# Automotive Qualified Planar MOSFETs suitable for high-side switch applications

International Rectifier today introduced a family of automotive qualified planar MOSFETs for a variety of applications used in Internal Combustion Engine (ICE), hybrid and full electric vehicle platforms.

The family of new devices utilizing IR's proven planar technology includes 55 V and 150 V standard gate drive N Channel MOSFETs, and -55 V and -100 V standard gate drive P channel MOSFETs suitable for high-side switch applications, requiring no additional charge pump for gate drive. The 30 V, 55 V and 100 V logic level gate drive N Channel MOSFETs simplify gate drive requirements and help reduce board space and component count. All of the new devices are optimized for low on-state resistance (Rds(on)).

"By utilizing IR's proven planar technology, these new automotive dedicated devices perform well in linear mode and in applications where a rugged MOSFET is needed to drive highly inductive loads. Moreover, the devices are well suited to vehicles using a higher board-net voltage such as trucks, said Benjamin Jackson, product manager, IR's Automotive Products Business Unit.

The new devices are qualified according to AEC-Q101 standards, feature an environmentally friendly, lead-free and RoHS compliant bill of materials, and are part of IR's Automotive focused Zero Defect Initiative.

All of IR's automotive MOSFETs are subject to dynamic and static part average testing combined with 100 percent automated wafer level visual inspection as part of IR's automotive quality initiative targeting zero defects. AEC-Q101 qualification

requires that there is no more than a 20 percent change in Rds(on) after 1,000 temperature cycles of testing. However, in extended testing IR's new AU Bill Of Materials exhibited a maximum Rds(on) shift of only 12% at 5,000 temperature cycles, demonstrating the strength and ruggedness of the Bill of Materials.

***Specifications: Standard Gate Drive***

| Part Number | Package | Gate Drive | $V_{DS(ON)}$ (V) | $R_{DS(ON)\ MAX}$ @ $10V_{GS}$ (mOhm) | $I_{D\ MAX}$ @ $T_C$ = 25°C (A) | $Q_{G\ TY}$ |
|---|---|---|---|---|---|---|
| AUIRF3305 | TO-220 | Standard | 55 | 8.0 | 140 | 100 |
| AUIRFR4105 | DPak | Standard | 55 | 24.5 | 30 | 13 |
| AUIRFZ34N | TO-220 | Standard | 55 | 40.0 | 26 | 23 |
| AUIRF3415 | TO-220 | Standard | 150 | 42 | 43 | 133 |
| **P Channel Devices** | | | | | | |
| AUIRF4905 | TO-220 | Standard | -55 | 20.0 | -74 | 120 |
| AUIRFR5305 | DPak | Standard | -55 | 65.0 | -28 | 42 |
| AUIRF9Z34N | TO-220 | Standard | -55 | 100 | -17 | 23 |
| AUIRFR5505 | DPak | Standard | -55 | 110 | -18 | 21 |
| AUIRFR9024N | DPak | Standard | -55 | 175 | -11 | 13 |
| AUIRF9540N | TO-220 | Standard | -100 | 117 | -23 | 65 |
| AUIRFR5410 | DPak | Standard | -100 | 205 | -13 | 39 |

***Specifications:***

**Logic Level Gate Drive**

| Part Number | Package | Gate Drive | $V_{DS(ON)}$ (V) | $R_{DS(ON)\ MAX}$ @ $4.5V_{GS}$ (mOhm) | $I_{D\ MAX}$ @ $T_C$ = 25°C (A) | $Q_{G\ TY}$ |
|---|---|---|---|---|---|---|
| AUIRLR2703 | DPak | Logic | 30 | 65.0 | 22 | 15 |

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|---|---|---|---|---|---|---|
| AUIRL3705N | TO-220 | Logic | 55 | 18.0 | 89 | 98 |
| AUIRLR2905 | DPak | Logic | 55 | 22.5 | 60 | 23 |
| AUIRLR024N | DPak | Logic | 55 | 110 | 17 | 15 |
| AUIRLR120N | DPak | Logic | 100 | 265 | 11 | 20 |

Datasheets and qualification standards are available on the International Rectifier website at www.irf.com [1]. Spice models are available on request.

Availability and Pricing

Pricing ranges from US $0.27 each for the AUIRFR9024N and AUIRLR024N in 100,000-unit quantities to US $0.86 each in 100,000-unit quantities for the AUIRF4905. Production orders are available immediately. Prices are subject to change.

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http://www.ecnmag.com/product-releases/2011/01/automotive-qualified-planar-mosfets-suitable-high-side-switch-applications

**Links:**
[1] http://www.irf.com