Industrial & General Purpose | Consumer & Home Appliance | Automotive | PC / Smart devices

Tr

ROHM SEMICONDUCTOR

New Low noise type Fast trr Super Junction MOSFET now available

Low Noise PrestoMOS™

R60xxRNx series

PrestoMOS™ is a trademark or registered trademark of ROHM Co., Ltd.

- **· Fast trr + Lower noise makes Easier to use!**
  Simultaneously improves recovery characteristics and noise

- **· Improves the trade-off between noise and switching loss in all frequency bands**
  Facilitates design

- **· Ideal for compact motor applications including fan motors, pumps, and ventilation fans**
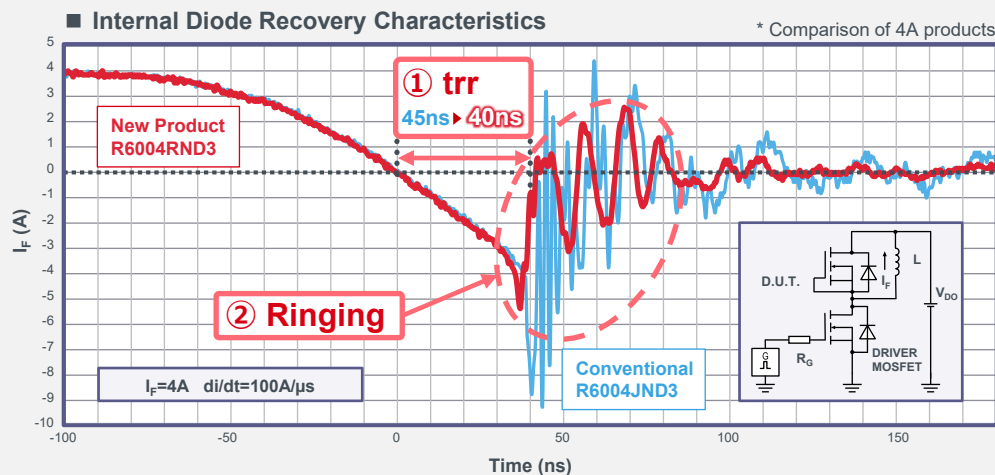 Effective for noise suppression in compact motor applications (up to 9A) that support high frequencies

TO-252 < DPAK>

Package indicates JEDEC code. <> Refers to the General package code.
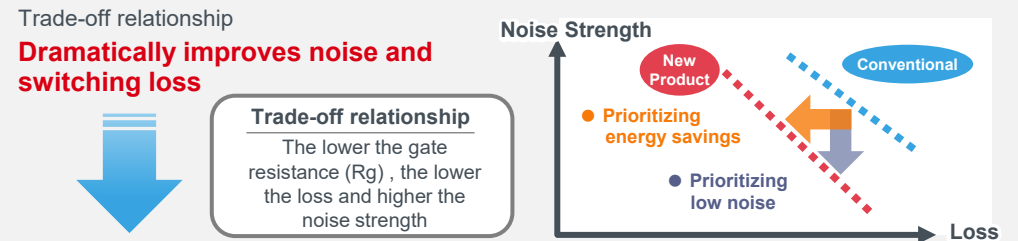

■ Low Noise Fast Recovery PrestoMOS™
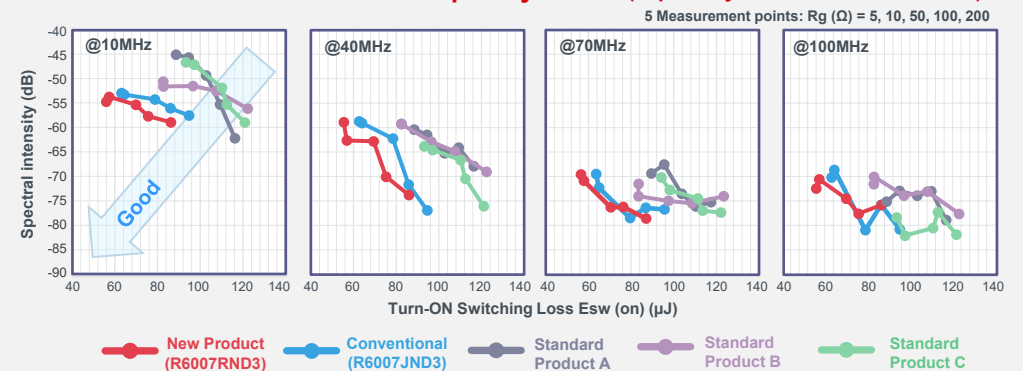
New Product "R60xxRNx series" Features

① **Improves recovery characteristics (faster trr)**

② **Reduces noise (minimizes ringing)**

■ Internal Diode Recovery Characteristics

* Comparison of 4A products

New Product R6004RND3

① trr 45ns ▶ 40ns

② Ringing

$I_F=4A$ di/dt=100A/μs

Conventional R6004JND3

D.U.T. | L | I_F | V_{DO}

G | R_G | DRIVER MOSFET

■ Improves the Trade-Off Between Noise and Loss

Trade-off relationship

Dramatically improves noise and switching loss

Trade-off relationship
The lower the gate resistance (Rg), the lower the loss and higher the noise strength

