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MuAnalysis look deeper

MuAnalysis offers a series of short *Inside View* reports on GaN LEDs. Each report is $1250. If you purchase 3 or more, each is $1000. This is what they look like.

XYZ LED *Inside View*

Table of contents

1. Product Identification

The device subject to teardown for this work is an XYZ LED.

2. External Appearance and Principal Dimensions

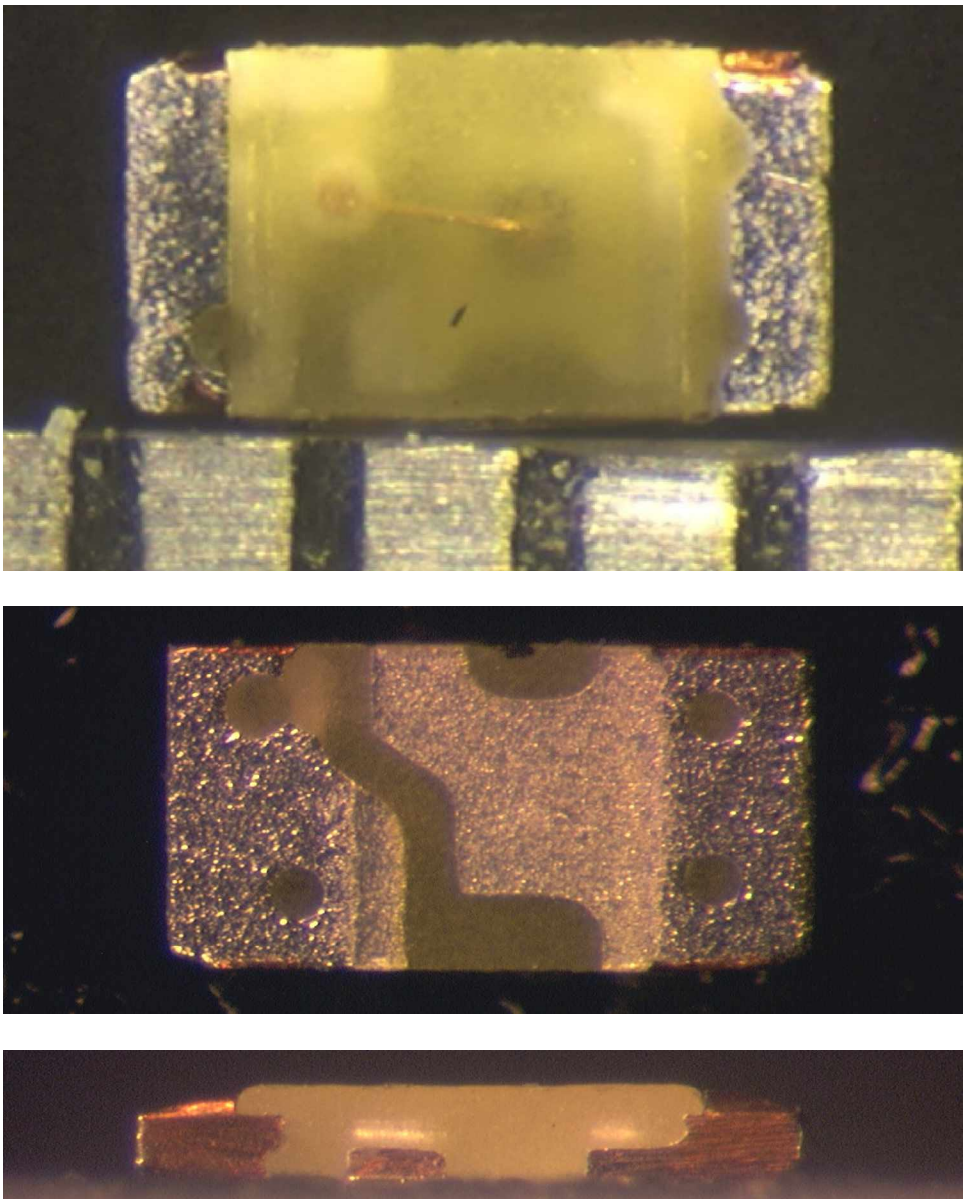


Figure 2.1: LED top, back, and side views. Ruler markings are 0.5 mm apart.

3. Package

Figure 3.1: Top view XRAY.

