Go to Home Page

PHENITEC
Phenitec...fast and focused!

フィールドストップ・トレンチIGBTは、高入力インピーダンスと高電流密度が特徴のパワーデバイスです。
薄ウエハー化を実現させるタイコ研削技術や、裏面イオンインプラ、レーザーアニール技術を使用して製造しています。

Process Technology Road Map

Technology

		2017	2018	2019	2020	2021
	Wafer Size (inch)	6	→	→	→	8
C-MOS	Minimum CD (um)	0.35	→	→	0.18	→
C-MOS	Well structure	Triple well	→	→	→	→
C-MOS	Element isolation	LOCOS	→	→	Shallow Trench Isolation	→
C-MOS	Gate stack	Poly-Si/ WSi	→	→	Poly-Si/ CoSi2	→
C-MOS	Metal layer	3 metal layers	→	→	4 /6metal layers	→
C-MOS		W-Plug/SOG/CMP	→	→	→	→
C-MOS		Ti-TiN/AL-Cu	→	→	→	→
P-MOS/IGBT	Gate Trench depth/width(um)	8.0/0.22	→	→	→	→
P-MOS/IGBT	Aspect Ratio	27.3	→	→	→	→
P-MOS/IGBT	IGBT Structure	Epi PT/NPT/FS	→	FZ FS	→	→
P-MOS/IGBT	Gate stack	Poly-Si/ WSi	→	→	→	→
P-MOS/IGBT	Metal layer	W-Plug/SOG/CMP	→	→	→	→
P-MOS/IGBT	Back End	Taiko process	→	→	→	→
P-MOS/IGBT	Thickness	50 μm	→	→	→	→

Equipment

	2017	2018	2019	2020	2021
Element isolation	Diffusion furnace	→	→	→	→
Gate stack	LPCVD /Metal CVD (WSi)	→	→	→	→
Common		BP O3TEOS	→	→	→
	KrF(DUV) Stepper	→	→	→	→
Planarization	CMP	→	→	→	→
Trench Etcher	Trench Etcher (Depth:3 μm≧)	Trench Etcher (Depth:3 μm≦)	→	→	→
Deep Etcher	DEEP Etcher	→	→	→	→
Hi Energy Impla	Hi Energy Impla	→	Hi Energy Impla (Back Side)	→	→
Back Grinder	Taiko BG	→	→	→	→
Laser Anneal	Laser Anneal	→	Hi Power Laser Anneal	→	→