

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.

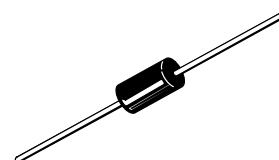
Mechanical Characteristics

- 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	$^\circ\text{C}/\text{W}$

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	μA	
$T_J = 80^\circ\text{C}$		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/ μs , Figure 10)	t_{rr}	—	100	200	ns
		—	150	300	
Reverse Recovery Current ($I_F = 1.0$ Amp to $V_R = 30$ Vdc, Figure 9)	$I_{RM(REC)}$	—	—	2.0	Amp

PACKAGE DIMENSIONS

The diagram shows a TO-18 package with dimensions labeled: A (height of the main body), B (height of the top flange), D (width of the top flange), K (height of the leads), and pins 1 and 2.

NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 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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