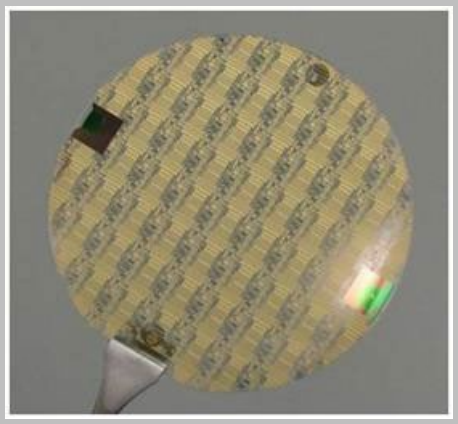
Foundry Process Data Sheet

United Monolithic Semiconductors

GH25-10



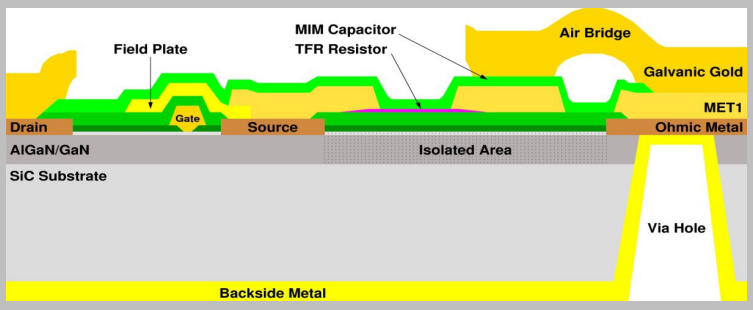
Description

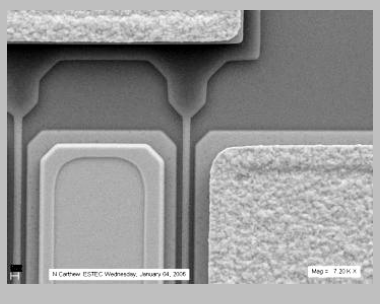
This 0.25µm HEMT process is optimized for high power applications up to 20GHz. The good HEMT noise performance allows also LNA design.

The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, MIM capacitors, air-bridges and via-holes through the substrate.

Main Features

- 0.25µm GaN on SiC HEMT process
- Typical Ft: 25 GHz
- Power density: 5 W/mm
- TaN and TiWSi resistors
- M.I.M. capacitors & inductors
- Air bridges
- Via-holes
- Operation Vds= 37 V
- Vbds > 100 V
- Wafer thickness: 100 µm
- Wafer diameter: 100 mm
- Schottky diodes





Design Kit Characteristics

- Available for ADS from Keysight, MwO from AWR
- Non-linear electro-thermal model for source grounded FET
- Noise model for LNA design
- Switch and diode models
- Scalable models for passive and active devices.

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Electrical Characteristics

ELEMENT / Parameters	Min	Typ	Max	Units	Conditions
FET /					
Threshold voltage Vp	-4.0	-3.4	-2.8	V	Vds=10.0V Ids=Idss/100
Transconductance Gm	240	290	340	mS/mm	Vds=10.0V, Vgs=0V
Saturation current Idss	780	880	980	mA/mm	Vds=10.0V, Vgs=0V
Coplanar FET (2x75µm) equivalent circuit					
Transconductance Gme	17	20	23	mS	Vds=40.0V, Idss/3
Input capacitance Cin	135	165	195	fF	Vds=40.0V, Idss/3
Feedback capacitance Cf	6.5	7.5	8.5	fF	Vds=40.0V, Idss/3
Output resistance Rout	2900	3800	5300	Ω	Vds=40.0V, Idss/3
TaN RESISTOR /					
sheet resistance	26	30	34	Ω/square	
MIM CAPACITOR /					
Standard Density	235	255	275	pF/mm2	@1MHz
TiWSi RESISTOR /					
sheet resistance	800	1000	1200	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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