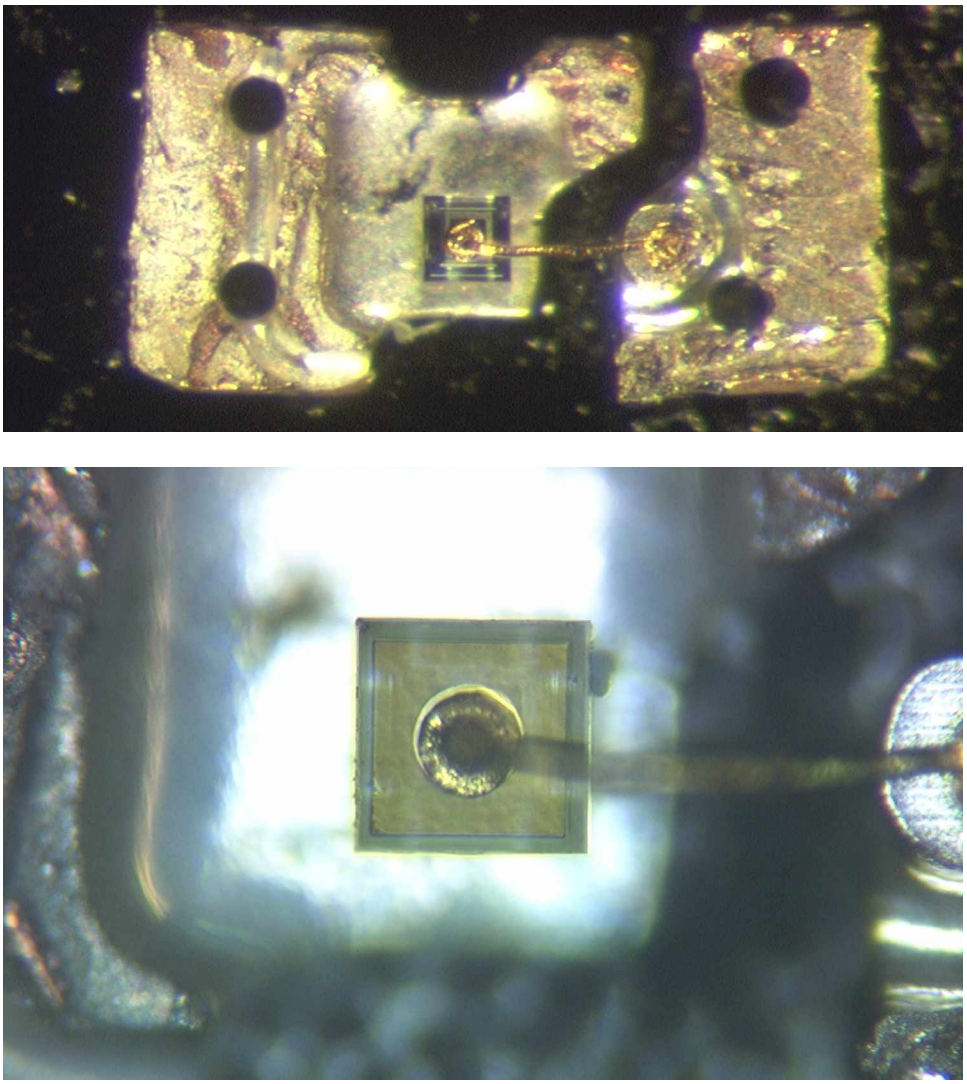


Figure 3.2: Die inside the package after the removal of the fluorescent medium.

