



# Vendor Identification for SiC and GaN Power Switching Devices

<b>Client</b>	A leading Automotive Semiconductor manufacturer
<b>Industry</b>	Automotive/Semiconductor
<b>Products</b>	SiC & GaN Power Switching Devices

## Background

- Client wanted to understand Power Switching Devices market for all applications. Client was already supplying semiconductor components across applications and they wanted to identify vendors.

## Key Business Questions

- Who are the top vendors (OEM as well as Non-OEM) that could help client to develop, design and manufacture SiC & GaN based power switching devices?
- What are the technology developments that are currently happening for SiC & GaN based power switching devices? What is the future outlook for these devices?

## Engagement Scope

1	Vendor Identification	2	Vendor Filtering	3	Vendor Mapping	4	Key Technology Developments
<ul style="list-style-type: none"> <li>Who are the top vendors (OEMs &amp; Non-OEMs) for SiC &amp; GaN power switching devices?</li> <li>Which are the services these vendors provide, from list given below:               <ul style="list-style-type: none"> <li>Substrate Manufacturing</li> <li>Design Services</li> <li>Packaging Services</li> <li>Foundry Services</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>What is approach towards creating a short list of vendors?</li> <li>Which are the filtering criteria to select top vendors from long list of vendors?</li> </ul>	<ul style="list-style-type: none"> <li>Detailed information about top 10 vendors, depending on parameters given below:               <ul style="list-style-type: none"> <li>Product/service offering</li> <li>Product details</li> <li>Voltage ranges</li> <li>Business details</li> </ul> </li> <li>How will be the top 10 vendors filtered further, to recommend most suitable vendor?</li> </ul>	<ul style="list-style-type: none"> <li>Who are the key players that are investing heavily in SiC &amp; GaN power switching device segment?</li> <li>What are the key developments happening in this segment?</li> </ul>				

# Research Methodology

## Secondary Research

- Conducted desk research studying company website, annual reports, press releases, etc.
- Referred paid data sources such as vendor databases, semiconductor association reports, etc.

## Primary Research

- 110+ Telephonic interview with suppliers and industry experts

# Sample Analysis

### 1 Vendor Identification

Sl. No.	Vendor Name	Type	Substrate/Under/Ep Layer	Power Switch/Design Vendor	Device T&E / Foundry / RPIs	Packaging Vendor	OSW / Product/Foundry
1	SIC	Yes	No	Yes	Yes	No	No
	SiC	No	Yes	No	No	No	No
2	SiC	Yes	No	Yes	Yes	No	No
	SiC	No	Yes	No	No	No	No
3	SiC	No	Yes	Yes	Yes	No	No
	SiC	No	No	Yes	No	No	No
4	SiC	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence
	SiC	Yes	Maybe	Maybe	Maybe	Maybe	Yes
5	SiC	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence
	SiC	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence
6	SiC	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence
	SiC	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence	No/No/Presence

Other (If Device Amplifier/Driver/HEMT) related with SiC	Product/Market	Target Industries	Automotive	Installed Capacity/Annual Production (No. of Wafers/Month or Annually)
Not Applicable	Design Support/Prototyping	Consumer & Mobile Communications	Yes	30 wafers/month, SiC Wafer
Not Applicable	Special Precision Inc.	Power Discrete/Schottky	Yes	N/A
Not Applicable	Shield/Layer/Software	Power Discrete/Schottky	Maybe	N/A
Not Applicable	Wafer Fabrication/Device	N/A	N/A	N/A
Not Applicable	SiC Modules/Packaging	Automotive & Comms	Yes	N/A
No SiC Presence	SiC Wafer	Automotive & Industrials	No SiC Presence	No SiC Presence
SiC Wafer/Presence	Manufacturing	Automotive & Industrials	No SiC Presence	No SiC Presence
No SiC Presence	Development and Prod.	Automotive & Comms	No SiC Presence	No SiC Presence
Not Applicable	Foundry Services	N/A	N/A	N/A
No SiC Presence	Backend Services	Automotive Teleco	No SiC Presence	No SiC Presence
Not Applicable	Backend Services	Yes	N/A	N/A

### 2 Vendor Filtering

Final Vendor	SiC	GaN	
Not-EDM	EDM	Not-EDM	EDM

Optimal Vendor	SiC	GaN	
Not-EDM	EDM	Not-EDM	EDM

### 3 Vendor Mapping

Vendor Name	Type	Substrate	Under/Ep Layer	Power Switch/Design Vendor	Device T&E / Foundry / RPIs	Packaging Vendor	OSW / Product/Foundry	ICSW Type
SiC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GaN	Yes	No	No	No	No	No	No	No
SiC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GaN	Yes	No	No	No	No	No	No	No
SiC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GaN	Yes	No	No	No	No	No	No	No

Vendor Name	Type	Substrate	Under/Ep Layer	Power Switch/Design Vendor	Device T&E / Foundry / RPIs	Packaging Vendor	OSW / Product/Foundry	ICSW Type
SiC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GaN	Yes	No	No	No	No	No	No	No
SiC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GaN	Yes	No	No	No	No	No	No	No

### 4 Key Technology Developments

Pub. No.	Publication Number	Reference	Type IC or GaN	Value Chain	Key/Abilities	Power Devices
1	EP1764793	R	GaN	Fabrication	Novelty	MOSET, JFET, HEMT, IRE/MOSET, GBT, MESFET, MISFET, Others
2	US202507965	R	GaN	Fabrication	Novelty	
3	US202507965	R	SiC	Packaging & Assembly	Novelty	PG-28, SiC board
4	EP202507965	R	SiC	Fabrication	Novelty	
5	US202507965	MR-LED				
6	EP1764793	R	SiC	Fabrication	Novelty	Vertical JFET, Vertical power
7	US202507965	MR-LED				
8	US202507965	MR-LED				

# Benefits to Client

- The study would help client to identify and collaborate with SiC & GaN vendors
- The report is being used by semiconductor division of client to understand technology developments happening in their area of interest

# Thank you

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