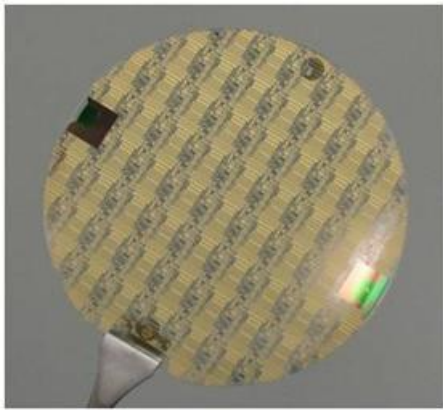


GH15-1x



Description

This 0.15μm HEMT process is optimized for high power applications up to 45GHz. The good HEMT noise performance allows also LNA design.

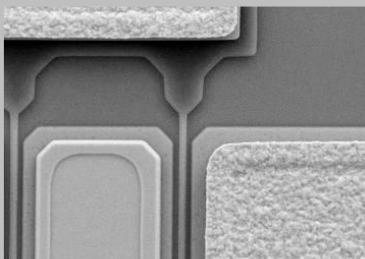
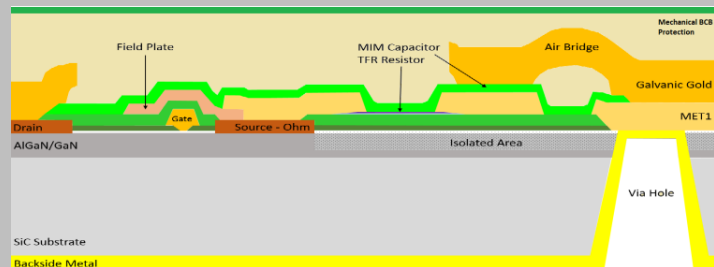
The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, MIM capacitors with standard and high density, air-bridges and via-holes through the substrate.

GH15 is available in four technology versions:

- GH15-10, Space evaluated
- GH15-11, providing additional options, such as High Density MIM 355pF/mm² and BCB mechanical protection for compatibility with plastic molded packaging.
- GH15-12, providing mechanical and humidity protection
- GH15-13, with thinner substrate specially optimized for Q-band applications

Main Features

- 0.15μm GaN on SiC HEMT process
- Power density: 4.2 W/mm
- TaN and TiWSi resistors
- M.I.M. capacitors & inductors
- Air bridges
- Via-holes
- Operation V_{ds}= 25V
- V_{bds} > 60V
- Wafer thickness: 70/50 μm
- Wafer diameter: 100mm
- Schottky diodes



Design Kit Characteristics

- Available for ADS by Keysight, MWO by CADENCE
- 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.

Electrical Characteristics

ELEMENT / Parameters	Min	Typ	Max	Units	Conditions
FET /					
Threshold voltage V_p	-3.7	-3.0	-2.3	V	$V_{ds}=7.0V$ $I_{ds}=I_{dss}/100$
Transconductance G_m	325	405	-	mS/mm	$V_{ds}=7.0V$, $V_{gs}=V_{GMMax}$
Saturation current I_{dss}	1350	1450	1550	mA/mm	$V_{ds}=7.0V$, $V_{gs}=3V$

Coplanar FET (2x75µm) equivalent circuit

Transconductance G_{me}	23	30	38	mS	
Input capacitance C_{in}	105	125	145	fF	
Feedback capacitance C_f	13	18	23	fF	

TaN RESISTOR /

sheet resistance	26	30	34	Ω/square	
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MIM CAPACITOR /

Standard Density	160	175	190	pF/mm ²	
High Density (GH15-11/-13)	330	355	380		

TiWSi RESISTOR /

sheet resistance	800	1000	1200	Ω/square	
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Ordering Information

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