Noise Strength

New Product | Conventional

● **Prioritizing energy savings**

● **Prioritizing low noise**

Loss

Excellent characteristics in all frequency bands (especially from 10MHz to 100MHz)

5 Measurement points: Rg (Ω) = 5, 10, 50, 100, 200

@10MHz | @40MHz | @70MHz | @100MHz

Spectral intensity (dB)

Good

Turn-ON Switching Loss Esw (on) (μJ)

New Product (R6007RND3) | Conventional (R6007JND3) | Standard Product A | Standard Product B | Standard Product C

■ Low-Noise PrestoMOS™ Optimized for Compact Motor Applications

PrestoMOS™ (SJ-MOSFET)

FET   Parasitic Diode
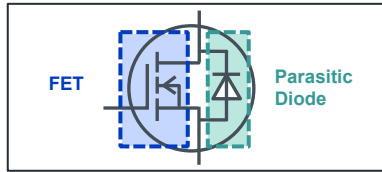
'**Presto**' is an Italian musical term meaning 'very fast'. PrestoMOS™ boasts the industry's fastest reverse recovery time by speeding up the parasitic diodes in Super Junction MOSFETs.

● Circuit Example (3-Phase AC Motor)

M 3∼

Reducing parasitic diode loss (via fast trr) is essential for achieving energy savings, since return current flows through the parasitic diode of the MOSFET.
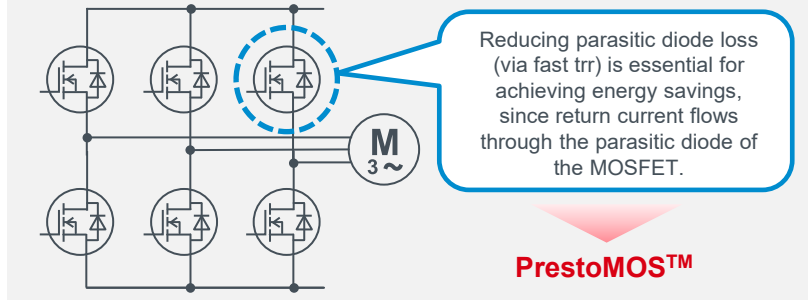
PrestoMOS™

High-speed switching generates high frequencies/harmonics (noise)

R60xxRNx series low noise type PrestoMOS™ is ideal

● Applications equipped with Compact Motors

Motors   PC Cooling Fans

Fans   Robot Vacuums

Heaters

Refrigerators   Compressors

■ R60xxRNx series of Low Noise Fast trr PrestoMOS™

Part No.	Polarity (ch)	V_DSS (V)	I_D (A)	P_D (W) (Tc=25℃)	R_DS(on) Typ (mΩ) V_GS=15V	Qg Typ (nC) V_GS=15V	trr Typ (ns)	Package
New **R6004RND3**	N	600	4	60	1,330	10.5	40	TO-252 <DPAK>
New **R6007RND3**			7	96	730	17.5	50	
New **R6009RND3**			9	125	510	22.0	55	

Click on the 🌐 icon to access the product page and the 📄 icon to view the datasheet on ROHM's website.
Package indicates JEDEC code. 〈 〉: GENERAL code.

■ Expanded PrestoMOS™ Lineup

PrestoMOS™

Fast trr
R60xxJNx series

Fast trr
Low Noise
R60xxRNx series

Fast trr
Large Current・
Low ON Resistance
R60xxVNx series

V_DSS (V)	R_DS(on) Typ (mΩ)	trr Typ (ns)	SOT223	TO-252 <DPAK>	(TO-220FM) <TO-220FP>	TO-220AB	(TO-3PF)	TO-247AD (TO-247)
600	2,500	34	☆ R6002JND4					
	1,600	38	☆ R6003JND4	☆ R6003JND3	★ R6003JNX			
	RN:1,330 JN:1,100	RN:40 JN:45		New R6004RND3	R6004JNX			
	RN:730 JN:600	RN:50 JN:60		New R6007RND3	R6007JNX			
	RN:510 JN:450	RN:55 JN:65		New R6009RND3	R6009JNX			
	250	65		R6013VND3	R6013VNX			
	170	68			R6018VNX			
	127	80			R6024VNX	R6024VNX3		
	95	92			R6035VNX	R6035VNX3		
	59	112			☆ R6055VNX3	☆ R6055VNX3	R6055VNZ	R6055VNZ4
	42	125					R6077VNZ	R6077VNZ4
	25	175						☆ R60A4VNZ4

☆ Under Development   ★Planned   The items of R60xxJNx series above are the selected models as recommended products.
Packages indicate JEDEC code. ( ): ROHM Package, 〈 〉: GENERAL code.

The information contained in this document is current as of October 1st, 2022.