New Release

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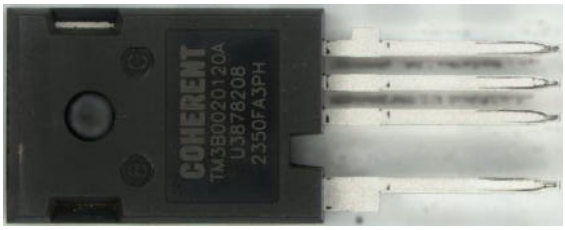
SiC MOSFET(1200V) : Coherent TM3B0020120A Structure Analysis Report



Package appearance

SiC MOSFET die

Overview

Coherent, Inc. in USA (formerly Ⅱ-Ⅵ) is a global SiC wafer manufacturer that competes with Wolfspeed and SiCrystal. Coherent manufactures and sells discrete SiC MOSFET products under a license from General Electric (GE). This report is a structure analysis report on the cell structure and the outer peripheral structure of the SiC MOSFET released by Coherent.

Product features

- Product no : TM3B0020120A V_{DSS}=1200V, I_D=115A, $R_{DS(ON)}$=20mΩ
  Product release date: April 2024
- 200℃ rated

Report Contents (77 pages)

- GE's dot-type JTE structure is designed to reduce the area compared to other manufacturers' technology while relaxing electric field concentration at the cell edge and maximizing the transistor area. (The related patents for the JTE structure are listed in this report.) JTE: Junction Termination Extension
- Polycide is formed to reduce the resistance of the gate electrode (Poly-Si).
- Based on the cell pitch and RonAA, it is believed that SiC process technology equivalent to third generation or later is being used.

Report price

Delivered one week after order placement.

Please contact us for report pricing.

LTEC Corporation US Representative Office www.ltec-biz.com/en/
2310 Homestead Rd, C1 #231 Los Altos, CA 94024
Phone: +1-(650) 382-1181
contact2@ltec.biz

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Release day : 2024.06.24

Excerpt from Structure analysis report (1)

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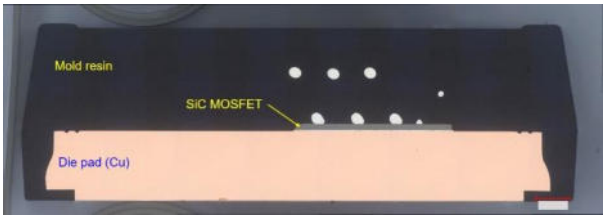
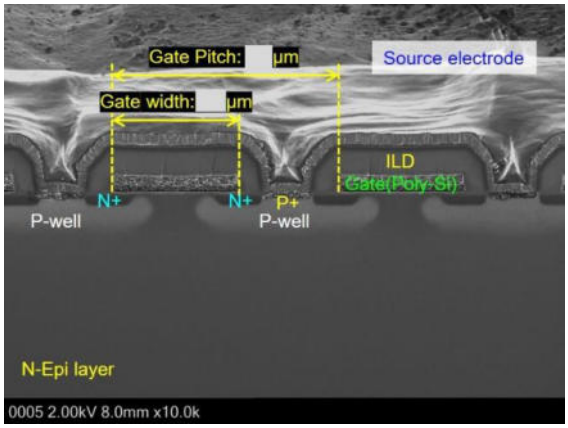
Excerpt from Structure analysis report (2)



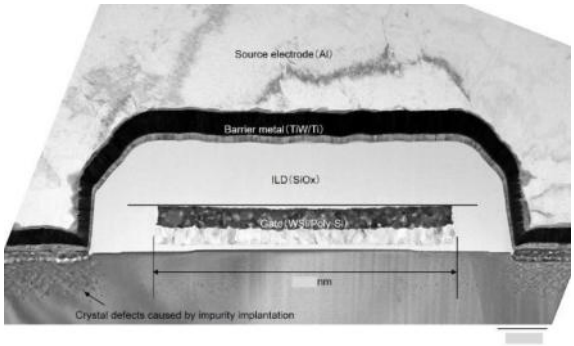
Package cross-sectional structure

Number	Measure points		Measurement	Material
1	Mold resin			
2	Al wire			
2-1		Gate		
2-2		Source		
3	SiC-MOSFET			
3-1	Organic protective film			
3-2	Top metal			
3-3	Substrate			
3-4	Backside metal-1			
	Backside metal-2			
3-5	Backside metal-3			
4	Die attach			
5	Die pad			
5-1		Die pad		
5-2		Plating		

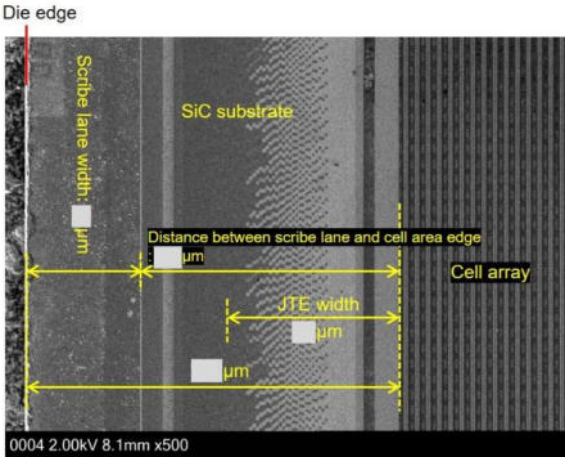
Package cross-sectional structure overview



Cross-sectional SEM image of cell area



Cross-sectional TEM image of cell area



Plane SEM image of die outer periphery

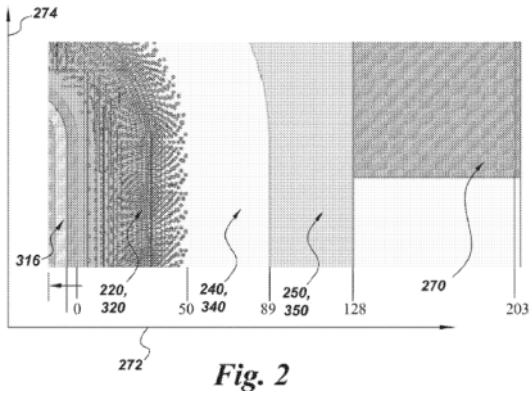


Fig. 2

Drawing (Related patents of JTE structure)