

# Reverse Costing analysis



## Power Integrations Inc – LXA20T600 Qspeed™ 600V 20A low $Q_{RR}$ Diode

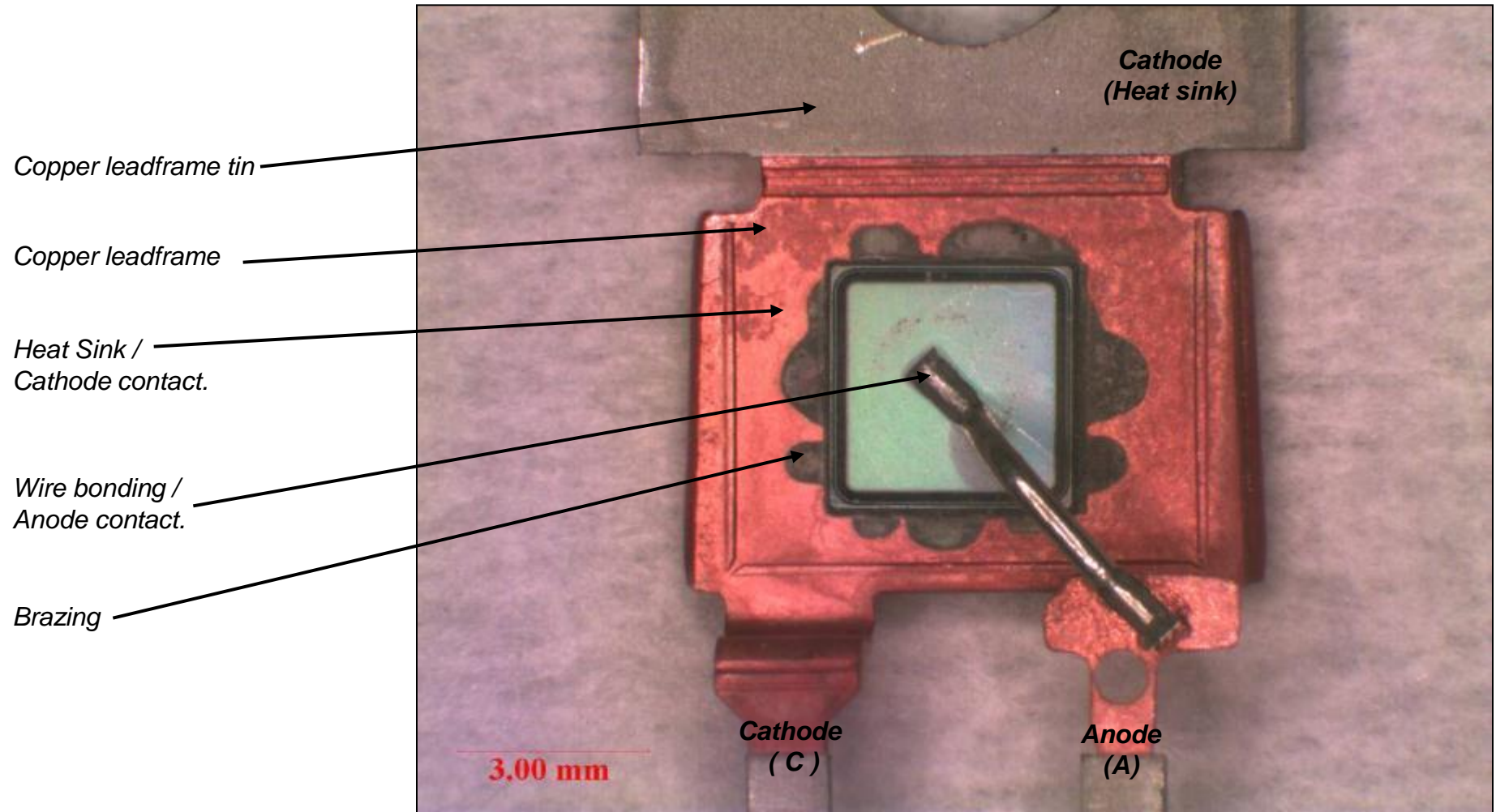
April 2011 – Version 1

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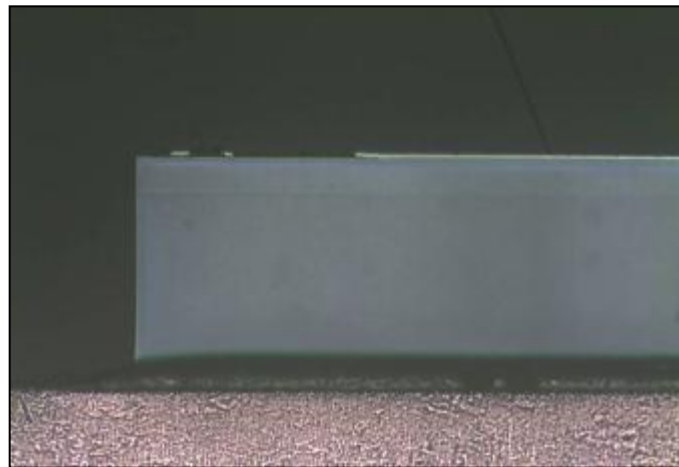
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Executive Summary		
Table of Contents		
Reverse Costing Methodology		
<b>1. Physical Analysis</b>	<b>6</b>	
Physical Analysis Methodology		
Component Electrical Characteristics		
Package Markings		
Package Opening		
Diode Die Overview		
Cross Section		
Leadframe & Back Side		
Anode Area		
Epitaxy Layer		
Guard Ring		
Diode Trench		
Control Gate Trench		