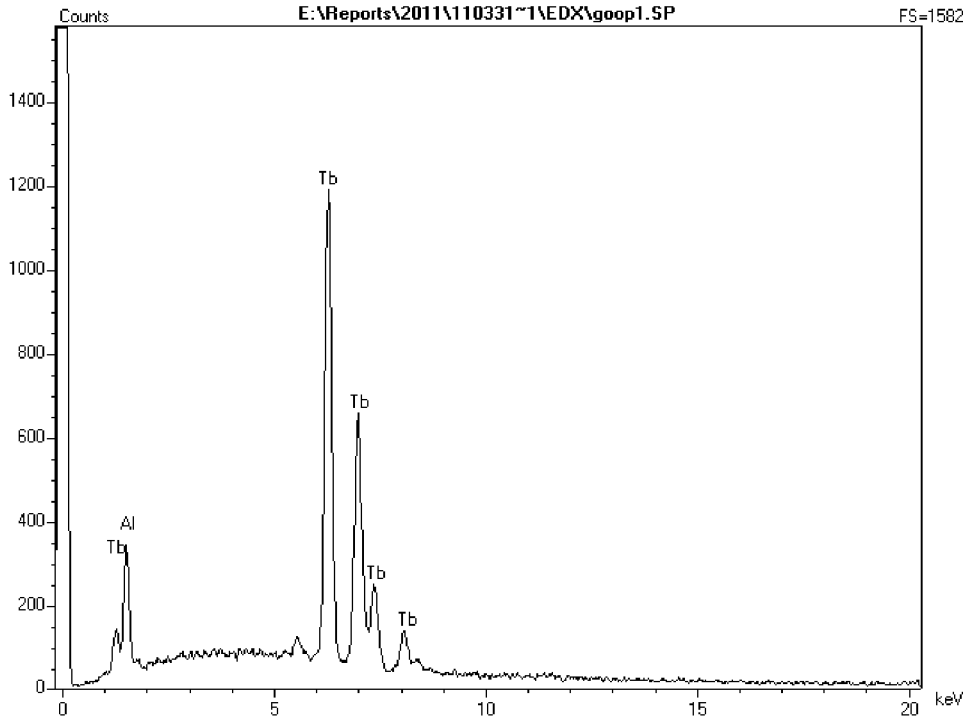
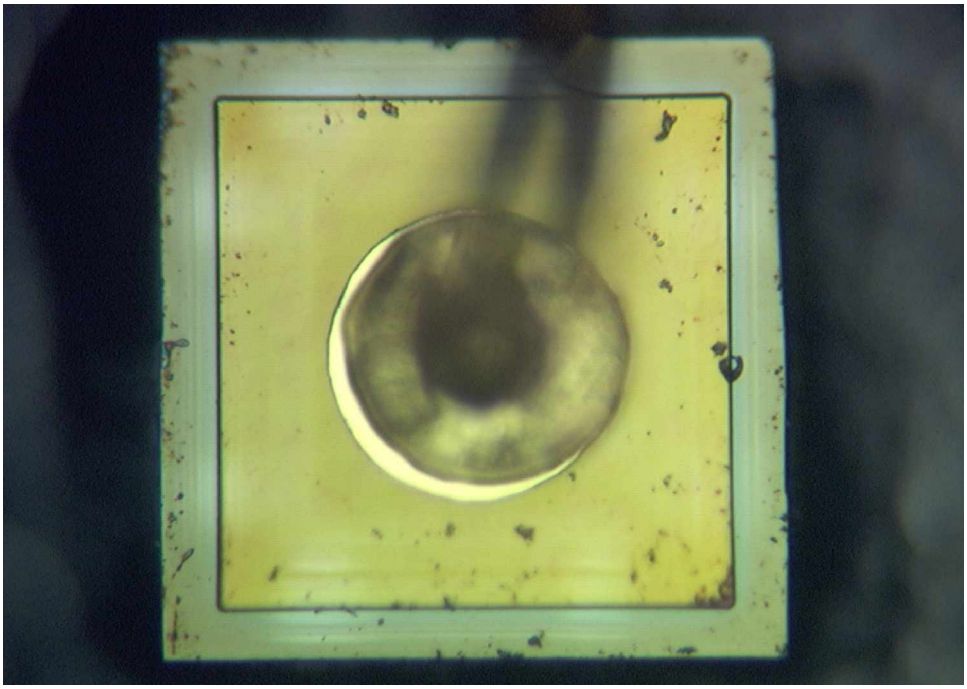


Figure 3.3: EDX of the fluorescent medium. It contains terbium and aluminum.

