

2010

Product Catalog



Discrete Semiconductors

# Fast Recovery Diodes Rectifier Diodes



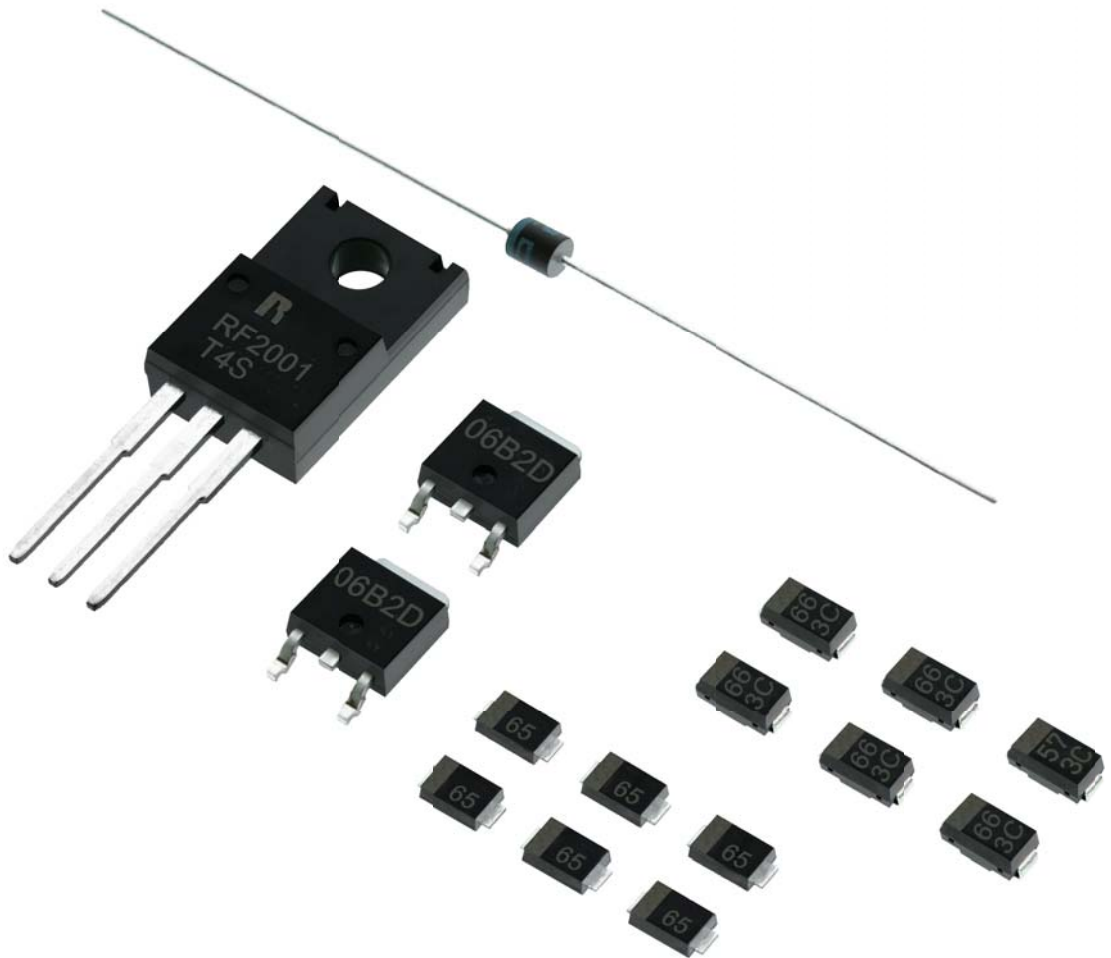
ROHM Co.,Ltd.

# Fast Recovery Diodes

ROHM's RF series utilizes a unique process for the highest recovery characteristics in the industry. The novel design, which emphasizes low loss and high reliability, has been well received in the market, resulting in the number one share in the PDP (Plasma Display Panels) sector.