Diode Structure		
<b>2. Manufacturing Process</b>	<b>25</b>	
Process Flow		
Front Side Process Flow		
Back Side Process Flow		
Wafer Fabrication Unit		
<b>3. Manufacturing Cost</b>		<b>32</b>
Economic Analysis		
Yields Explanation		
Unprobed Diode Wafer Cost		
Breakdown per Process Steps		
Breakdown per Equipments		
Breakdown per Consumables		
Probe Test Cost		
Dicing Cost & Package cost		
Final Test Cost		
Component Manufacturing Cost		
Yields synthesis		
<b>4. Average Selling Price</b>		<b>49</b>
Definitions of Prices		
Estimation of the Selling Price		
<b>Conclusion</b>		<b>53</b>

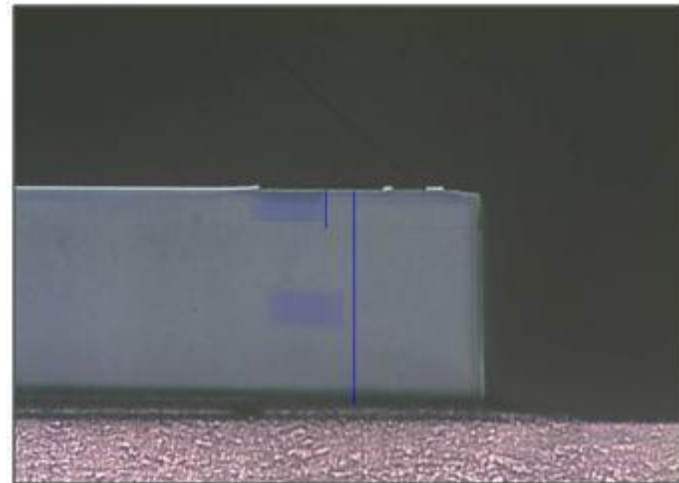
Optical view : Package opening.