4. Semiconductor Die



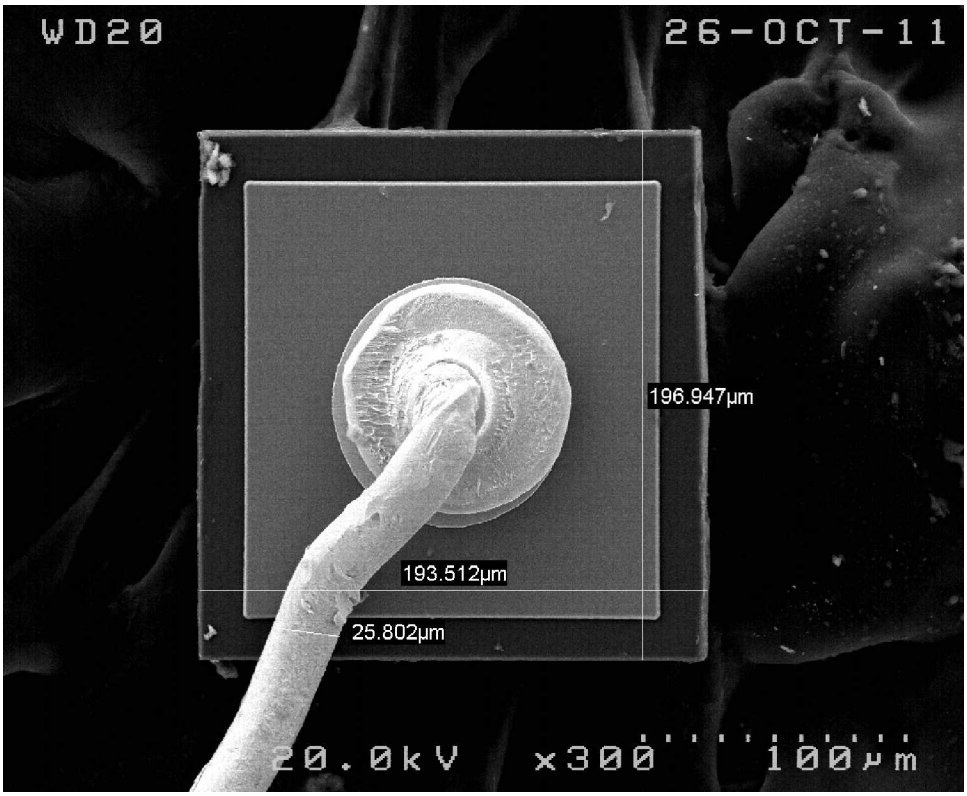


Figure 4.1: Optical and SEM images of the die. The die is 200 um x 190 um in size. Wire bonds have a diameter of 25.8 um.

