>( $I_F = 3.0$ Amp, $T_J = 25^\circ\text{C}$ )                                                                       | $V_F$  | –                     | 1.04                            | 1.25                                  | Volts         |
| 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>–<br>100 | 10<br>150<br>150<br>200<br>250<br>300 | $\mu\text{A}$ |

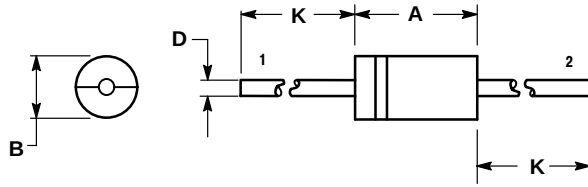
## REVERSE RECOVERY CHARACTERISTICS

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

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## PACKAGE DIMENSIONS

### AXIAL LEAD CASE 267-05 ISSUE G



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| 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

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