The die is connected to the package using : 1 bonding of 470 $\mu$ m diameter (Anode contact),

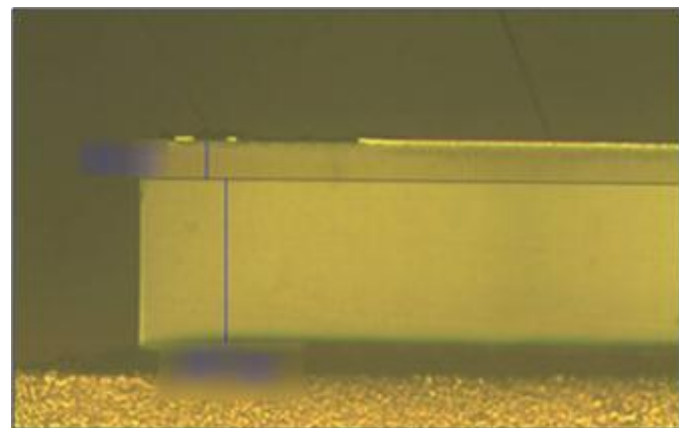


Optical view : die cross-section before the doping revelation. The epitaxy layer of XX $\mu$ m is displayed.

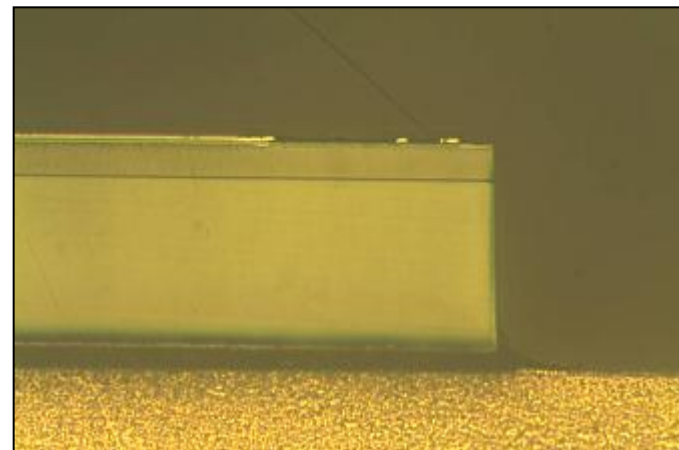


A epitaxy layer of XX $\mu$ m is deposited on the substrat. The substrat is probably heavily doped and the epitaxy layer is the drift zone. Generally the epitaxy layers have at least 60 $\mu$ m of thickness for a breakdown voltage of 600V.