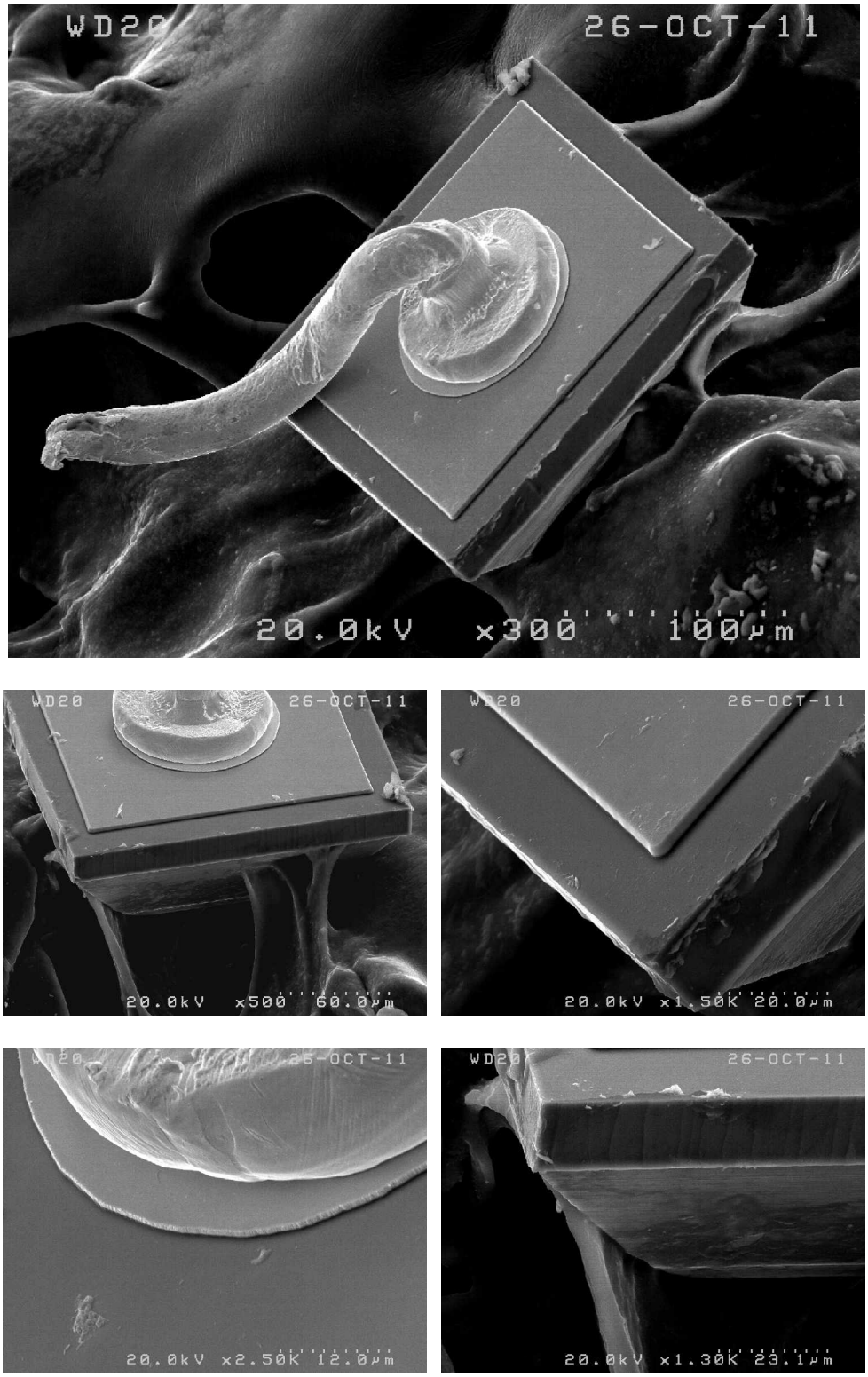


Figure 4.2: Tilted view SEM.

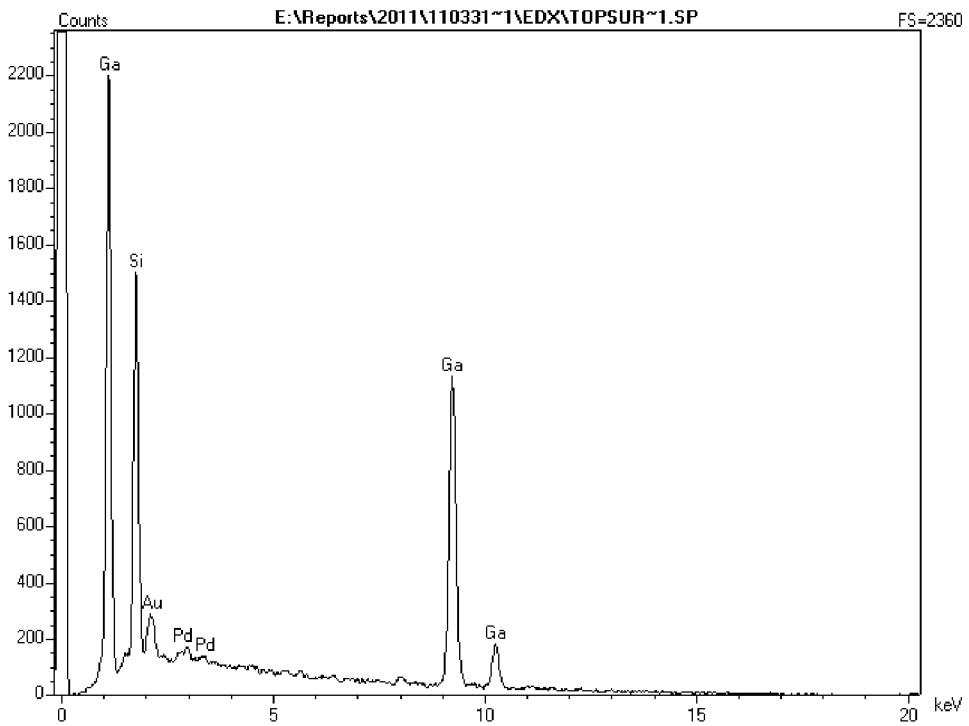


Figure 4.3: EDX spectrum of the die surface. The passivation is silicon oxide or nitride. No ITO is detected.

