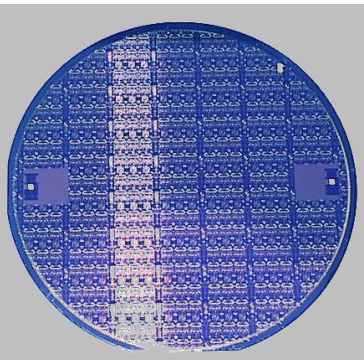
Foundry Process Data Sheet

United Monolithic Semiconductors

PH15 0.15µm very low noise pHEMT



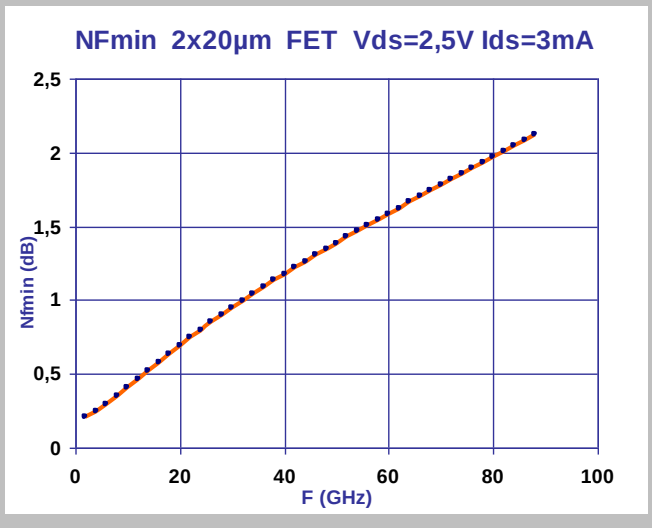
Description

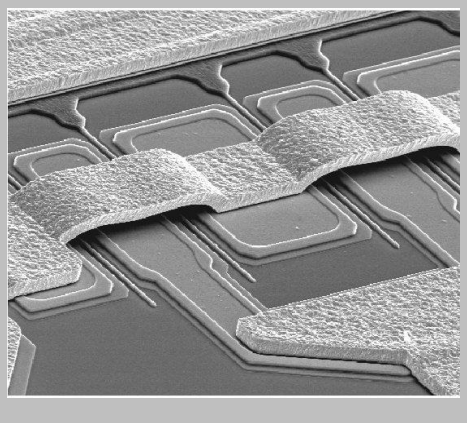
The 0.15µm pHEMT process is optimized for very low noise up to 60GHz. The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, MIM capacitors, air-bridges and via-holes through the substrate.

Overcoating layer is available as an option.

Main Features

- 0.15µm pHEMT process
- Typical Ft: 110GHz
- TaN and TiWSi resistors
- GaAs resistors
- M.I.M. capacitors
- Air bridges
- Via-holes
- Operation Vds= 2.5V
- Wafer thickness: 100µm
- Wafer diameter: 100mm
- Space evaluated process according to ESA (EPPL)





Design Kit Characteristics

- Available for ADS from Keysight, MwO from AWR and Nexxim from Ansoft
- DRC on line with ADS DK
- Schematic entry with autolayout generation
- Scalable models for passive devices
- Scalable non-linear model for FET with noise
- Scalable non linear model forwarded diodes (mixers and detectors)
- Data for spread analysis

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Electrical Characteristics

ELEMENT / Parameters	Min	Typ	Max	Units	Conditions
FET /					
Threshold voltage Vp	-1.0	-0.75	-0.5	V	Vds=2.0V,Ids=Idss/100
Transconductance Gmmax	580	650	-	mS/mm	Vds=2.0V, Gm_max
Saturation current Idmax	220	280	-	mA/mm	Vds=2.0V, Gmmax
Breakdown voltage Vbds	4.5	6	-	V	Ids= Idss/100
Coplanar FET (2x75µm) equivalent circuit					
Transconductance Gme	80	95	110	mS	Vds=3.0V, Vgs=0V
Input capacitance Cin	80	110	140	fF	Vds=3.0V, Vgs=0V
Feedback capacitance Cf	20	25	30	fF	Vds=3.0V, Vgs=0V
Output resistance Rout	130	160	190	Ω	Vds=3.0V, Vgs=0V
TaN RESISTOR /					
sheet resistance	26	30	34	Ω/square	
MIM CAPACITOR /					
density	290	330	370	pF/mm2	@1MHz
TiWSi RESISTOR /					
sheet resistance	800	1000	1200	Ω/square	
GaAs RESISTOR					
Ohmic contact resistance	-	0.13	0.3	Ω.mm	
GaAs sheet resistance	100	120	140	Ω/square	

Ordering Information

Visit our Website for more info: http://www.ums-rf.com

Please contact our Sales at: marketing.sales@ums-rf.com & Tel: +33 1 69 86 32 00 / Fax: + 33 1 69 86 34 34

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