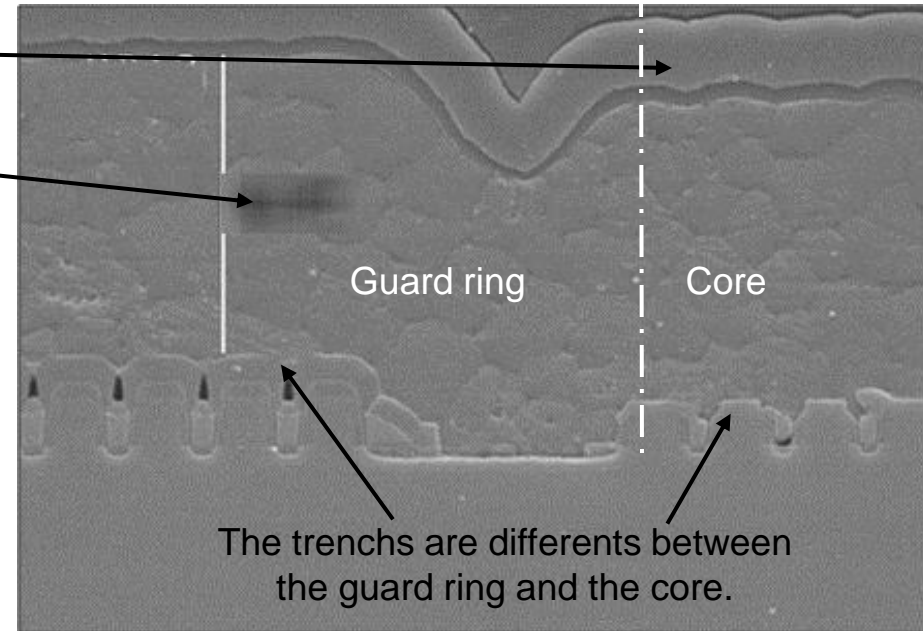
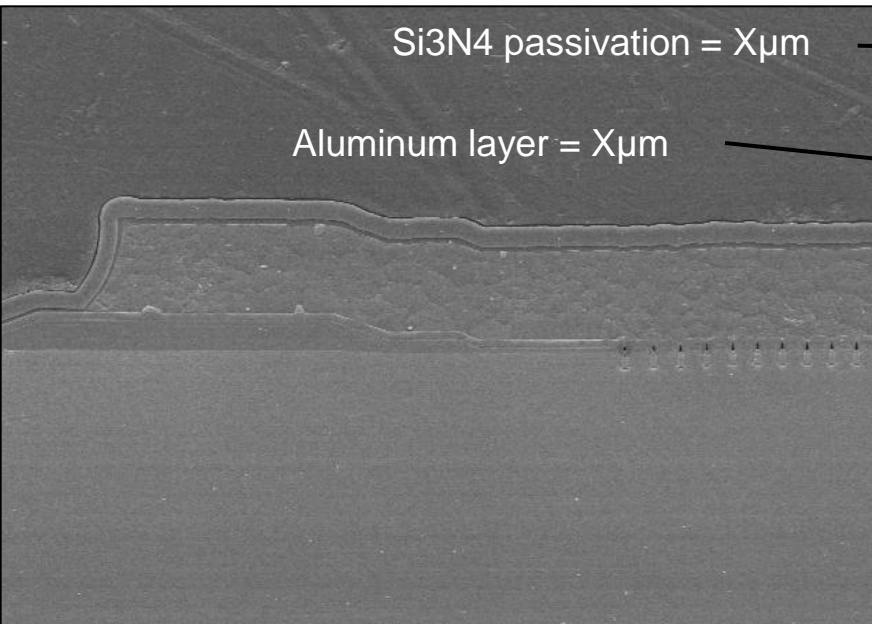
The trenches and the P implantation at the surface increase the breakdown voltage.



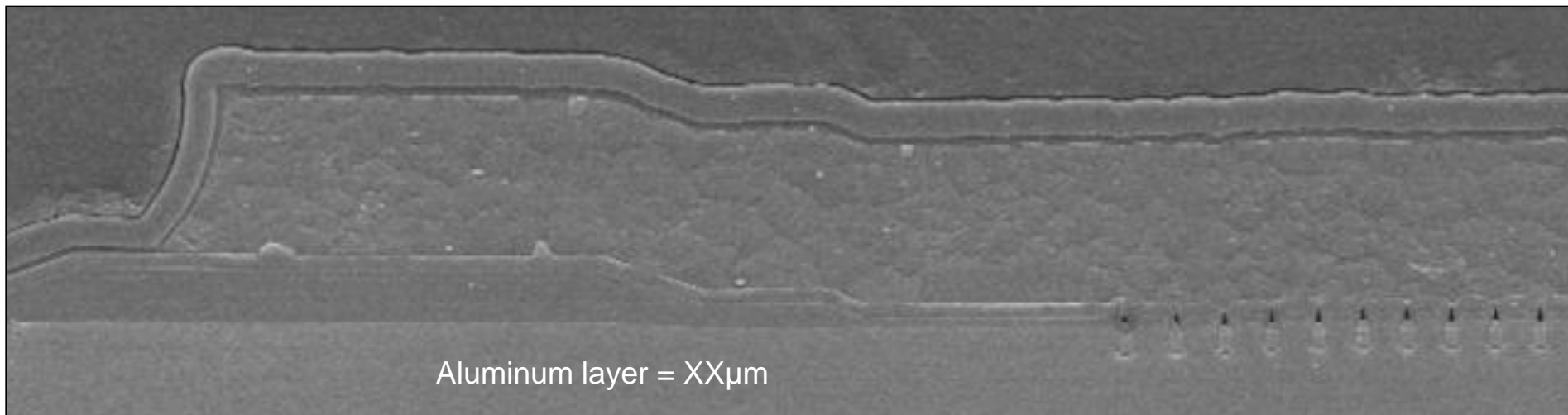
Optical view : die cross-section after the doping revelation. The epitaxy layer is displayed. The surface doping are equally displayed.