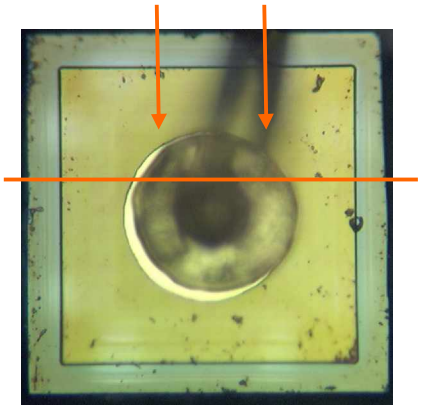


Figure 4.4: Cross-section location and polishing direction.

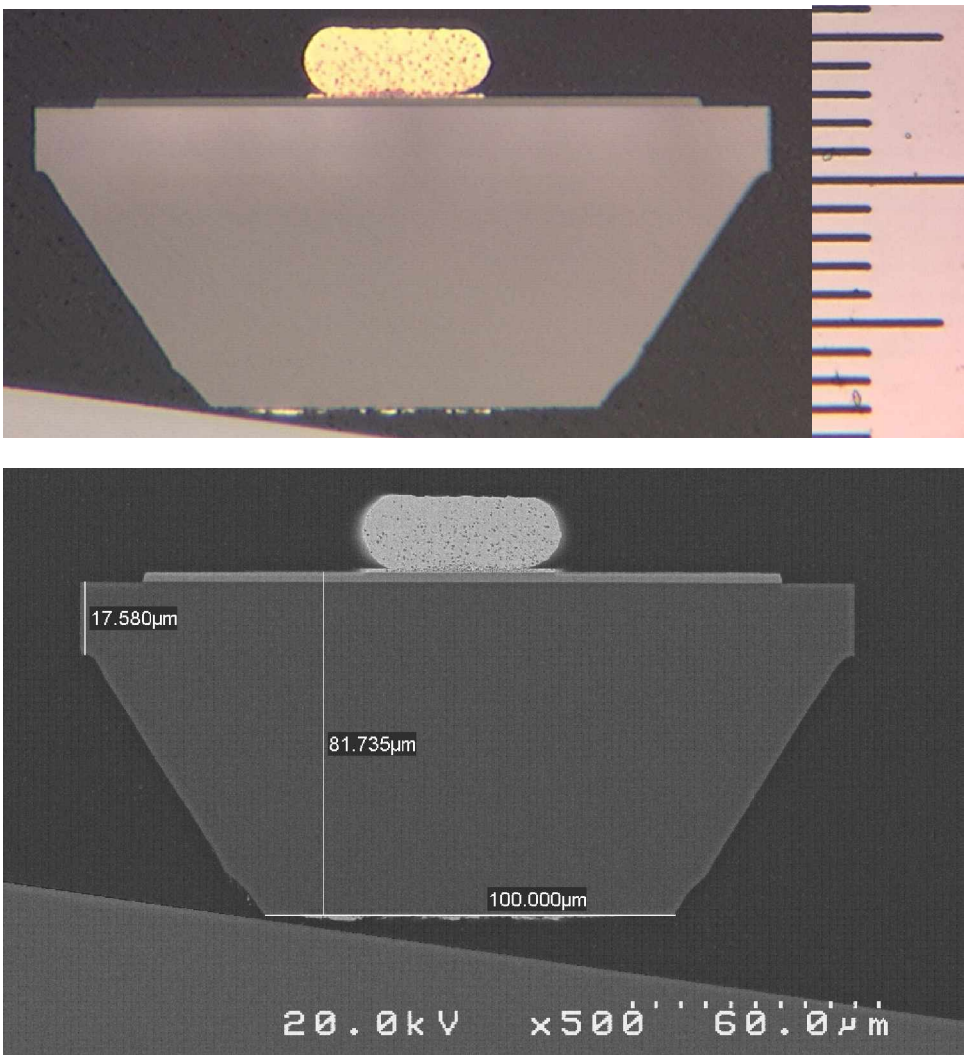


Figure 4.5: Optical and SEM images of the die cross section. Small ruler divisions are 10 um apart. The substrate is 82 um thick.