## Rectifier Diodes

ROHM offers the high reliability RR series of rectifier diodes, featuring among the industry's highest class surge resistances for automotive use. The diodes are also ideally suited for strobe applications requiring high surge resistance due to their compact size. The 1SR series, by far the most popular rectifier diodes in the industrial, commercial, automotive sectors, is available in a standard version and a high speed rectification surface mount type.

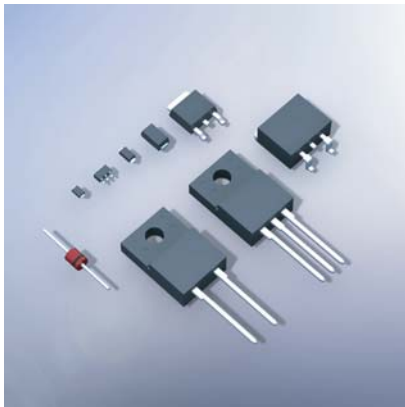


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# Fast Recovery Diodes



## RF Series

### Summary

These high voltage resistance diodes, ideal for use in switching power supplies of all types, feature among the fastest switching speeds in the industry along with low  $V_f$  for improved efficiency and reduced loss.

### Features

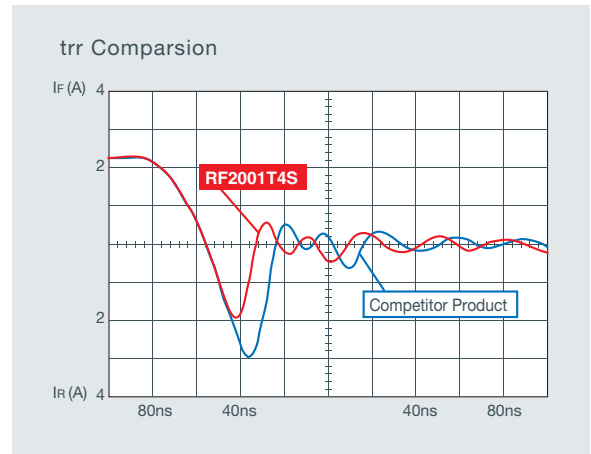
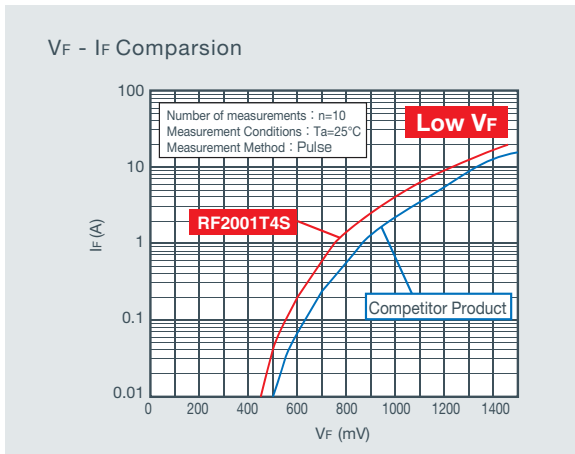
- High-speed operation
- High performance

### Applications

- Switching power supplies
- PDPs (sustain circuits)
- PFC circuits

## Low $V_f$ and ultra-high switching speed

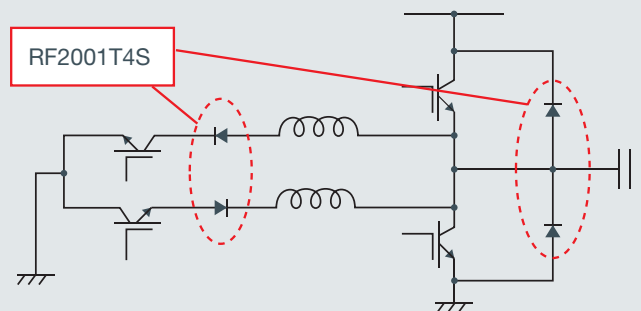
Generally  $V_f$  (forward voltage) increases with  $t_{rr}$  (reverse recovery time). However, optimization of device conditions has resulted in high  $t_{rr}$  with low  $V_f$ .



