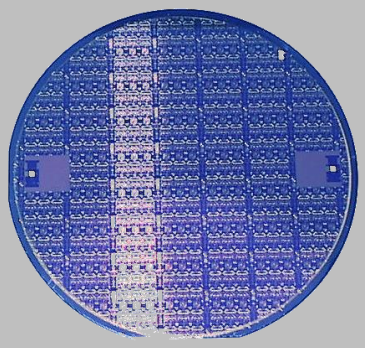
Foundry Process Data Sheet

United Monolithic Semiconductors

HB20M

VCO HBT



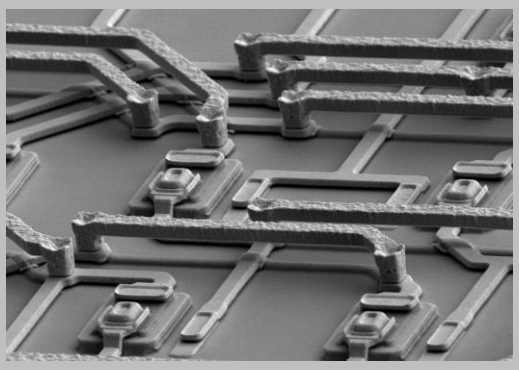
Description

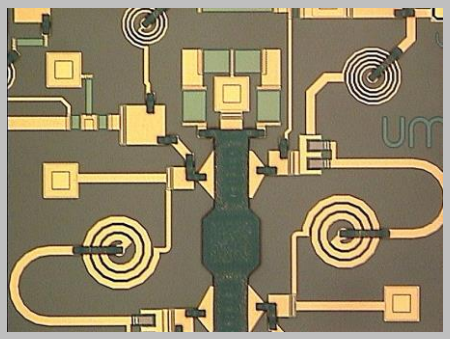
The HB20M 2µm emitter length HBT process is optimized for VCO application up to 25GHz. The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, MIM capacitors, air-bridges and via-holes through the substrate.

HB20M is a fully passivated HBT process.

Main Features

- 2µm emitter HBT
- Typical Ft: 30GHz
- TaN and TiWSi resistors
- M.I.M. capacitors
- Via-holes
- Operation Vce= 6V
- Wafer thickness: 100µm
- 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

United Monolithic Semiconductors S.A.S.
Bat. Charmille - Parc SILIC - 10, Avenue du Québec - 91140 VILLEBON-SUR-YVETTE - France
Tel.: +33 (0) 1 69 86 32 00 - Fax: +33 (0) 1 69 86 34 34

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=500µA
Coplanar transistor (2x30µm^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	
MIM CAPACITOR /					
density	220	260	280	pF/mm2	@1MHz
TiWSi RESISTOR /					
sheet resistance	800	1000	1200	Ω/square	

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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Tel.: +33 (0) 1 69 86 32 00 - Fax: +33 (0) 1 69 86 34 34