Product brief

CoolGaN™ 600 V e-mode GaN HEMTs

The highest efficiency and power density with highest quality

The enhancement mode concept offers fast turn-on and turn-off speed as well as a better path towards integration either on a chip or package level. CoolGaN™ enables simpler half-bridge topologies.

E-mode is more suitable for multi-chip integration. As enhancement mode-based solutions reach maturity, ease-of-use and solution costs will make them the more prominent solution.

The CoolGaN™ 600 V series is realized according to a specific, GaN-tailored qualification process which goes further beyond other GaN products in the market.

CoolGaN™ 600 V addresses telecom, datacom and server SMPS as well as wireless charging, charger and adapter, among others. It is the most rugged and reliable solution in the market. The CoolGaN™ portfolio is built around high performing SMD packages to fully exploit the benefits of GaN.

CoolGaN™ for PFC

CoolGaN™ enables the adoption of simpler half-bridge topologies for PFC (including elimination of the lossy input bridge rectifier). The result is a record efficiency (>99%) with a potential for BOM savings.

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The highest power density

CoolGaN™ enables higher power density at the same efficiency

- 160 W/in³
- 24 W/in³

3.6 kW LLC, fsw 350 kHz, 380 V-54 V, using IGT60R070D1

CoolGaN™ for resonant topologies
- In resonant applications, 10 times lower Qoss and Qg enables high frequency operations at the highest efficiency levels
- Linear output capacitance leads to 8 to 10 times lower dead-time
- Devices can be paralleled
- Power density can be pushed even further by optimizing the thermal management
- CoolGaN™ technology pushes the efficiency forward thus enabling further gain in power density, e.g. in low-power chargers/adapters

Highest quality

The qualification of GaN switches requires a dedicated approach, well beyond other GaN products in the market
- Infineon qualifies GaN devices well beyond the standards
- Application profiles are an integral part of the qualification
- Failure models, based on accelerated test conditions, ensure target lifetime and quality are met
- Infineon sets the next level of wide-bandgap quality

CoolGaN™ 600 V e-mode GaN HEMTs product portfolio

<table>
<thead>
<tr>
<th>R_{D(SAT max)}</th>
<th>DSO-20-85 Bottom-side cooling</th>
<th>DSO-20-87 Top-side cooling</th>
<th>HSOF-8-3 (TO-leadless)</th>
<th>DFN 8x8</th>
</tr>
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<tbody>
<tr>
<td>35 mΩ</td>
<td>IGO60R035D1**</td>
<td>IGT60R035D1**</td>
<td>IGT60R035D1**</td>
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<tr>
<td>70 mΩ</td>
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<td>IGT60R070D1</td>
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<td>IGLD60R070D1</td>
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<tr>
<td>190 mΩ</td>
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<td>IGLD60R190D1**</td>
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<tr>
<td>340 mΩ</td>
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<td>IGLD60R190D1**</td>
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</tbody>
</table>

*Standard grade
**Coming soon

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
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