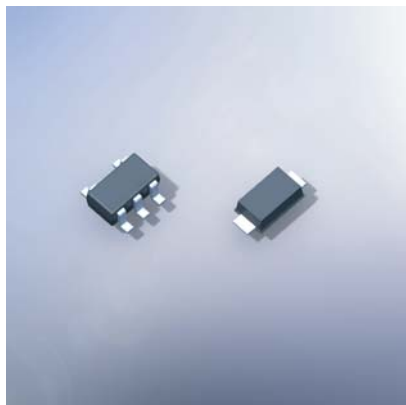
### Circuit Example

#### PDP Sustain Power Recovery Circuit (Resonance Circuit)

ROHM commands the largest market share in the field of fast recovery diodes for use in resonators for PDPs. Discharge current can be recovered at  $T_j = 100^\circ\text{C}$  with high efficiency at 60A-500ns, and the high reliability design can easily resist steep current surges in the 100A range. A diverse lineup is offered, including 3A- to 10A-class FRDs for ring currents designed to be connected anti-parallel to IGBTs.



# Rectifier Diodes



## RR Series

### Summary

These rectifier diodes feature outstanding surge resistance.

### Features

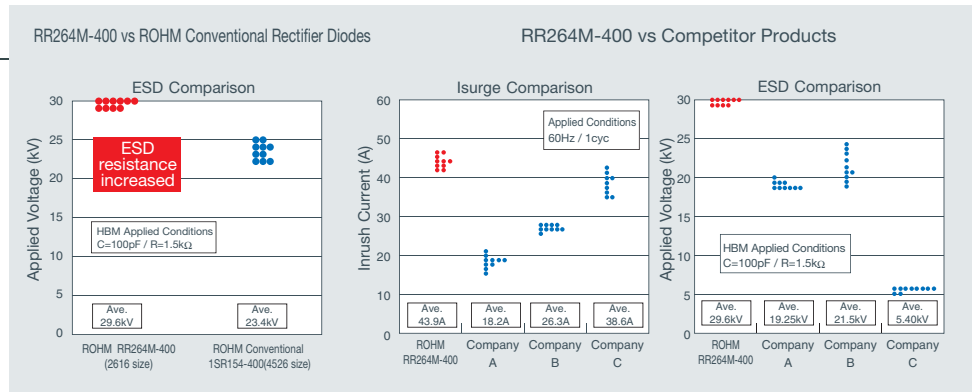
- High surge resistance

### Applications

- Circuits susceptible to overcurrent and overvoltage surge conditions.

## Superior surge characteristics

Optimization of device structures has resulted in significantly improved ESD resistance - approximately 25% greater than conventional products.



## Saves space

The trend towards increasingly sophisticated automobiles heightens demand for surge absorption rectifier diodes.

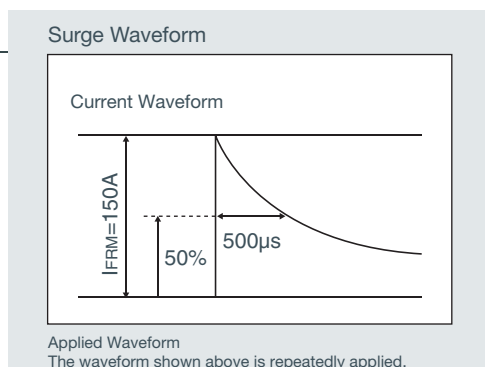
ROHM offers the RR264M-400 series rectifier diodes along with the RR274EA-400 line that integrates two elements in a single package.

Package		RR264M-400	RR274EA-400
Dimensions (Unit:mm)			
		<b>Mounting area reduced approximately 30%</b>	
$I_o$		0.7A	0.5A
$V_{RM}$		400V	400V
ESD	C=100pF, R=1.5k $\Omega$	29kV	Over 30kV
	C=200pF, R=0 $\Omega$	6kV	8kV

## Robust against repeated surges

Every time a camera strobe flashes excessive voltage and current are generated, placing the brunt of the load on the circuit.

