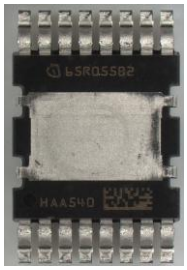
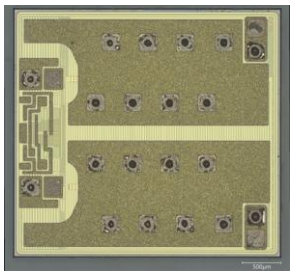
# GaN FET (650V) : Infineon CoolGaN Bidirectional switch G5 IGLT65R055B2 GaNFET Structure Analysis Report



Package



Die image

## Report Overview

GaN devices are attracting significant attention as a key technology that enables dramatic improvements in power efficiency, miniaturization, and high power density in the EV market. Among them, 650 V GaN devices are expected to see further growth in demand as core components of medium-voltage power electronics. Within this category, bidirectional GaN devices are emerging as an essential technology for next-generation power architectures.

In 2025, Navitas is expected to begin the world's first mass production of 650 V bidirectional GaN devices, followed by Infineon's entry into the market. Infineon's bidirectional GaN, described as "the world's first monolithic bidirectional switch," enables bidirectional voltage and current control—previously requiring four discrete MOSFETs—to be achieved with a single device. This allows for significant simplification of circuit design, reduced size, and lower overall system cost.

This report analyzes the structure and integrated circuitry of Infineon's bidirectional GaN device.

## Product Overview

IGLT65R055B2 VSS= 650V, RDS (on)=55mΩ Released: 2025.May

- 650 V CoolGaN™ technology with 850 V surge capability
- Incorporates Gate Injection Transistor (GIT) technology
- Features two isolated gate structures with substrate terminals, enabling fully independent and insulated control
- Applications: solar micro-inverters (adopted in Enphase products), on-board chargers (OBC), traction inverters, and AI servers

Report No.: 25R-0698-1,2,3,4,5 Release :

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## Report Contents

1. GaN FET Structure Analysis Report  Schedule to release:2026.Feb.27

- GaN planar analysis: chip inspection and multilayer interconnect layout
- GaN cross-section analysis (SEM): cell region and chip edge
- Circuit analysis: substrate-voltage control circuit

2. Package Structure Analysis Report

- X-Ray
- Cross section Bonding wire, Die attach

3. GaN epi layer Structure Analysis Report (TEM, EDX)

Delivered one week after order placement. Please contact us for report pricing.
Regarding Reports 2 and 3, please let us discuss the delivery schedule.

Report No : 25R-0803-1 Release day : 2026.02.27

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