

ICeGaN® P2 SERIES FOR HIGH-POWER SMPS

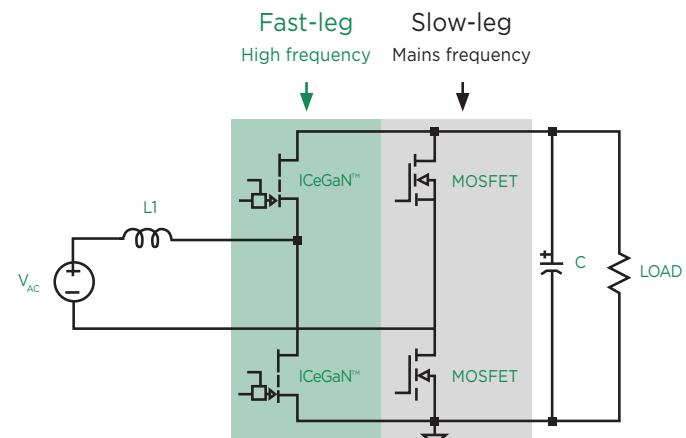
ENABLING SUPERIOR SYSTEM PERFORMANCE IN DATA CENTRES AND TELECOM APPLICATIONS

Powering the Future: How AI's Growth Sparks Energy Innovation and GaN Solutions in Data Centres

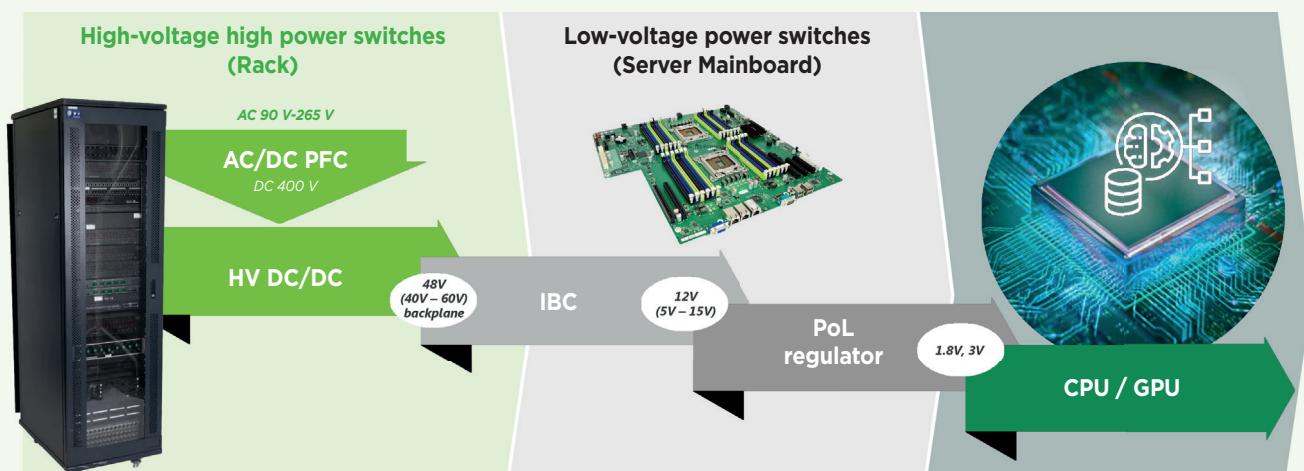
The explosive growth of AI is leading to a significant increase in energy consumption, prompting technology leaders to prioritise the deployment of AI. This surge is expected to exacerbate the power challenges in data centres, compelling operators to seek solutions that enhance efficiency, energy density, and environmental sustainability. While emerging solutions such as immersion cooling and AI-driven efficiency enhancements address these issues to some extent, GaN-based solutions emerge among top data centre operators to address these growing challenges.

This will lead to a surge in design initiatives focused on GaN, aiming to meet these new efficiency standards.

Totem-pole PFC Circuit Diagram



Data Centre Power Supply Architecture



- GaN enables new levels of power density and efficiency in data centres
- ICeGaN® addresses typical weaknesses of e-Mode GaN achieving robustness on par or better than Si

Key Features

High power density resulting from...

1 Energy efficiency

2 Reduced part count

3 Design for reliability

ICeGaN® System Design Benefits

>2x fewer parts

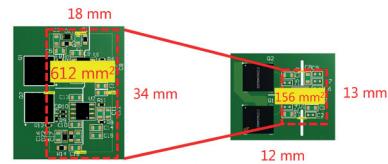
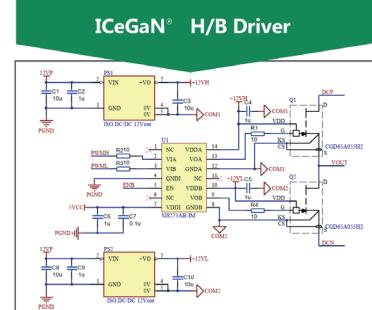
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Components

1

ICs

4x smaller PCB area

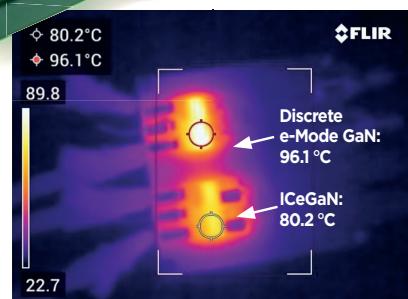


ICeGaN® vs Discrete e-Mode GaN in a Half-bridge

Better thermal performance at the same power dissipation



19% temperature rise reduction at 2 W power loss and 25 °C T_{amb} .



ICeGaN® Enables Lower Losses with Increased Reliability

ICeGaN®'s driving circuit uses fewer components, allowing for more space for cooling. This design enables the device to operate at lower temperatures, thus improving system reliability and achieving higher output power even with higher $R_{DS(on)}$ than competitive discrete e-Mode GaN devices. Enhanced performance is supported by a reduction in $R_{DS(on)}$ increase due to lower operating temperature and lower reverse conduction losses thanks to the Miller Clamp enabling 0 V turn off.

Product Portfolio

PN	$R_{DS(on)}$ typ (mΩ)	Current Rating (A)	Package	Features	Preferred Gate Driver	Status	
CGD65C025SP2	25	60	BHDFN-9-1	ICeGaN®	Any MOSFET driver	Contact factory	
CGD65C055SP2	55	27	BHDFN-9-1	ICeGaN®		In production	

ⓘ BH: Bottom heat-spreader

ⓘ See product datasheet



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