The RR255M-400, offered for the first time in a 2616-sized package, clears the 150A-level  $I_{FRM}$  required for strobes.



# Fast Recovery / Rectifier Diode Lineup

## Fast Recovery Diodes

Product No.		Absolute Maximum Ratings (Ta=25°C)*1				Electrical Characteristics (Ta=25°C)*1							Package	Equivalent Circuit Diagram
Part No.	Taping Code	VRM (V)	VR (V)	Io *2 (A)	IFSM(A) 60Hz.1~	VF(V)		IR(μA)		trr(ns)				
						Max.	IF(A)	Max.	VR(V)	Max.	IF(A)	IR(A)		
<b>New</b> RF05VA1S	TR	100	100	0.5	6	0.98	0.5	10	100	25	0.5	1	TUMD2	
RF05VA2S	TR	200	200	0.5	6	0.98	0.5	10	200	25	0.5	1	TUMD2	
RF04UA2D	TR	200	200	0.4	1	0.98	0.4	10	200	25	0.5	1	TSM6	
RF071M2S	TR	200	200	0.7	15	0.85	0.7	10	200	25	0.5	1	PMDU	
RF081M2S	TR	200	200	0.8	20	0.95	0.8	10	200	25	0.5	1	PMDU	
RF081L2S	TE25	200	200	1.1	25	0.98	1.1	10	200	25	0.5	1	PMDS	
RF101L2S	TE25	200	200	1	20	0.87	1	10	200	25	0.5	1	PMDS	
RF201L2S	TE25	200	200	2	20	0.87	2	10	200	25	0.5	1	PMDS	
<b>New</b> RF071L4S	TE25	400	400	0.7	15	1.25	0.7	10	400	25	0.5	1	PMDS	
RF101L4S	TE25	400	400	1	25	1.25	1	10	400	25	0.5	1	PMDS	
RF08L6S	TE25	600	600	0.8	20	1.3	0.8	10	600	70	0.5	1	PMDS	
RF2L6S	TE25	600	600	1.5	40	1.55	1.5	10	600	35	0.5	1	PMDS	
RF301B2S	TL	200	200	3	40	0.93	3	10	200	25	0.5	1	CPD (D-Pack)	
RF501B2S	TL	200	200	5	40	0.92	5	10	200	25	0.5	1	CPD (D-Pack)	
RF601B2D	TL	200	200	6	40	0.93	6	10	200	25	0.5	1	CPD (D-Pack)	
<b>New</b> RF305B6S	TL	600	600	3	50	1.7	3	10	600	30	0.5	1	CPD (D-Pack)	
RF505B6S	TL	600	600	5	50	1.7	5	10	600	30	0.5	1	CPD (D-Pack)	
<b>New</b> RF1501NS3S	TL	350	300	20	100	1.5	20	10	300	30	0.5	1	LPDS (D2-Pack)	
<b>New</b> RF2001NS3D	TL	350	300	20	100	1.3	20	10	300	25	0.5	1	LPDS (D2-Pack)	
<b>New</b> RFUS20NS4S	TL	430	430	20	100	1.6	20	10	430	35	0.5	1	LPDS (D2-Pack)	
<b>New</b> RFUS20NS6S	TL	600	600	20	100	2.8	20	10	600	35	0.5	1	LPDS (D2-Pack)	
RF101A2S	T-32	200	200	1	20	0.87	1	10	200	25	0.5	1	MSR	
RF601T2D	Bulk	200	200	6	60	0.93	6	10	200	25	0.5	1	TO-220FN	
RF1001T2D	Bulk	200	200	10	80	0.93	10	10	200	25	0.5	1	TO-220FN	
RF1601T2D	Bulk	200	200	16	100	0.93	16	10	200	30	0.5	1	TO-220FN	
RF2001T2D	Bulk	200	200	20	100	0.93	20	10	200	30	0.5	1	TO-220FN	
RF2001T3D	Bulk	350	300	20	100	1.3	20	10	300	25	0.5	1	TO-220FN	
RF2001T4S	Bulk	430	400	20	100	1.6	20	10	400	30	0.5	1	TO-220FN	
<b>New</b> RF1501TF3S	Stick	350	300	20	100	1.5	20	10	300	30	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFU5TF5S	Stick	600	600	5	80	1.7	5	10	600	30	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFU5TF6S	Stick	600	600	5	60	2.8	5	10	600	25	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFU10TF6S	Stick	600	600	10	100	2.8	10	10	600	25	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFX10TF6S	Stick	600	600	10	100	2.5	10	10	600	30	0.5	1	TO-220NFM (2pin)	
<b>New</b> RF1005TF6S	Stick	600	600	10	100	1.7	10	10	600	40	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFUS20TF6S	Stick	600	600	20	100	2.8	20	10	600	35	0.5	1	TO-220NFM (2pin)	
<b>New</b> RFUS20TM4S	Stick	430	430	20	100	1.6	20	10	430	35	0.5	1	TO-220NFM (3pin)	
<b>New</b> RFU20TM5S	Stick	530	530	20	100	2	20	10	530	30	0.5	1	TO-220NFM (3pin)	
<b>New</b> RFUS20TM6S	Stick	600	600	20	100	2.8	20	10	600	35	0.5	1	TO-220NFM (3pin)	