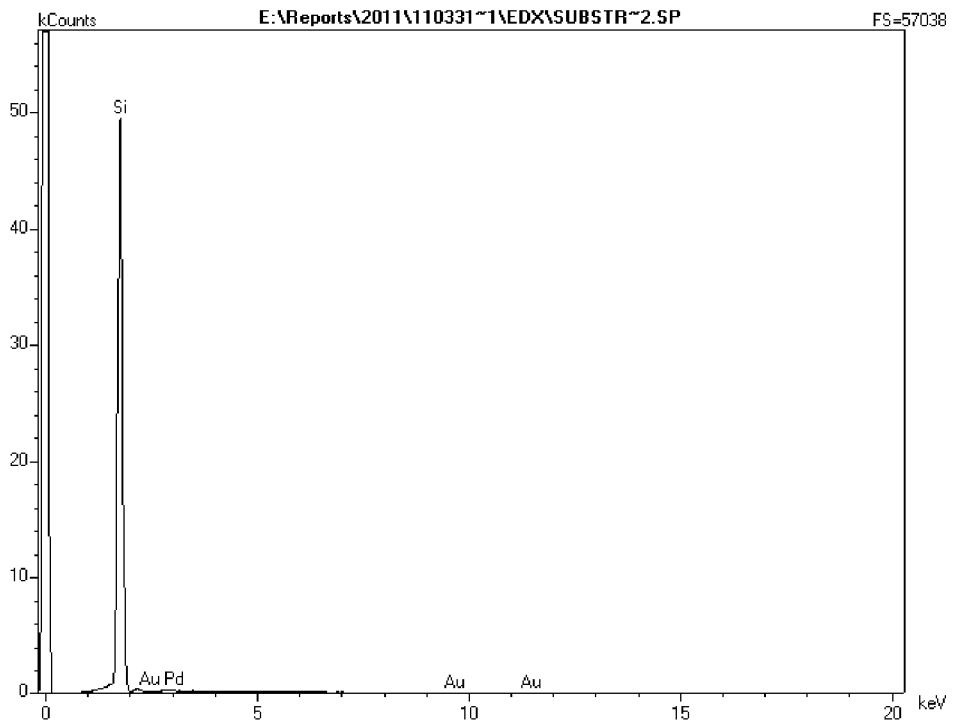


Figure 4.6: EDX of the substrate. It is SiC

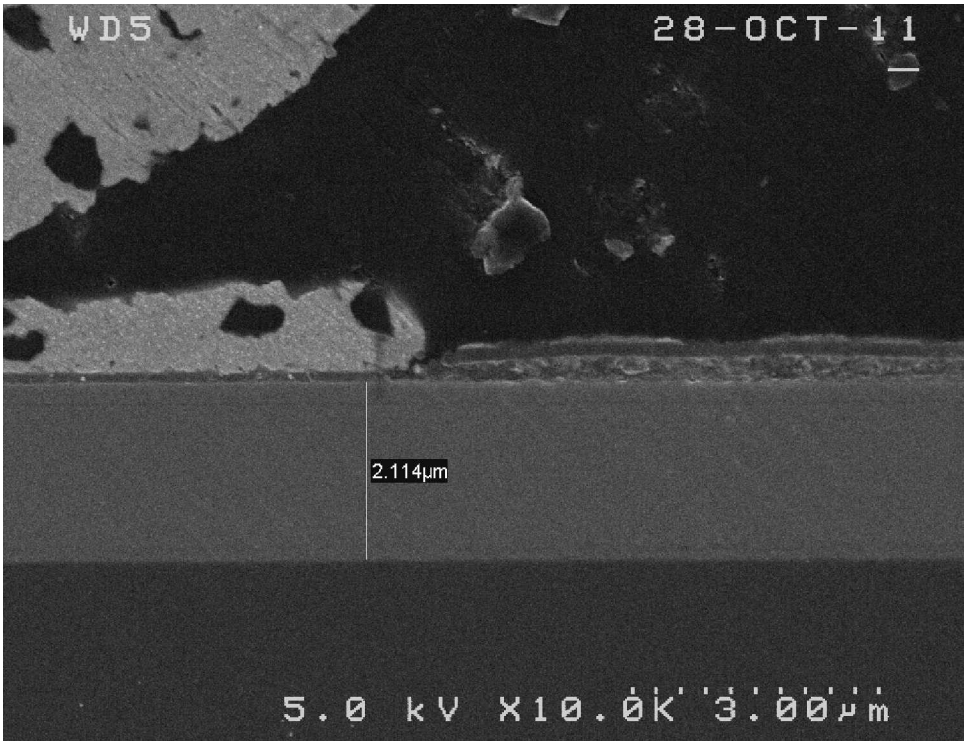


Figure 4.7: The GaN layer is 2.1 um thick.

