

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.

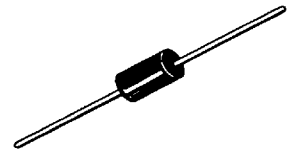
Mechanical Characteristics

- 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.

Rev 2

© Motorola, Inc. 1996

6367255 0091510 507



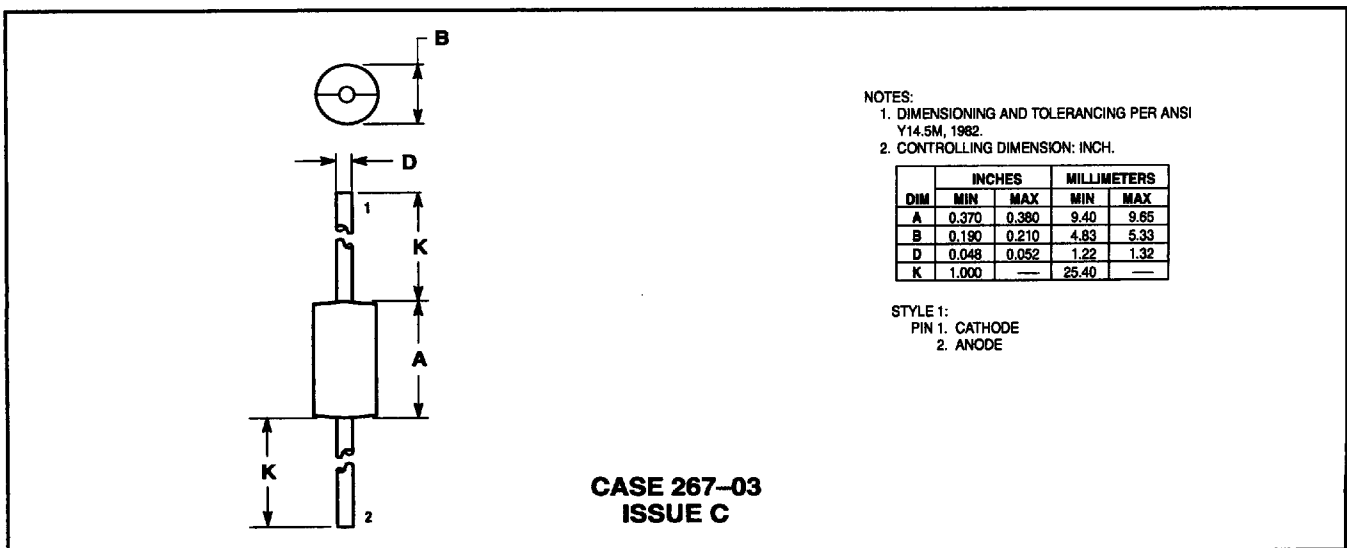
MOTOROLA

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
$T_J = 80^\circ\text{C}$		—	—	150	
MR850		—	60	150	
MR851		—	—	200	
MR852		—	—	250	
MR854		—	100	300	
MR856		—	—	—	

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}	—	100 150	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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola 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 consequential or incidental damages. "Typical" parameters which may be provided in Motorola 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. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola 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 Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 303-675-2140 or 1-800-441-2447

JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 4-32-1,
Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan. 81-3-5487-8488

Mfax™: RMFAX0@email.sps.mot.com — TOUCHTONE 602-244-6609
— US & Canada ONLY 1-800-774-1848

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

INTERNET: <http://motorola.com/spc>



6367255 0091511 443

MR850/D

81521 2