

## 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.

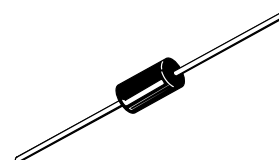
### Mechanical Characteristics

- 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, 5,000 per bag.
- Available Tape and Reeled, 1500 per reel, by adding a "RL" suffix to the part number
- Polarity: Cathode Indicated by Polarity Band
- Marking: R850, R851, R852, R854, R856

**MR850**  
**MR851**  
**MR852**  
**MR854**  
**MR856**

MR852 and MR856 are  
Motorola Preferred Devices

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



CASE 267-03

### 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	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 (Single phase resistive load, $T_A = 80^\circ\text{C}$ )	$I_O$	3.0					Amp
Non-Repetitive Peak Surge Current (surge applied at rated load conditions)	$I_{FSM}$	100 (one cycle)					Amp
Operating and Storage Junction Temperature Range	$T_J$ , $T_{stg}$	- 65 to +125 - 65 to +150					$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient (Recommended Printed Circuit Board Mounting, See Note 4, Page 5)	$R_{\theta JA}$	28	$^\circ\text{C/W}$

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

# MR850 MR851 MR852 MR854 MR856

## ELECTRICAL CHARACTERISTICS

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

## REVERSE RECOVERY CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Recovery Time ( $I_F = 1.0$ Amp to $V_R = 30$ Vdc, Figure 9) ( $I_F = 15$ Amp, $di/dt = 10$ A/ $\mu\text{s}$ , Figure 10)	$t_{rr}$	—	100 150	200 300	ns
Reverse Recovery Current ( $I_F = 1.0$ Amp to $V_R = 30$ Vdc, Figure 9)	$I_{RM(REC)}$	—	—	2.0	Amp

## PACKAGE DIMENSIONS

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

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.370	0.380	9.40	9.65
B	0.190	0.210	4.83	5.33
D	0.048	0.052	1.22	1.32
K	1.000	—	25.40	—

STYLE 1:  
 PIN 1. CATHODE  
 2. ANODE

**CASE 267-03  
 ISSUE C**

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