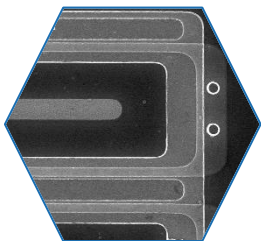
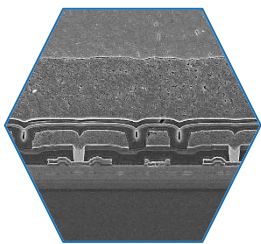




## EPC2152 Half Bridge Monolithic GaN IC

*EPC's 70 V ePower stage with separate and independent high and low side control inputs.*



The promising market outlook for GaN devices is highlighted by a compound annual growth rate (CAGR) of 76% for the period 2019-2025, according to Yole Développement. The Power GaN market is expected to be worth \$700M in 2025, up from \$24M in 2019, driven by consumer applications. In this context, Efficient Power Conversion (EPC), one of the GaN industry's leaders, is further extending its product portfolio by introducing the EPC 2152, its latest monolithically integrated half-bridge power stage. System Plus Consulting is now offering a complete reverse costing of the EPC2152.

energy-dispersive X-ray analysis from the packaging down to the epitaxial structure.

Based on a complete teardown analysis, the report provides a detailed manufacturing process flow and manufacturing cost analysis of the die and the package as well as the estimated selling price of the device.

Finally, the report includes a comparison with a GaN-based System-in-Package power IC from Texas Instruments. This comparison highlights the differences in GaN die designs and manufacturing costs.

**Title:** EPC2152 Half Bridge Monolithic GaN IC

**Pages:** 77

**Date:** January 2021

**Format:**  
PDF & Excel file

**Price:**  
EUR 3,990

**Reference:**  
SPR21554

The device is a single chip driver plus an enhancement-mode gallium-nitride (eGaN®) half-bridge power stage. It is adapted for several applications such as buck and boost converters. The design consists of a 70V, 12.5A ePower™ stage in a low inductance surface mount Land Grid Array (LGA) package.

In this report, System Plus Consulting presents a deep teardown analysis of the EPC2152, including detailed optical and SEM pictures as well as cross-sections with

### COMPLETE TEARDOWN WITH

- Detailed optical and SEM photos
- Precise measurements
- Materials EDX analysis
- Supply chain evaluation
- Manufacturing cost analysis
- Estimated selling price
- Technology and cost comparisons with Texas Instruments' GaN ICs

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## AUTHORS



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*Guillaume Chevalier has joined System Plus Consulting in early 2018 to perform physical analyses. He holds a two-year university degree in technology of physical measurements and instrumentation technics, and previously worked for four years for chemistry, mechanical and mass-metrology laboratories.*

## RELATED ANALYSIS



### STMicroelectronics MASTERGAN1 Half-Bridge Driver

*The first 600V system-in-package half-bridge driver from STMicroelectronics integrating two GaN-based HEMTs.*  
November 2020 - EUR 3,990\*



### GaN Power Transistor Comparison 2020

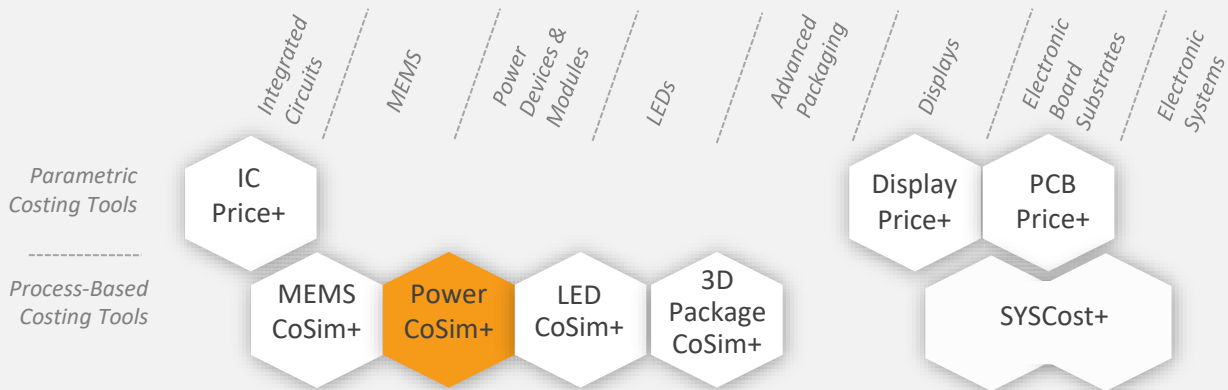
*Comparison of the technology and cost from: EPC, GaN Systems, Infineon, Innoscience, Navitas, Nexperia, Panasonic, Power Integrations, Texas Instruments & Transphorm.*  
October 2020 - EUR 6,490\*



