



TQHBT

InGaP HBT Foundry Service

**TQHBT
Process
Details**

TQHBT Process Details			
Element	Parameter	Value	Units
HBT Transistor	Emitter Periphery	3 @ 3 x 45	µm
	For Standard Cells	1 @ 3 x 45	µm
	(Coming Soon:)	3 @ 2 x 45	µm
	Vbe	1.25	V
	Beta	75	
	Ft	28	GHz
	Fmax	46	GHz
	BVcbo	21	V
	BVebo	7	V
	BVceo	12	V
Interconnect	Metal Layers	3	
MIM Caps	Value	1200	pF/mm2
Inductors	Q @ 2 GHz	>20	
Resistors	NiCr	50	
Vias	Yes		
Mask Layers	No Vias	15	
	With Vias	17	

**Maximum
Ratings**

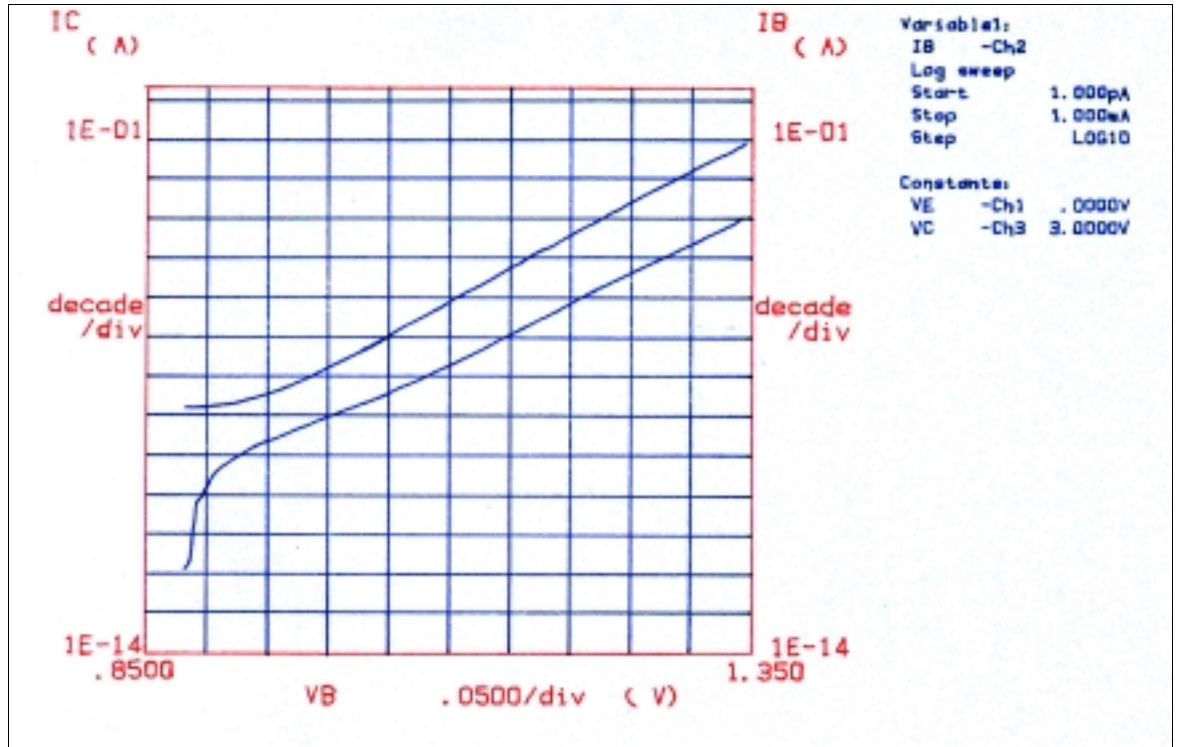
HBT Storage Temperature Range	-65 to +150	Deg C
HBT Operating Junction Temperature Range	-55 to +150	Deg C
Junction Current Density	20	kA/cm ²
Capacitor	10	V



