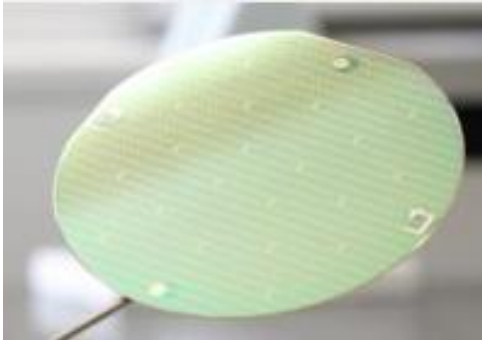


PH25-20

0.25μm low noise pHEMT



Description

The 0.25μm pHEMT process is optimized for low noise up to 60GHz. The second generation PH25-20 features a thinner substrate (70 μm instead of 100 μm), which allows additional 2-ports transistor topologies with individual source vias. The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, two densities of MIM capacitors and MIM over via capacitors, air-bridges, hot-vias and via-holes through the substrate.

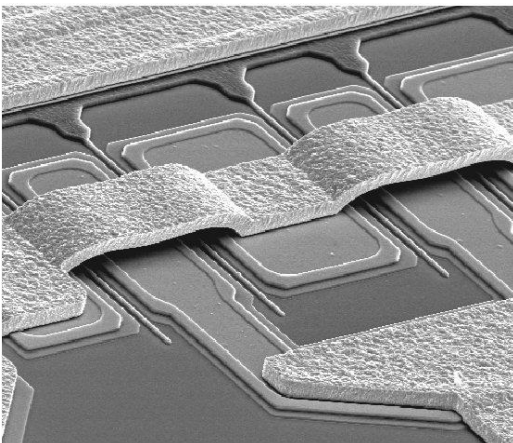
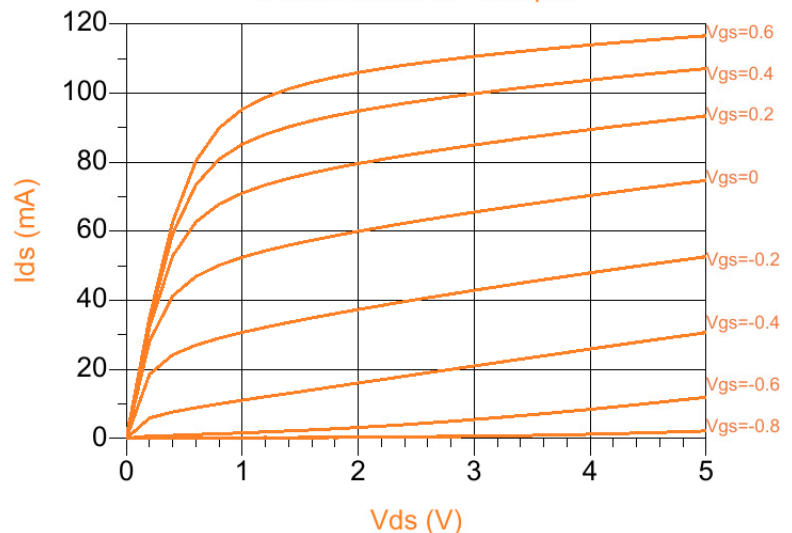
Overcoating layer is available as an option.

Hot vias are available as an option

Main Features

- 0.25μm pHEMT process
- Typical Ft: 90GHz
- TaN and TiWSi resistors
- GaAs resistors
- M.I.M. capacitors
- M.I.M. capacitors over via-hole
- D.H.D capacitors
- D.H.D capacitors over via-hole
- Air bridges
- Via-holes
- Hot-vias
- Operation Vds= 3V
- Wafer thickness: 70μm
- Wafer diameter: 100mm

PH25-20 NHF3P 4x50μm



Design Kit Characteristics

- Available for ADS from Keysight
- e-DRC with ADS DK
- Schematic entry with autolayout generation
- Scalable models for passive devices
- Scalable non-linear models for FET (2 & 3 ports)
- Scalable linear and noise model for FET
- Scalable models for series and parallel switch configuration
- Scalable non linear models for reversed (varactors) and forwarded diodes (mixers)
- Data for spread analysis

Electrical Characteristics

ELEMENT / Parameters	Min	Typ	Max	Units	Conditions
FET /					
Threshold voltage V_p	-1.0	-0.75	-0.5	V	$V_{ds}=2.5V, I_{ds}=I_{dss}/100$
Transconductance G_m	400	530	-	mS/mm	$V_{ds}=2.5V, V_{gs}=0V$
Saturation current I_{dss}	200	340	460	mA/mm	$V_{ds}=2.5V, V_{gs}=0V$
Breakdown voltage V_{bds}	6	7.5	-	V	$I_{ds}=I_{dss}/100$
Coplanar FET (2x75μm) equivalent circuit					
Transconductance G_{me}	70	85	100	mS	$V_{ds}=3.0V, V_{gs}=0V$
Input capacitance C_{in}	120	150	180	fF	$V_{ds}=3.0V, V_{gs}=0V$
Feedback capacitance C_f	20	25	30	fF	$V_{ds}=3.0V, V_{gs}=0V$
Output resistance R_{out}	160	220	300	Ω	$V_{ds}=3.0V, V_{gs}=0V$
MIM CAPACITOR /					
Standard Density	230	250	270	pF/mm ²	@1MHz
High Density (DHD)	550	625	700	pF/mm ²	@1MHz
TaN RESISTOR /					
Sheet resistance	26	30	34	Ω /square	
TiWSi RESISTOR /					
Sheet resistance	800	1000	1200	Ω /square	
GaAs RESISTOR /					
Ohmic contact resistance	-	0.15	0.3	Ω .mm	
GaAs sheet resistance	100	120	140	Ω /square	

Ordering Information

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