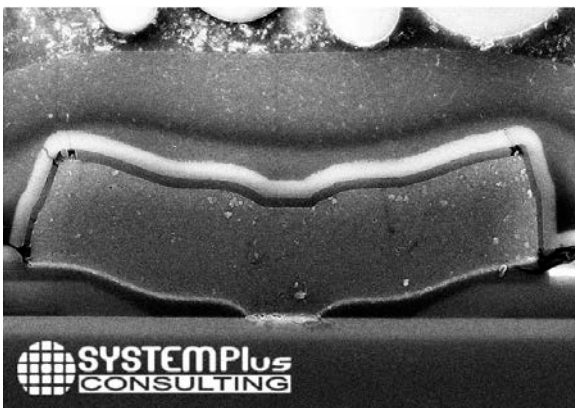


Structural, Process & Costing Report

Littelfuse Silicon Carbide MOSFET LSIC1MO120E0080: 1200V 25A 80mOhms

Littelfuse and Monolith Semiconductors, in collaboration with X-Fab, have released a 1st-generation, high-reliability MOSFET with the hope of making this silicon carbide product mainstream



The market outlook for SiC devices is promising, with a compound annual growth rate (CAGR) of 28% from 2016 - 2020. This will increase to 40% from 2020 - 2022 due to growth among automotive and industrial applications. In total, the SiC market will exceed \$1B in 2022. In the energy conversion sector, SiC devices have an actual value of \$250M, which will increase by around 28% in 2022. The reason for

this relates to market forces pushing for loss reduction, not only for the sake of improved efficiency but also for smaller packages.

Littelfuse, Inc., a leader in circuit protection, recently introduced its first series of silicon carbide (SiC) MOSFETs. This is the latest addition to the company's power semiconductor line, realized through a majority investment in Monolith Semiconductor Inc., a SiC technology development company.

The LSIC1MO120E0080, with a voltage rating of 1200V and ultra-low (80mΩ) on-resistance, is the first organically designed, developed, and manufactured SiC MOSFET to be released by this partnership, using all of X-Fab's know-how and experience, along with its 150mm SiC production line in Lubbock.

Supported by a full component and package teardown, this report reveals Littelfuse's innovative assets, which bring several advantages to the 1200V SiC MOSFET: most notably, superior gate-oxide reliability, switching performance, and conduction losses.

This report also details the complete bill of materials (BoM), die manufacturing, and packaging processes. Included too are an estimated manufacturing cost, a comparison with similar products from STMicroelectronics and CREE, and an estimated sales price of the Littelfuse component.

Title: Littelfuse SiC MOSFET LSIC1MO120E0080
Pages: 55
Date: April 2018
Format: PDF & Excel file
Price: EUR 3,490

COMPLETE TEARDOWN WITH:

- Detailed photos
- Precise measurements
- Materials analysis
- Manufacturing process flow
- Supply chain evaluation
- Manufacturing cost analysis
- Estimated sales price
- Scanning Electron Microscope pictures

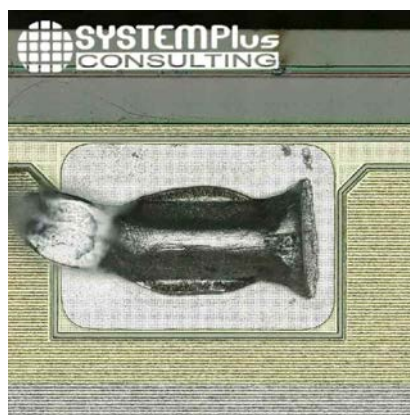
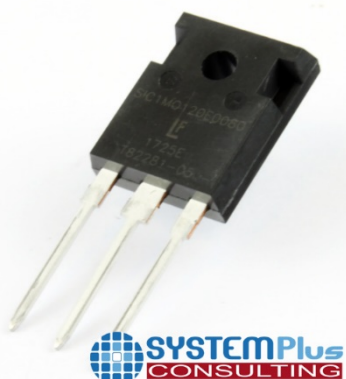


TABLE OF CONTENTS

Overview/Introduction

- Executive Summary
- Reverse Costing Methodology

Company Profile

- Littelfuse Semiconductor

Physical Analysis

- Synthesis of the Physical Analysis
- Package Analysis
 - ✓ Package opening
 - ✓ Package cross-section
- MOSFET Die
 - ✓ MOSFET die – view and dimensions
 - ✓ MOSFET - die process
 - ✓ MOSFET - die cross-section
 - ✓ MOSFET - die process characteristics

MOSFET Manufacturing Process

- MOSFET Die - Front-End Process
- MOSFET Die - Fabrication Unit
- Final Test and Packaging - Fabrication Unit

Cost Analysis

- Synthesis of the Cost Analysis
- Yields Explanation and Hypotheses
- MOSFET Die
 - ✓ MOSFET - front-end cost
 - ✓ MOSFET - die probe test, thinning and dicing
 - ✓ MOSFET - wafer cost
 - ✓ MOSFET - die cost
- Complete MOSFET
 - ✓ Assembled components cost
 - ✓ Synthesis of the assembly
 - ✓ Component cost

Price Analysis

- Estimated Sales Price

Comparison

- 1200V CREE and STMicroelectronic SiC MOSFET Comparison
- SiC vs IGBT Comparison

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Farid Hamrani joined System Plus Consulting in

2016 as a system cost engineer. He's in charge of systems reverse cost analysis with a focus on embedded systems. He previously worked in the high-reliability packaging field. Farid holds a master degree in microelectronics and material from the University of Nantes.



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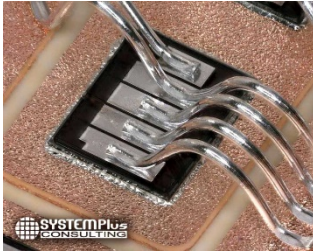
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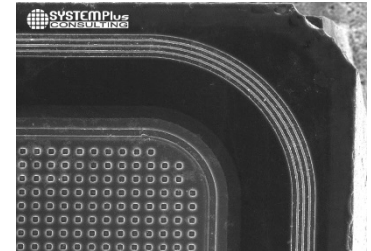
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2.2 Some weeks prior to the release date the Seller can propose a pre-release discount to the Buyer

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