[PRODUCT BRIEF]

CGD™
CAMBRIDGE GaN DEVICES

ICeGaN® H2 Series 650 V

BEST-IN-CLASS ROBUSTNESS, EASE-OF-USE AND EFFICIENCY

Establishing innovation leadership with ICeGaN®

The Optimum GaN Transistor that combines:

ROBUSTNESS

ICeGaN's® smart gate interface virtually eliminates typical e-MODE GaN weaknesses offering significantly improved overvoltage robustness, higher noise-immune threshold, dV/dt suppression and ESD protection.

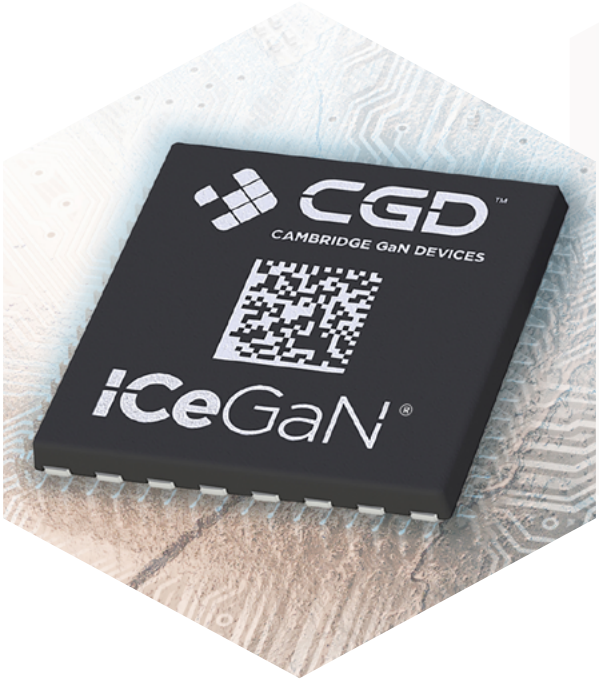
EASE OF USE

Like the H1 series, 650 V H2 series ICeGaN® transistors are driven similarly to Si MOSFETs, eliminating the need for intricate and inefficient circuits and making use of industry gate drivers available today.

EFFICIENCY

Achieves highest efficiencies with e-MODE GaN, 2% better than Industry's best Si MOSFETs in SMPS applications. Thanks to 10x lower Q_G and 5x lower Q_{OSS}, ICeGaN® greatly reduces switching losses at high switching frequencies, reducing size and weight.

ICeGaN®
Drive it like a MOSFET



Key Features and Benefits

- **Best GaN gate robustness available in the market**
  – ICeGaN® improves reliability over multichip, external interface circuits, and other monolithically integrated driver HEMTs
- **Innovative fully integrated NL³* Circuit**
  – Record low power losses at No Load and Light Load operation
- **Advanced clamping structure with integrated Miller Clamp**
  – Eliminates need for negative gate voltages, achieves true zero volt turn off and improves dynamic $R_{DS(ON)}$ performance
- **eMode (normally off) single chip GaN HEMT**
  – Easy to use monolithically integrated interface and protection circuit offers peace of mind with unmatched gate reliability
- **Current sense function**
  – Reduces power dissipation and allows direct connection to ground for optimised cooling and EMI

* No Load and Light Load

CAMBRIDGE GaN DEVICES

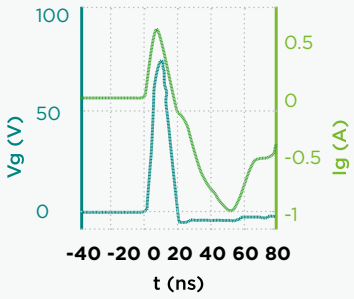
BEST-IN-CLASS ROBUSTNESS, EASE-OF-USE AND EFFICIENCY

ROBUSTNESS DATA

Left: Dynamic gate voltage
ICeGaN® offers extreme robustness against dynamic voltage overshoots on the gate terminal

Right: Benchmarking
3x higher robustness vs State-of-the-Art 650 V eMode GaN in soft and hard switching over all temperatures

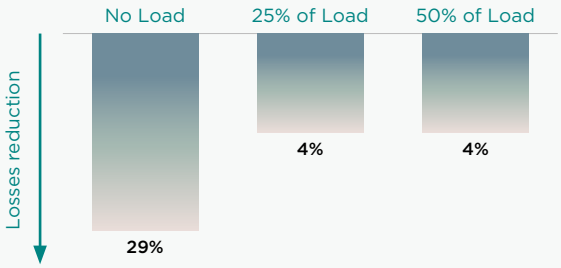
Last survival (72 V)



Last survival voltage summary

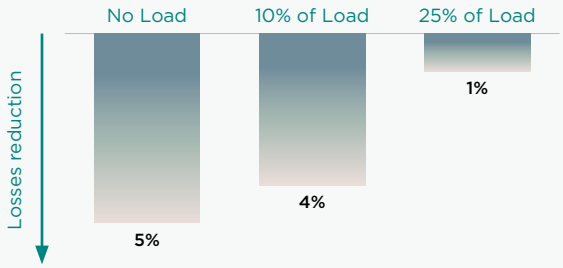
Switching condition	ICeGaN®	State-of-the-Art GaN
Soft 25°C	66 V	23 V
Soft 150°C	72 V	25 V
Hard 25°C	72 V	25.5 V
Hard 150°C	79 V	27.5 V

65 W – USB-PD QR flyback
CGD vs. top SoC 650 V GaN vendor



NL³ Circuit is key for USB PD-Charging where No Load requirements are more challenging

240 W – TCM PFC + LLC
CGD vs. top eMode 650 V GaN vendor*



ICeGaN® is better than standard eMode technology, but doesn't require a driving circuit and external components as it works like a MOSFET

*PFC losses only

PRODUCT TABLE

PN	Type	$R_{DS(on)}$ (typ. 25°C)	Voltage Rating (V_{DS}@25 °C)	DC Current rating (I_D@25 °C)	Peak Gate Voltage (25 °C)	Package	Features	Preferred gate driver	Status
CGD65A055SH2	Single eMode	55 mOhm	650 V (750 V*)	27 A	20 V	DFN 8x8	ICeGaN®* Current Sense * NL³ Circuit	Any MOSFET driver	Available
CGD65A130SH2		130 mOhm		12 A					Available
CGD65B130SH2						DFN 5x6			Available
CGD65B240SH2		240 mOhm		7 A					Available

* See Product Datasheet

Dare to innovate differently

www.camgandevices.com

RECYCLED
Paper made from recycled material
FSC® C002551

Printed on 100% Recycled paper with vegetable inks.