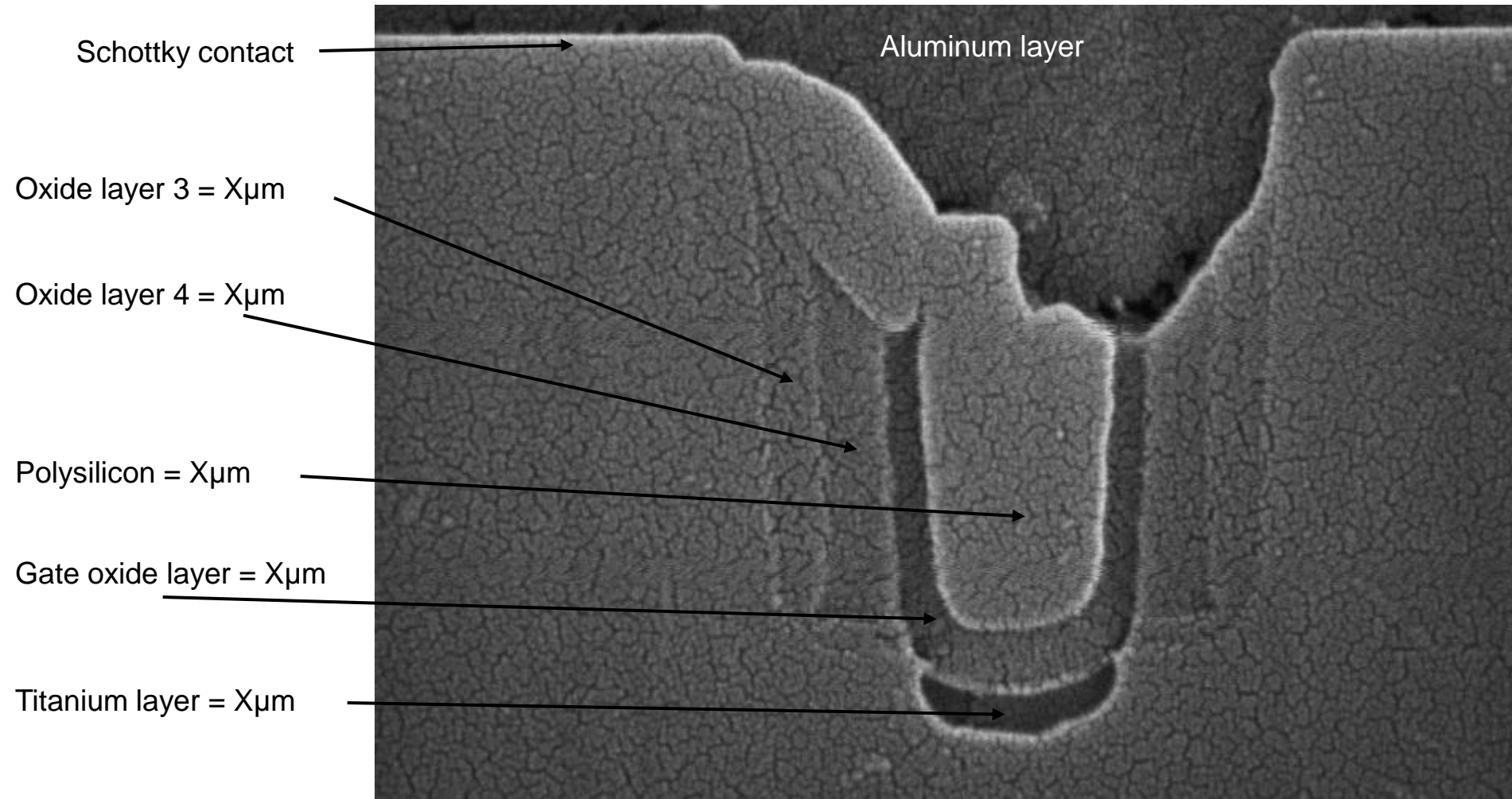






SEM view : detail of the guard ring cross section





SEM view : detail of the Control Gate trench

- 1. Introduction
- 2. Project Phases
- 3. Requirements Gathering
- 4. System Design
- 5. Development & Testing
- 6. Deployment & Support
- 7. Conclusion



**1. Introduction**  
 This document outlines the process flow for the development and deployment of a new system. The process is divided into several key phases, each with specific tasks and deliverables.

**2. Project Phases**  
 The project is structured into the following phases:

- Requirements Gathering
- System Design
- Development & Testing
- Deployment & Support

**3. Requirements Gathering**  
 This phase involves identifying the needs and expectations of the stakeholders. Key activities include:

- Stakeholder Interviews
- Requirement Workshops
- User Stories and Use Cases

**4. System Design**  
 The design phase focuses on creating a detailed blueprint of the system. This includes:

- Architectural Design
- Database Design
- UI/UX Design

**5. Development & Testing**  
 This phase covers the actual building of the system and verifying its quality. It consists of:

- Front-end Development
- Back-end Development
