GaN on Si HEMT vs SJ MOSFET: Technology and Cost comparison

Description: The report proposes an in-depth analysis of the latest innovations in 600/650V power devices showing the differences between SJ MOSFET and GaN HEMT from the technical and economical points of view.

It includes details on manufacturing process and materials, packaging structure, component design, die size, electrical performance, current density, etc…

Super Junction technology has been commercially released for the first time in 1998 by Infineon. While new players are entering the market, the historical players are willing to keep the lead by decreasing production cost as low as possible or by introducing different technologies.

On the other side, GaN on Si HEMT offers new capabilities, such as the possibility to work at higher frequencies and the more and more competitive manufacturing cost.

GaN on Si HEMTs are good candidates to enter the 600/650V power devices sector but, at the same time, the improvement of silicon SJ MOSFET will keep them on the market and drive towards a standardization and popularization of these devices.

More than 30 devices from different manufacturers have been opened and analyzed to understand SJ MOSFETs and GaN on Si HEMTs technology innovations. The report includes detailed pictures of devices structure and breakdown cost analysis of the manufacturing process.

Contents:

1. Overview / Introduction

2. Introduction & Market

3. SJ Mosfets
   - Technology Overview
   - List of analysed devices
   - SJ Mosfets Performances
     - Infineon Coolmos
     -- Infineon Performances
     -- Infineon Evolution
     -- SPW47N60C3
     -- IPB60R280C6
     -- IPD65R225C7
     - Toshiba DTMos
     -- Toshiba Performances
     -- Toshiba Evolution
     -- TK40J60T
     -- TK10A60W
     -- TK31E60W
     - STMicroelectronics MDMesh
     -- STMicro Performances
     -- STMicro Evolution
     -- STP16N65M5
     -- STL17N65M5
     -- STL18N65M5
     -- STP30N65M5

4. GaN HEMT
   - Technology Overview
   - List of analysed devices
   - HEMT Performances
   - GaN Systems HEMT
5. GAN HEMT vs SJ Mosfets
- Performances comparison:
  - Rdson evolution
  - QgxRdso FOM
  - Current density
- Cost Comparison
- Devices supply chain
- Front end cost
- Back end cost
- Packaging cost
- Future Trends

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