### Compound Semiconductor Quarterly Market Monitor

*5G smartphone and telecom infrastructure markets will drive the GaAs and GaN RF businesses.*  
December 2020 - EUR 30,000\*

## COSTING TOOLS



Our analysis is performed with our costing tool Power CoSim+.

System Plus Consulting offers powerful costing tools to evaluate the production cost and selling price from single chip to complex structures.

### Power CoSim+

Cost simulation tool to evaluate the cost of any Power Electronics process or device: from single chip to complex structures.

## ABOUT SYSTEM PLUS CONSULTING

### WHAT IS A REVERSE COSTING®?

Reverse Costing® is the process of disassembling a device (or a system) in order to identify its technology and calculate its manufacturing cost, using in-house models and tools.



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System Plus Consulting is specialized in the cost analysis of electronics from semiconductor devices to electronic systems. A complete range of services and costing tools to provide in-depth production cost studies and to estimate the objective selling price of a product is available.

Our services:

- **STRUCTURE & PROCESS ANALYSES**
- **TEARDOWNS**
- **CUSTOM ANALYSES**
- **COSTING SERVICES**
- **COSTING TOOLS**
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# TERMS AND CONDITIONS OF SALES

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## 1. INTRODUCTION

The present terms and conditions apply to the offers, sales and deliveries of services managed by System Plus Consulting except in the case of a particular written agreement.

Buyer must note that placing an order means an agreement without any restriction with these terms and conditions.

## 2. PRICES

Prices of the purchased services are those which are in force on the date the order is placed. Prices are in Euros and worked out without taxes. Consequently, the taxes and possible added costs agreed when the order is placed will be charged on these initial prices.

System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

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System Plus Consulting delivered services are to be paid within 30 days end of month by bank transfer except in the case of a particular written agreement.

If the payment does not reach System Plus Consulting on the deadline, the Buyer has to pay System Plus Consulting a penalty for late payment the amount of which is three times the legal interest rate. The legal interest rate is the current one on the delivery date. This penalty is worked out on the unpaid invoice amount, starting from the invoice deadline. This penalty is sent without previous notice.

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System Plus Consulting remains sole owner of the delivered services until total payment of the invoice.

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The transport costs and risks are fully born by the Buyer. Should the customer wish to ensure the goods against lost or damage on the base of their real value, he must imperatively point it out to System Plus Consulting when the shipment takes place. Without any specific requirement, insurance terms for the return of goods will be the carrier current ones (reimbursement based on good weight instead of the real value).

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System Plus Consulting responsibility will not be involved in non execution or late delivery of one of its duties described in the current terms and conditions if these are the result of a force majeure case. Therefore, the force majeure includes all external event unpredictable and irresistible as defined by the article 1148 of the French Code Civil?

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The Buyer is responsible for the use and interpretations he makes of the reports delivered by System Plus Consulting. Consequently, System Plus Consulting responsibility can in no case be called into question for any direct or indirect damage, financial or otherwise, that may result from the use of the results of our analysis or results obtained using one of our costing tools.

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Any dispute that may arise about the interpretation or execution of the current terms and conditions shall be resolved applying the French law.

If the dispute cannot be settled out-of-court, the competent Court will be the Tribunal de Commerce de Nantes.