- Integration Testing
- User Acceptance Testing (UAT)

**6. Deployment & Support**  
 The final phase involves releasing the system into production and providing ongoing assistance. Key tasks include:

- System Deployment
- Monitoring and Maintenance
- User Training and Support

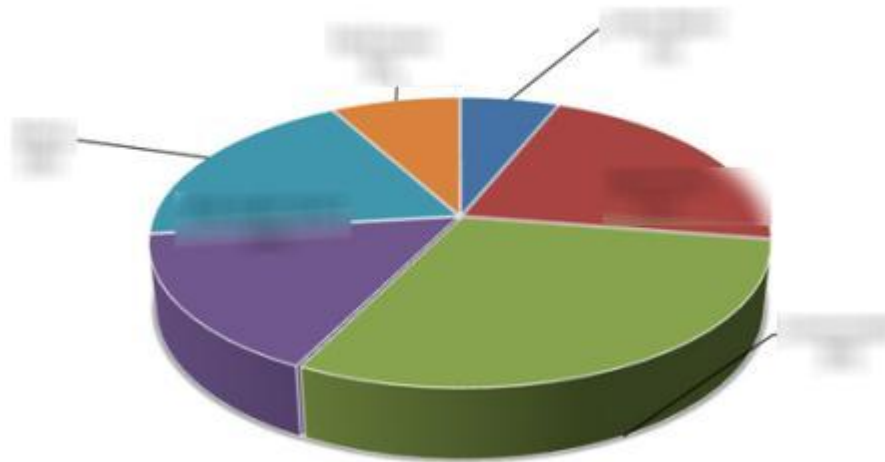
**7. Conclusion**  
 The process flow is designed to ensure a structured and efficient approach to system development. Regular communication and collaboration are essential for the success of the project.

	Low Yield		Medium Yield		High Yield	
	Cost	Breakdown	Cost	Breakdown	Cost	Breakdown
Clean Room						
Equipment						
Consumable						
Raw wafer (SiC 4")						
Salary						
Yield losses						
<b>TOTAL</b>						
Fab Yield						

- The main part of the wafer cost is due to the raw wafer (XX.X%).
- The manufacturing yield is around XX% in 2011.

*Details of the cost per step are given in the Excel Spreadsheet*

Diode Wafer Cost Breakdown - Medium Yield





	Final component cost	Floor price	Manufacturer price
2011 - Low Yield			
2011 - Medium Yield			
2011 - High Yield			

Note: These calculated selling prices are for large quantities purchased directly from Power Integration Inc.

*Diode Cost and Price*

