

## Solution Brief

# CoolGaN™ and GaN EiceDRIVER™

Cutting-edge performance with excellent reliability

The next essential step towards an energy-efficient world lies in the use of new materials and technologies. Wide bandgap semiconductors enable greater power efficiency, smaller size, lighter weight, lower cost, or all together.

### Key advantages of Infineon's GaN solution

- › The enhancement mode (e-mode) concept - the most robust and performing solution in the market
- › Industry-leading performance with the best figures-of-merit (FOM), enabling rugged and reliable system designs at an attractive overall system cost
- › Ten times higher breakdown field and a double electron mobility, compared to silicon
- › Ten times lower output and gate charge than silicon, enabling high frequency operations
- › Enabling hard switching in half-bridge topologies with an almost zero reverse recovery charge
- › Most reliable GaN solution in the market ensured through Infineon's pioneering qualification concept
- › A predicted lifetime of more than 15 years with a failure rate below 1 FIT
- › Perfect choice for a broad variety of applications such as server, telecom, hyperscale datacenters, adapters/chargers, wireless charging, SMPS and many others

### Driving CoolGaN™ HEMTs with GaN EiceDRIVER™ ICs

- › Positive and negative gate drive current enabling fast switching
- › Firmly holding gate drive voltage at zero when GaN switch is intended to be off, protects against spurious turn-on
- › Configurable and constant GaN switching slew-rates over a wide range of switching frequencies and duty cycles, results in robust and efficient GaN operation and short time-to-market
- › Integrated galvanic isolation
  - Robust operation in hard-switching applications
  - Mandatory where safety is required

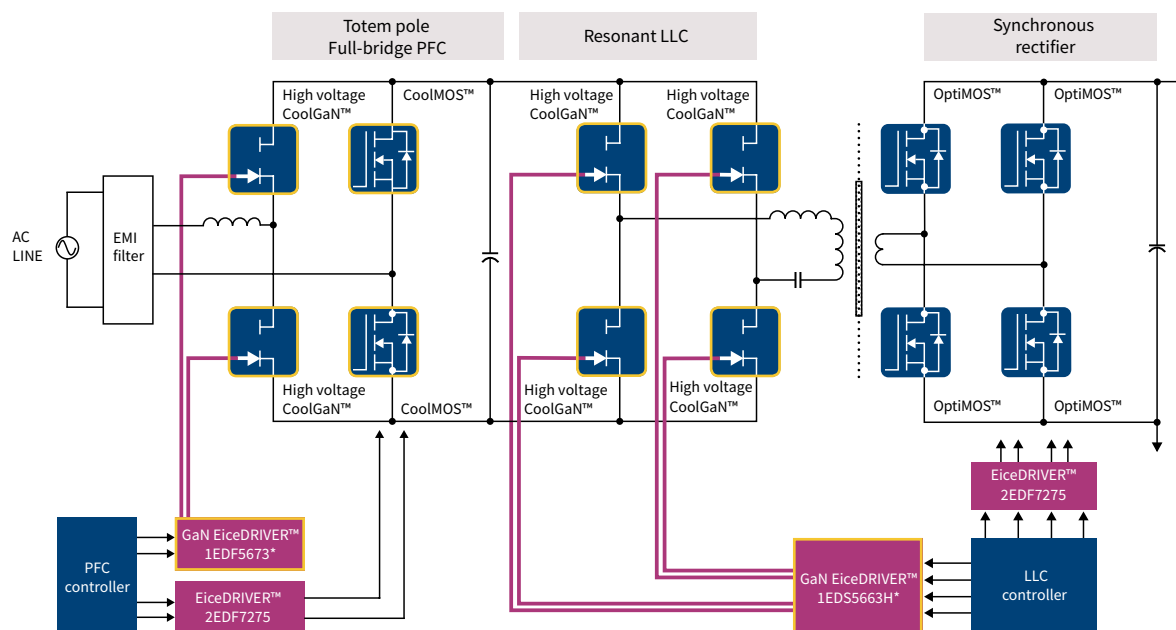
### System features

- › The most reliable GaN-based solution, delivering highest performance amongst all available GaN devices
- › Manufacturing expertise throughout the entire supply chain
- › Global application design support
- › Broad portfolio including switches and drivers

### System benefits

- › Perfect choice for high frequency and high power density applications
- › Industry-leading solution for target applications
- › GaN EiceDRIVER™ ICs for excellent robustness and efficiency
- › High quality volume supply that enables faster time-to-market
- › Reduced BOM costs and overall system cost

## High efficiency GaN switched mode power supply (SMPS)



\*GaN EiceDRIVER™ ICs are single-channel products

## Product portfolio CoolGaNTM e-mode HEMTs

| $R_{DS(on)}$ max.<br>[mΩ] | DSO-20-85<br>Bottom-side<br>cooling | DSO-20-87<br>Top-side<br>cooling | HSOF-8-3<br>TO-leadless        | DFN 8x8        |
|---------------------------|-------------------------------------|----------------------------------|--------------------------------|----------------|
| 35                        | IGO60R035D1**                       | IGOT60R035D1**                   | IGT60R035D1**                  |                |
| 70                        | IGO60R070D1                         | IGOT60R070D1                     | IGT60R070D1                    | IGLD60R070D1   |
| 190                       |                                     |                                  | IGT60R190D1S*<br>IGT60R190D1** | IGLD60R190D1** |
| 340                       |                                     |                                  |                                | IGLD60R340D1** |

\* Standard grade    \*\* Coming soon

## Product portfolio GaN EiceDRIVER™

| Package                       | 13-pin LGA 5x5 mm              | 16-pin DSO 150 mil             | 16-pin DSO 300 mil                       |
|-------------------------------|--------------------------------|--------------------------------|------------------------------------------|
| Product                       | 1EDF5673K                      | 1EDF5673F                      | 1EDS5663H                                |
| Isolation (input to output)   | $V_{IO} = 1.5 \text{ kV}_{DC}$ | $V_{IO} = 1.5 \text{ kV}_{DC}$ | $V_{IOTM} = 8 \text{ kVpk}$ (VDE0884-10) |
| Source/sink output resistance | 0.85 Ω / 0.35 Ω                | 0.85 Ω / 0.35 Ω                | 0.85 Ω / 0.35 Ω                          |
| UVLO                          | 4.5 V / 5.0 V                  | 4.5 V / 5.0 V                  | 4.5 V / 5.0 V                            |

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