



Freiberger Compound Materials GmbH

Application of III-V semiconductors (GaAs, InP, GaN)



FCM GaAs Product Portfolio

LEC Liquid Encapsulated Czochralski			VGF Vertical Gradient Freeze					
								
Semi-insulating		Semi-conducting	Semi-insulating	Semi-conducting				
C		Te	C	Si	Zn			
3"	4"	6"	3"	4"	6"	8"	4"	6"

FCM Core Products

GaAs Enables Future Technologies

Wireless Devices

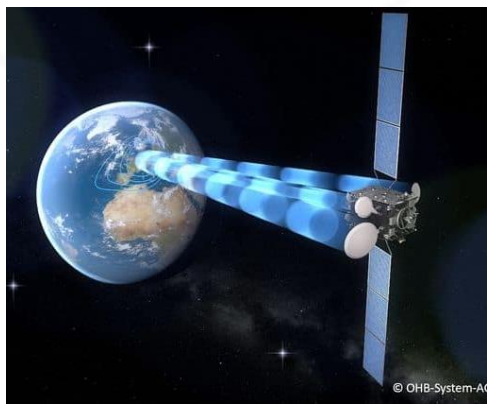
Handy-Verstärker



WiFi

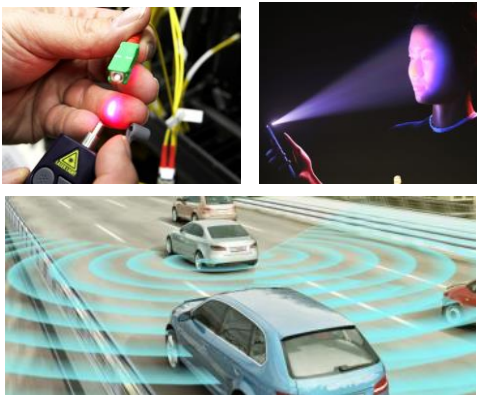


Defense and Space



Opto-Electronics

LASER



μLED Displays



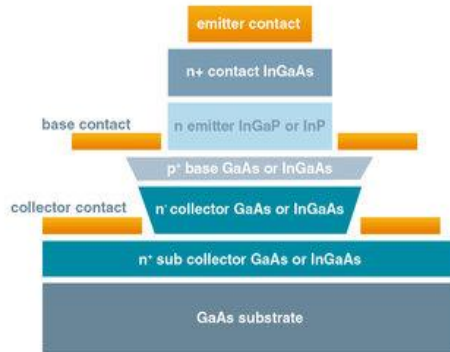
LED



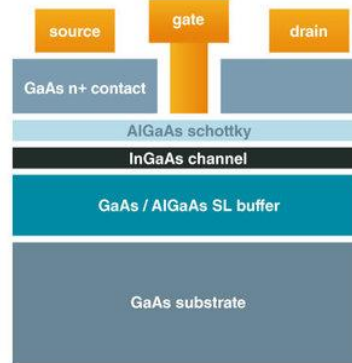
Products of our Customers (GaAs)