\*1 : Value/element

\*2 : 1/2 Io/element (for 2-element products)

■ General Purpose Rectifier Diodes

Product No.		Absolute Maximum Ratings (Ta=25°C)				Electrical Characteristics (Ta=25°C)							Package	Equivalent Circuit Diagram
Part No.	Taping Code	V <sub>RM</sub> (V)	V <sub>R</sub> (V)	I <sub>O</sub> (A)	I <sub>FSM(A)</sub> 60Hz.1~	V <sub>F</sub> (V) Max.	I <sub>F</sub> (A)	I <sub>R</sub> (μA) Max.	V <sub>R</sub> (V)	t <sub>rr</sub> (ns) Max.	I <sub>F</sub> (A)	I <sub>R</sub> (A)		
RR274EA-400	TR	400	400	0.5	8	1.1	0.5	10	400	-	-	-	TSMD5	
RR264M-400	TR	400	400	0.7	25	1.1	0.7	10	400	-	-	-	PMDU	
RR255M-400	TR	400	400	0.7	150 *	0.98	0.7	1	400	-	-	-	PMDU	
1SR154-400	TE25	500	400	1	30	1.1	1	10	400	-	-	-	PMDS	
1SR154-600	TE25	750	600	1	30	1.1	1	10	600	-	-	-	PMDS	
1SR139-400	T-32	500	400	1	30	1.1	1	10	400	-	-	-	MSR	
1SR139-600	T-32	750	600	1	30	1.1	1	10	600	-	-	-	MSR	

