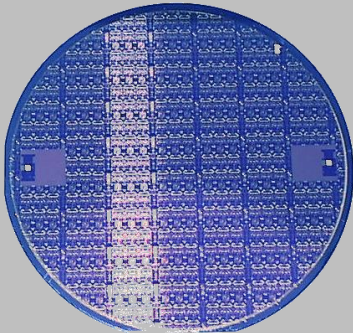




HB20M

VCO HBT



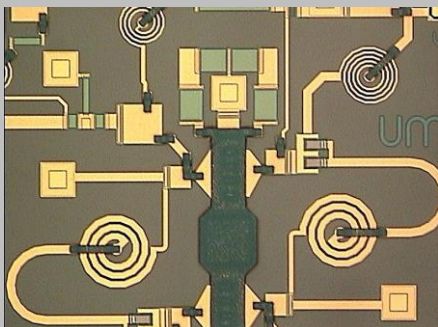
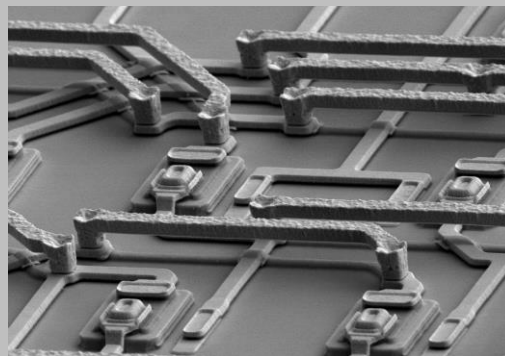
Description

The HB20M 2 μ m emitter length HBT process is optimized for VCO application up to 25GHz. The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, MIM capacitors, air-bridges and via-holes through the substrate.

HB20M is a fully passivated HBT process.

Main Features

- 2 μ m emitter HBT
- Typical Ft: 30GHz
- TaN and TiWSi resistors
- M.I.M. capacitors
- Via-holes
- Operation Vce= 6V
- Wafer thickness: 100 μ m
- Wafer diameter: 100mm
- Space evaluated process according to ESA (EPPL)



Design Kit Characteristics

- Available for ADS from Keysight
- Schematic entry with autolayout generation (passive)
- Scalable models for passive devices
- Scalable non-linear transistor model including 1/f noise.
- Temperature effect
- Data for spread analysis

Electrical Characteristics

ELEMENT / Parameters	Min	Typ	Max	Units	Conditions
Base sheet resistance	150	200	250	Ω/square	Measured on TLM
Base contact resistance	-	15e-6	3e-6	Ω/cm^2	Measured on TLM
Breakdown voltage Vce	14	18	-	V	Ib=0, Ic=Ie=500 μ A

Coplanar transistor (2x30 μm^2) equivalent circuit

Feedback capacitor Cbc	28	35	42	fF	Vce=3.0V, Ic=20mA
Emitter resistance Re	2	2.5	4	Ω	Vce=3.0V, Ic=20mA
Gmo x Rbe product (β)	30	45	70	-	Vce=3.0V, Ic=20mA
Offset voltage (Vce_sat)	-	0.15	0.3	V	Ib=Ie=1mA, Ic=0

TaN RESISTOR /

sheet resistance	26	30	34	Ω/square	
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MIM CAPACITOR /

density	220	260	280	pF/mm ²	@1MHz
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TiWSi RESISTOR /

sheet resistance	800	1000	1200	Ω/square	
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Ordering Information

Visit our Website for more info: <http://www.ums-gaas.com>

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

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