

New SJ-MOSFETs with Very Low $R_{DS(on)}$ and Ultra-low Q_{gd}

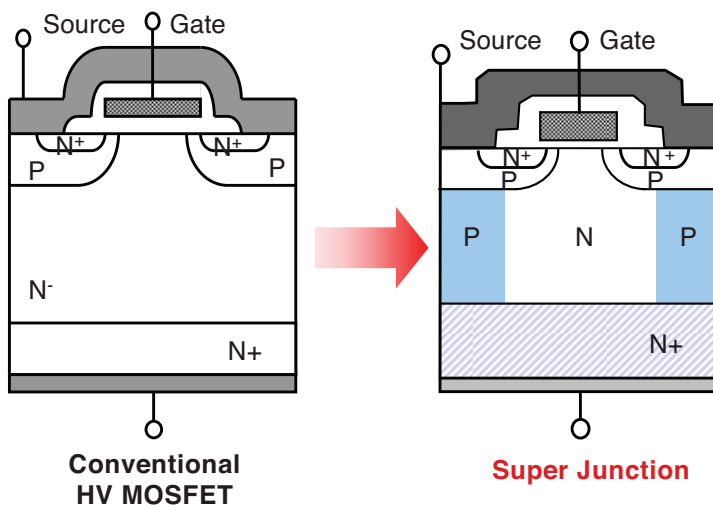
A new line-up of high-voltage SJ-MOSFETs that combine very low $R_{DS(on)}$ and ultra-low Q_{gd} enable switching power supply and motor drive designs that are optimized for both the highest efficiency and compact form factors. These devices are available in industry-standard packages, including TO-220, TO-247, TO-3P, and SMD packages such as TO263. The new high-voltage SJ-MOSFET devices complement Renesas' other 600V products that include Silicon and SiC power diodes, IGBTs, advanced planar high-voltage MOSFETs, and PFC controller ICs. These products can be used together for applications, including PFC switches and inverters for motor drives, power conditioners for renewable energy applications, and power supplies for telecom and servers.

Key Features

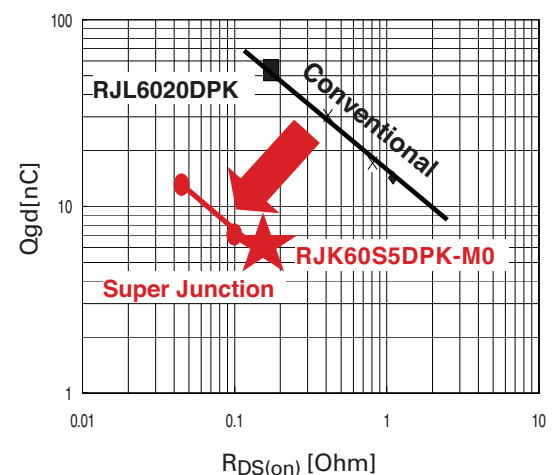
- Low $R_{DS(on)}$
- Low Q_{gd}
- Low input capacitance (C_{iss})
- Excellent body diode performance
- Minimal conduction and switching loss at a high switching speed



Comparison of Cell Structure



Q_{gd} - $R_{DS(on)}$ Characteristics



High-voltage SJ-MOSFETs

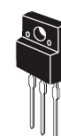
Benchmarking

Manufacturer	Part Number	FOM1 ($R_{DS(on),max} \times Q_{g,typ}$)	FOM2 ($R_{DS(on),max} \times Q_{gd,typ}$)
Renesas	RJK60S5DPP-E0	5162 mOhm x nC	1068 mOhm x nC
Renesas	RJK60S7DPP-M0	4750 mOhm x nC	875 mOhm x nC
A	Same package, best specification available	6435 mOhm x nC	2145 mOhm x nC
B	Same package, best specification available	7900 mOhm x nC	3002 mOhm x nC

Best-in-Class $R_{DS(on)} \times Q_g$: $R_{DS(on)} \times Q_{gd}$ Figures of Merit

High-voltage SJ-MOSFET Line-up

Package	Part Number	VDSS [V]	ID [A]	$R_{DS(on)}$ Typ. [Ω]
LDBAK-S	RJK60S3DPE	600	12	0.35
	RJK60S4DPE	600	16	0.23
	RJK60S5DPE	600	20	0.15
TO-220FP	RJK60S3DPP-E0	600	12	0.35
	RJK60S4DPP-E0	600	16	0.23
	RJK60S5DPP-E0	600	20	0.15
	RJK60S7DPP-E0	600	30	0.1
TO-220AB	RJK60S5DPN-E0	600	20	0.15
	RJK60S7DPN-E0	600	30	0.1
TO-247	RJK60S5DPQ	600	20	0.15
	RJK60S7DPQ	600	30	0.1
TO-3PSG	RJK60S5DPK-M0	600	20	0.15
	RJK60S7DPK-M0	600	30	0.1
	RJK60S8DPK-M0	600	55	0.045



TO-220FL



TO-220AB



TO-3PSG

Note: Please check Renesas website for latest information, updates, and collateral: <http://am.renesas.com>

Support and Collateral

Fully characterized datasheets, application notes, design tools available at: <http://am.renesas.com/products/discrete/pmosfet/>

For additional information contact:
http://am.renesas.com/tech_support



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