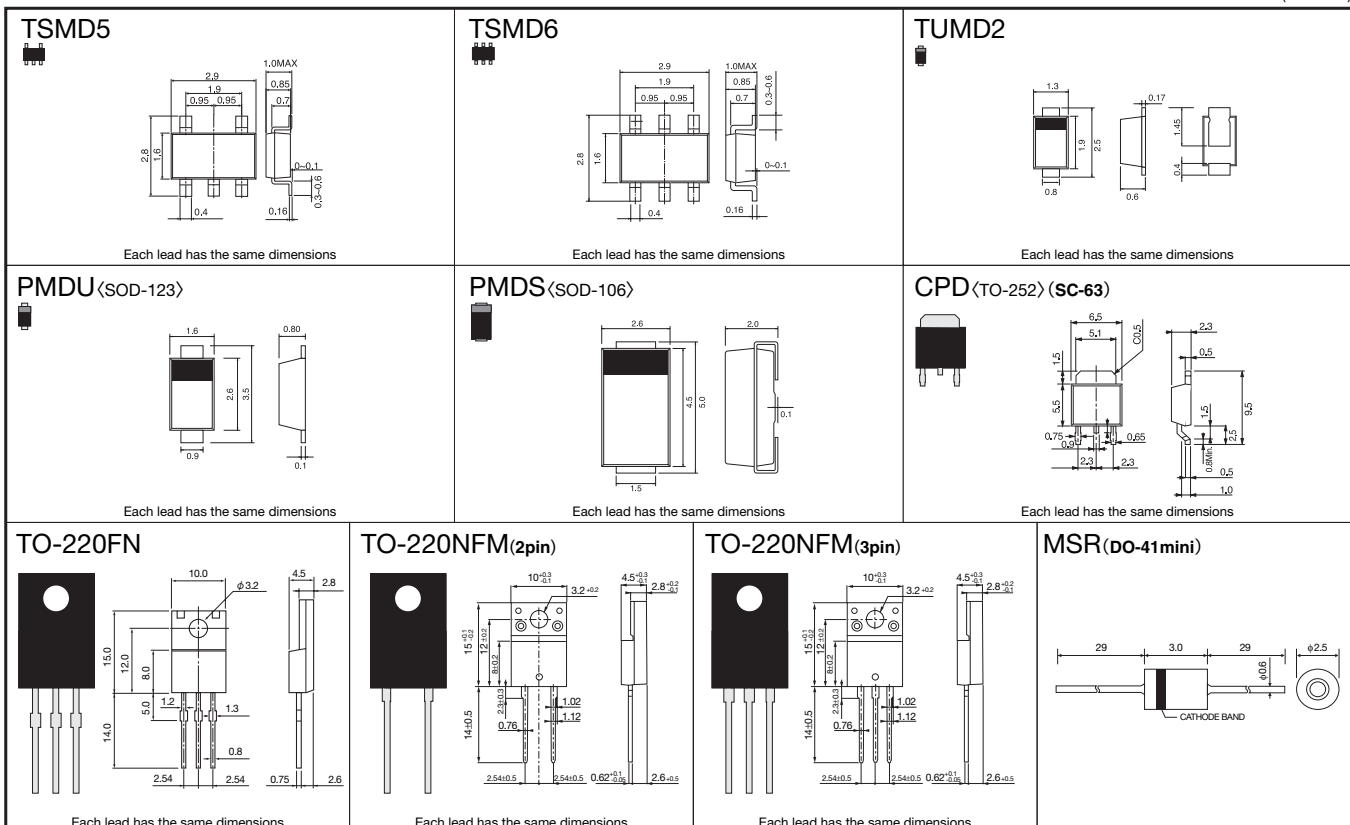
\* : I<sub>FRM</sub> (A)

■ High-Speed Rectifier Diodes

Product No.		Absolute Maximum Ratings (Ta=25°C)				Electrical Characteristics (Ta=25°C)							Package	Equivalent Circuit Diagram
Part No.	Taping Code	V <sub>RM</sub> (V)	V <sub>R</sub> (V)	I <sub>O</sub> (A)	I <sub>FSM(A)</sub> 60Hz.1~	V <sub>F</sub> (V) Max.	I <sub>F</sub> (A)	I <sub>R</sub> (μA) Max.	V <sub>R</sub> (V)	t <sub>rr</sub> (ns) Max.	I <sub>F</sub> (A)	I <sub>R</sub> (A)		
1SR156-400	TE25	500	400	1	20	1.3	0.8	10	400	400	10	10	PMDS	
1SR153-600	T-32	500	400	1	30	1.3	0.8	10	400	400	10	10	MSR	

Dimensions

(Unit : mm)



Figures in < > indicate the JEDEC code, while characters in ( ) denote the JEITA code.

\* Please visit ROHM's website for additional details/specifications

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