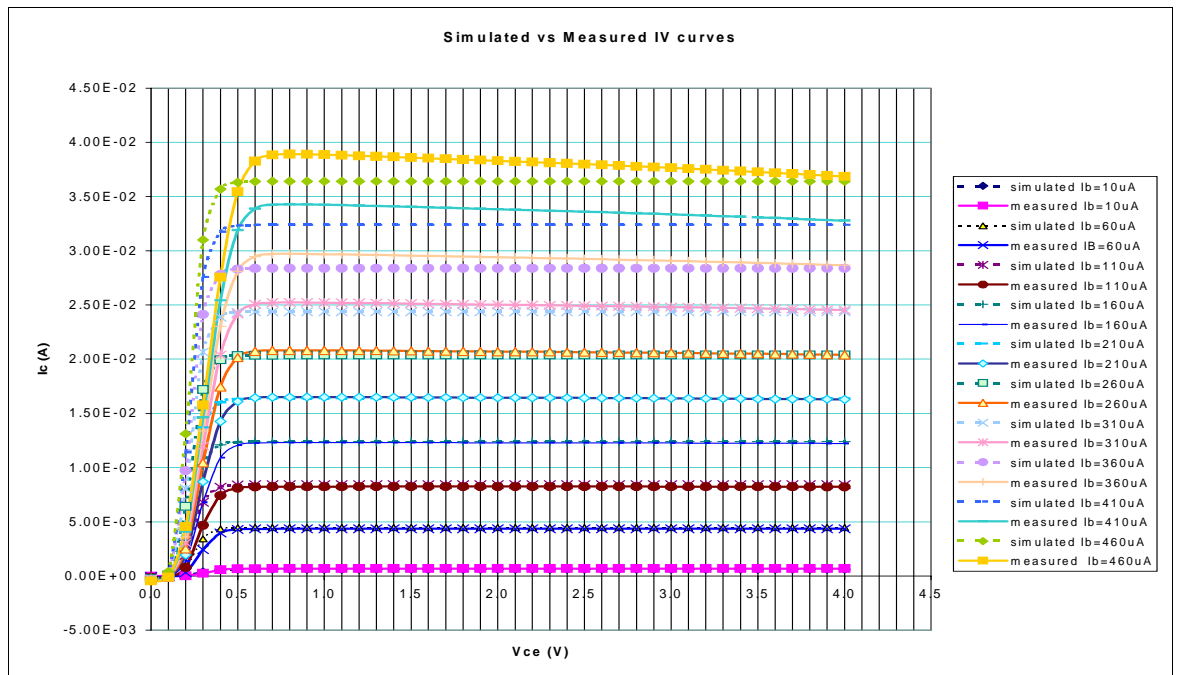
TQHBT

InGaP HBT Foundry Service

Three Finger
3x45 μ HBT
Gummel Plot



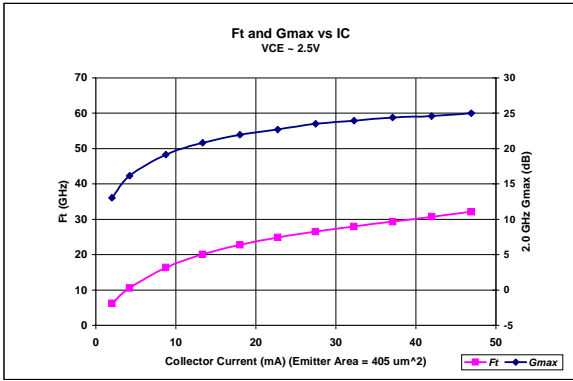
Three Finger
3x45 μ HBT
I-V
Characteristics