Wireless Devices

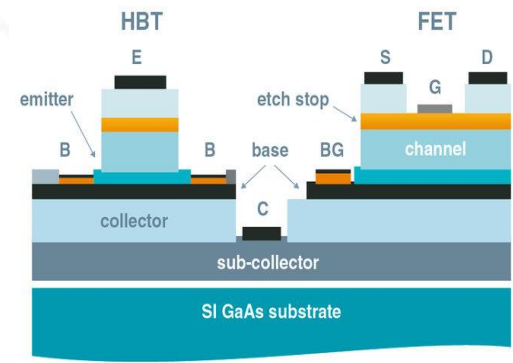
HB-Transistors



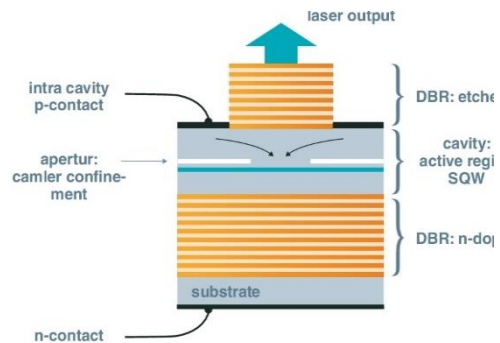
pHEM-Transistors



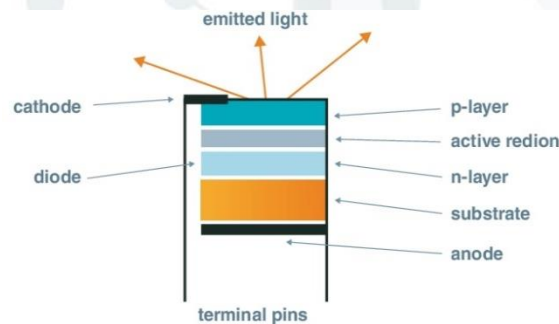
BIFE-Transistors



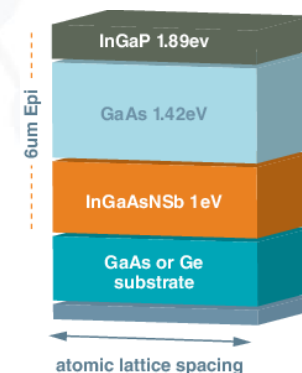
LASER



LED



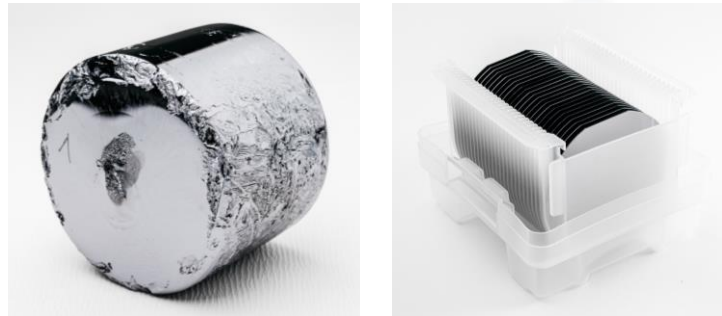
Photovoltaic



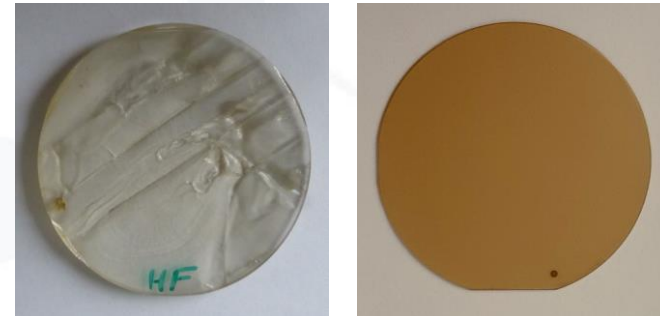
Opto-Electronics

Products in development

InP



GaN



VGf Vertical Gradient Freeze

HVPE Halide Vapor Phase Epitaxy

Semi-conducting

Semi-insulating

Semi-conducting

Semi-insulating

S

Fe

Si

Ge

Mn

3" 4" 6"

3" 4" 6"

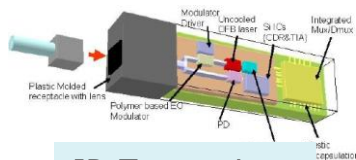
2" 4" 2" 4"

2" 4"

InP Enables Future Technologies

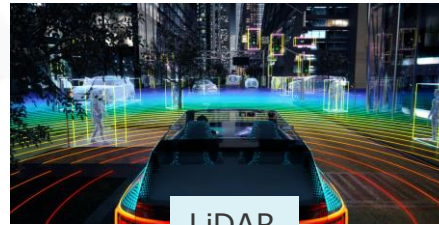
Applications

Data Communication

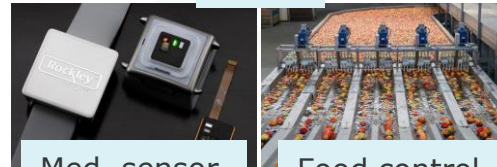


IR-Transceiver

IR Sensing & Detection



LiDAR



Med. sensor

Food control

mmWave & THz



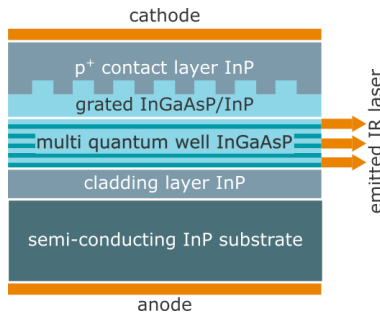
Sat communication



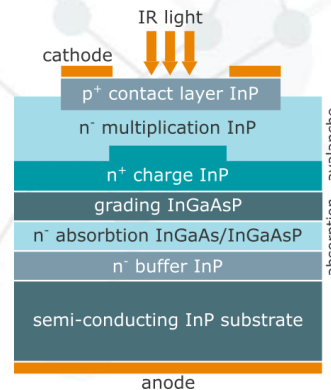
Test equipment

Device Examples

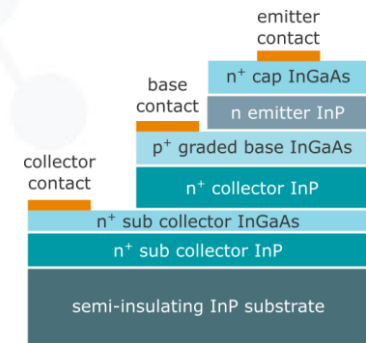
Distributed Feedback Edge Emitting Laser



Avalanche Photodiode

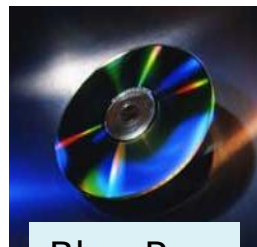
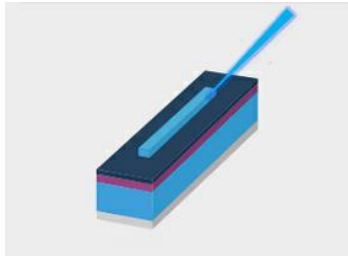


Double HB-Transistor



Products for bulk-GaN

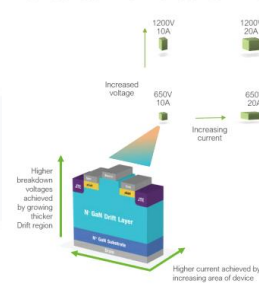
Current application - LASER



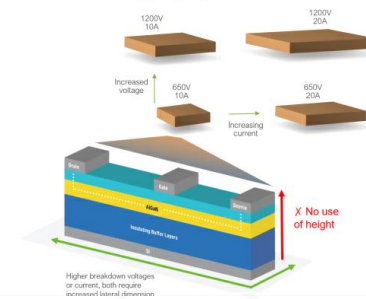
Blue Ray

Potential applications – Power Electronics

Vertical GaN™ enhancement mode JFET



GaN-on-Si HEMT



Graph from Meneghini et al. J. Appl. Phys. **130**, 181101 (2021)

Make
perfect
wafers

