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SQJ590EP Best in Class Automotive MOSFET

150 V N-Channel MOSFET for Higher Power Density

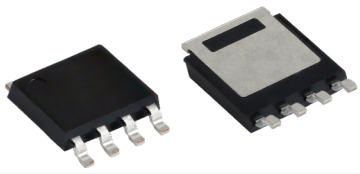
AUTOMOTIVE GRADE

ADVANTAGE

Advanced specs and a compact size work together in the SQJ590EP to cut power loss and deliver higher efficiency and power density.

KEY PRODUCT FEATURES

- ✓ AEC-Q101 qualified
- ✓ Class-leading typical $R_{DS(ON)}$ of 8.2 mΩ / maximum $R_{DS(ON)}$ of 9.8 mΩ
- ✓ Leading $R_{DS(ON)}$*Q_g FOM of 279 mΩ*nC
- ✓ Designed for fast switching with low Q_{gd} and minimized "Miller" plateau
- ✓ Compact footprint of 32.8 mm²
- ✓ Gullwing leads optimized to achieve maximum relief for mechanical and thermal stresses
- ✓ Increases board-level reliability



MARKETS AND APPLICATIONS

AUTOMOTIVE

- 48 V and 96 V systems
- Audio amplifiers
- Battery management systems
- DC/DC converters
- Motor drives / inverters
- Power and load switching
- Vehicle headlights

KEY PRODUCT BENEFITS

On-resistance	↓
R_{DS}-Q_g FOM	↓
Power Losses	↓
PCB footprint for MOSFET	↓
Efficiency	↑
Current output	↑
Power density	↑
Relief for mechanical and thermal stress	↑
Board-level reliability	↑

RESOURCES

Product Page

Contact Us

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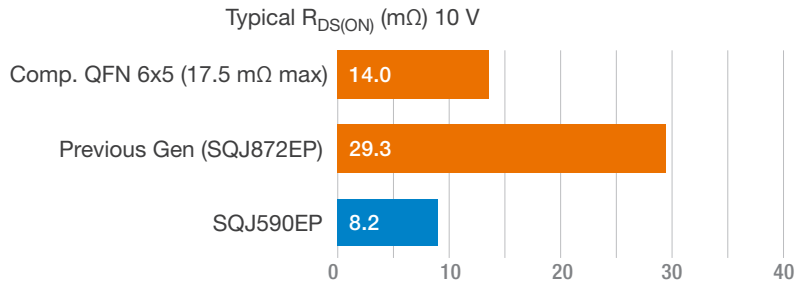
ADDITIONAL BENEFITS

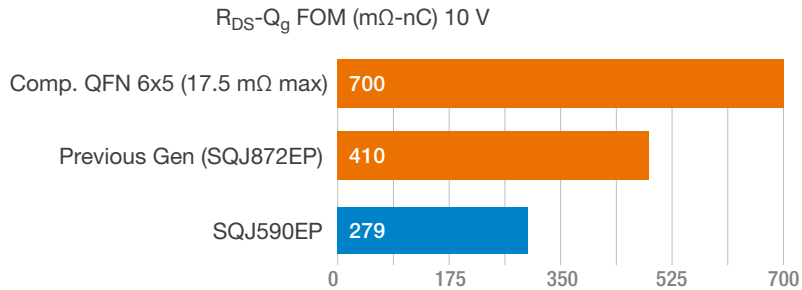
- Leading $R_{DS(ON)}$ reduces conduction loss and increases current load
- Low Q_g reduces power loss from gate driving
- Optimized for fast switching – Q_{gd} / Q_{gs} ratio of 0.133 and typical “Miller charge” Q_{gd} of 2 nC
- Increased efficiency leads to lower temperature or higher output
- Reduces PCB real estate requirements for MOSFET devices
- Gullwing leads promote solder fillet formation, provide mechanical stress relief, and increase board-level reliability

Lowest $R_{DS(ON)}$ in 6 mm x 5 mm Packages



The typical $R_{DS(ON)}$ of the SQJ590EP is 12.8 % lower than the next best product in the 6 mm by 5 mm package. Compared to a device using the previous-generation technology (SQJ872EP), the $R_{DS(ON)}$ improvement is 72 %. Maximum junction temperature for all three devices shown above is 175 °C.

Best R_{DS}-Q_g FOM in 6 mm x 5 mm Packages



The typical R_{DS}*Q_g FOM of the SQJ590EP is 32 % better than the next best product in the 6 mm by 5 mm package. The FOM is improved by 57 % compared to the SQJ872EP.

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