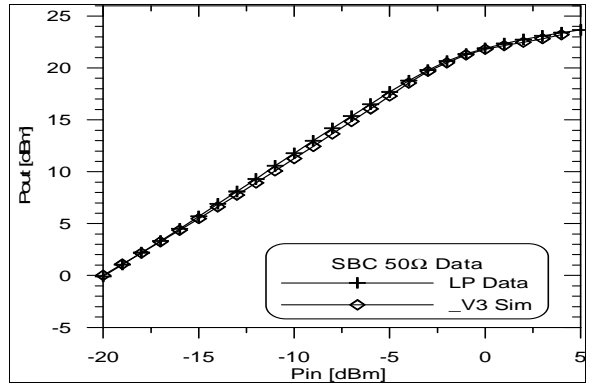


TQHBT

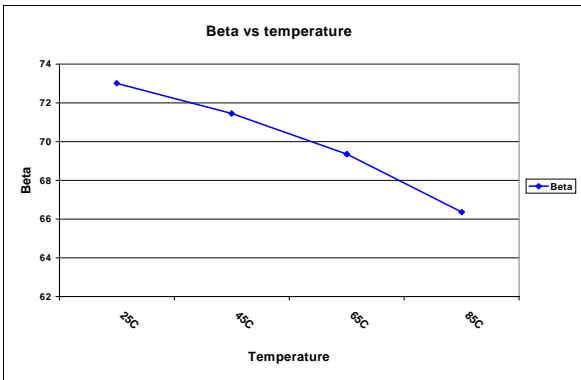
InGaP HBT Foundry Service



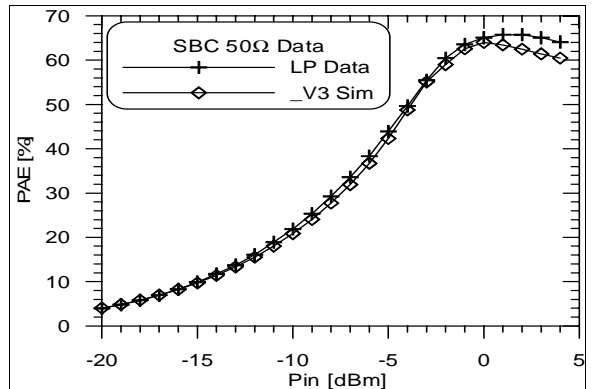
Ft and Gmax versus Collector Current



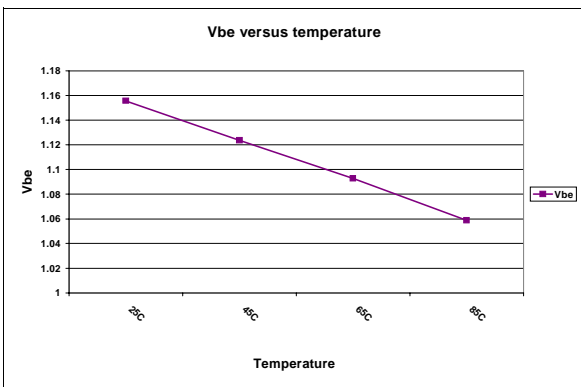
Compression- Modeled vs Measured



Beta versus Junction Temperature



Efficiency- Modeled vs. Measured



Vbe versus Junction Temperature



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Prototyping and Development

- Prototype Development QuickTurn (PDQ):
 - Shared Mask Set;
 - Run Monthly
 - Hot Lot Cycle Time
 - Via and Non-Via Options
- Prototype Wafer Option (PWO):
 - Customer-specific Masks, Customer Schedule
 - 2 wafers delivered
 - Hot Lot Cycle Time
 - With thinning and sawing; optional backside vias

Design Tool Status

- Design Manual
- Device Library of Circuit Elements: Transistors, Diodes, Thin Film Resistors, Capacitors, Inductors
- Parameters for Gummel-Poon Model
 - Agilent ADS Now
 - MWO and PSPICE Now
- Process Corner Models Planned
- Layout Files Available for:
 - Cadence, MWO, & ICED Now
- Layout Rule Sets for Design Rule & Layout versus Schematic Check Now
- Qualified Package Models for Supported Package Styles

Training

- GaAs Design Classes:
 - Half Day Introduction; Upon Request
 - Four Day Technical Training; Fall & Spring at TriQuint Oregon facility
- For Training & PDQ Schedules please visit: www.triquint.com/foundry/

Process Qualification Status

- Mature Process based on 10 GHz, 8V Vdd Process for Military Phased-Array Radar Applications.
- Over 10 Years of Reliability Data Collected.
- Process Qualification Program complete.
- 150mm Wafer Conversion Qualification underway.
- For more information on Quality & Reliability, contact TriQuint or visit: www.triquint.com/manufacturing/OR/

Applications Support Services

- Tiling of GDSII Stream Files including PCM
- Design Rule Check Services
- Layout versus Schematic Check Services
- Packaging Development Engineering
- Test Development Engineering:
 - On-Wafer
 - Packaged Parts
- Thermal Analysis Engineering
- Yield Enhancement Engineering
- Part Qualification Services
- Failure Analysis

Manufacturing Services

- Mask Making
- Pre-Production 100 & 150 mm Wafer Fab
- Wafer Thinning
- Wafer Sawing
- Substrate Vias
- DC Die Sort Testing
- RF On-Wafer Testing
- Plastic Packaging
- RF Packaged Part Testing

Please contact your local TriQuint Semiconductor Representative/ Distributor or Foundry Services Division Marketing for Additional information:
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