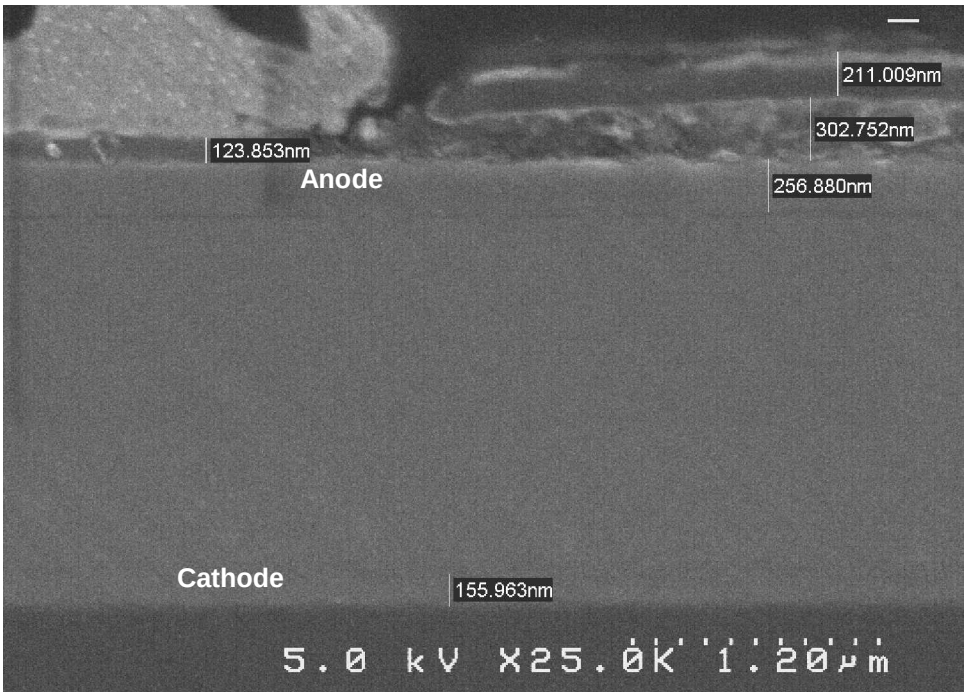


Figure 4.8: Active region. The cathode contact is made via the SiC substrate.

5. Summary

Item	Material, dimensions, etc.
Substrate	SiC 82um
Die size	200um x200um
GaN thickness	2um
Wire bonds	1- 25um diameter
Fluorescent medium EDX	Terbium and Aluminum
Protection diode	No

Table 1 Die parameters

6. List of *Inside View* reports available

Avago LED HSMW-C191	Avago LED chip white top mount
Avago LED HSMW-CL25	Avago LED chipled InGaN wht top smd
Bridgelux BXRA-C0360	LED array cool white 400LM
Bridgelux BXRA-C0402	LED array cool white 450LM
Cree	CXA2011-000-000P00G027H
Everlight 62-227B-KK2C-N3030N4P3S2Z6	LED mid power 0.4W 5.6x3 SMD
Everlight ELSH-J61C3-0CPGS-D5000	LED Shuen 3W Hi power cool white SMD
Feit	Fleit A19 LED lamp
GE	GE A19 LED lamp
Harvatek	HT-U16DSWH-5593
Harvatek	HT-N178TWV-5314
Honeywell	Honeywell R30 LED lamp
Ledengin LZ1-10CW05	Ledengin LZ1-10CW05
Lighting Science A19 LED bulb	Lighting Science A19 LED bulb
LSG NT42D0-0426	LED array white 4700K 700MA
Lumex LXL8047UWCTR	LED round 3W cool white 6000K SMD
Luminus Devices	SST-50-W65S-F21-GH101
Osram	720-LCWCQ7PECSU5R8T1
Osram Oslon SSL 150 LED	Oslon SSL 150 LED
Osram Oslon SSL 80 LED	Oslon SSL 80LED
Pharox	Pharox A19 LED lamp
Philips	Philips A19 LED lamp
ROHM SMLK15WBFPW11P	LED white high bright SMD
Seoul Semi	STW8Q2PA-SO-GA
Sharp	GM2BB30BMAC
Sylvania	Sylvania A19 LED lamp
Toshiba TL19W01	LED white diff 110LM 6500K SMD
Vishay	Vishay LED High Power VLMW51N2P3-GS08 LED White PLCC2 Plus

This list keeps growing, check our website for the latest additions.

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