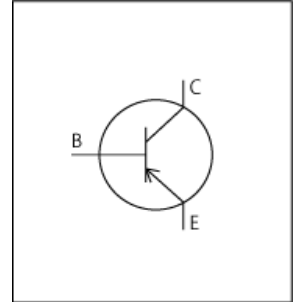


ADS Model

PNP

TOSHIBA

2SA2142



Model Information

Model	Gummel-Poon model		
Call Name	MDC_2SA2142_AD		
Pin Assign	1:B 2:C 3:E		
File List	Model Library	MDC_2SA2142_AD01.lib	
	Model Report	MDC_2SA2142_AD.pdf (this file)	
Verified Simulator Version	ADS version 2016		
Note			

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 2013-11-01
- Product name 2SA2142
- Company name Toshiba Corporation
- Characteristics $I_c V_{ce}[ib], h_{FE} I_c[Temp], V_{ce}(sat) I_c[Temp], V_{be}(sat) I_c[Temp], I_c V_{be}[Temp], f_T I_c[V_{ce}], C_{ob} V_{cb}, Switching R I[Tname]$

Simulation Range

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

Item	Range			Unit
	Min.		Max.	
Collector-emitter voltage (DC)	0	to	-600	V
Temperature	-55	to	150	deg C

BJT

○ : Implemented
 × : Not Implemented
 — : Not applicable

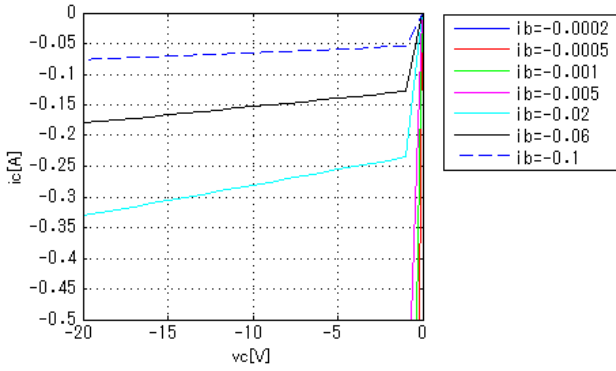
Model Functions Table
RANK=1

Functions	RANK	Implemented
IC-VBE(Temp)	1	○
IC-VCE-IB(Temp)	1	○
hFE-IC(Temp)	1	○
VCE(sat)-IC	1	○
VBE(sat)-IC	1	○
Capacitance	1	○
Transition	1	○
Switching	1	○

Simulation results are following.
 Explanatory notes — : simulated

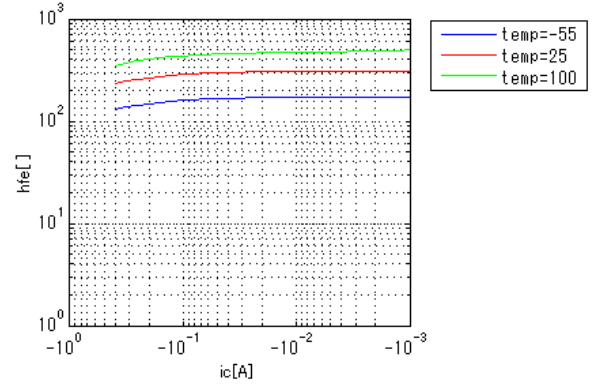
IcVce[ib] ※疑似飽和なし

Temp = 25degC



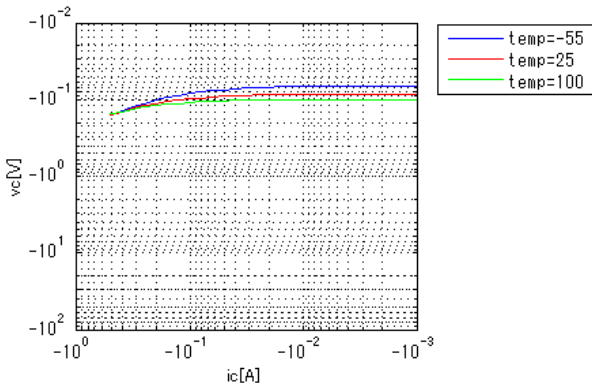
hFEIc[Temp]

Vce = -5V



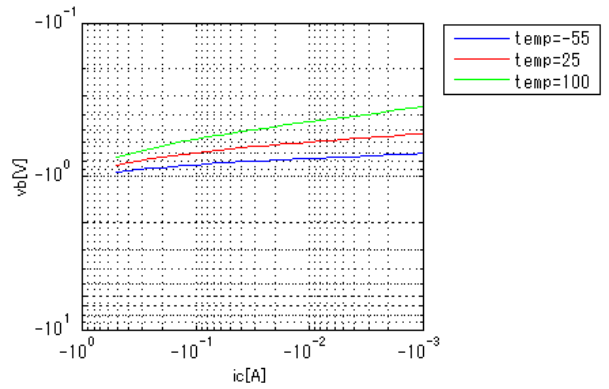
Vce(sat)Ic[Temp]

IC/IB = 10



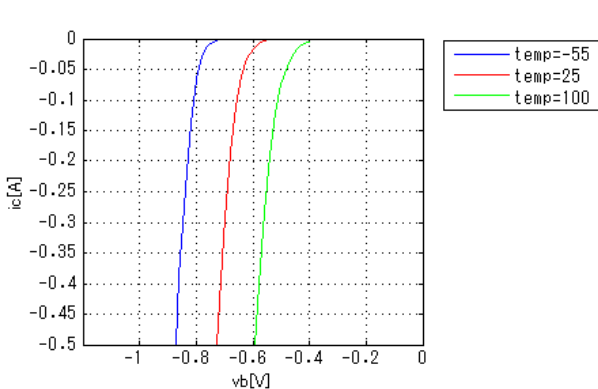
Vbe(sat)Ic[Temp]

IC/IB = 10



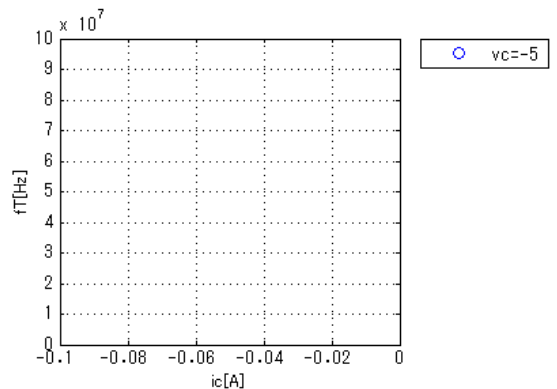
IcVbe[Temp]

Vce = -5V



fTIc[Vce]

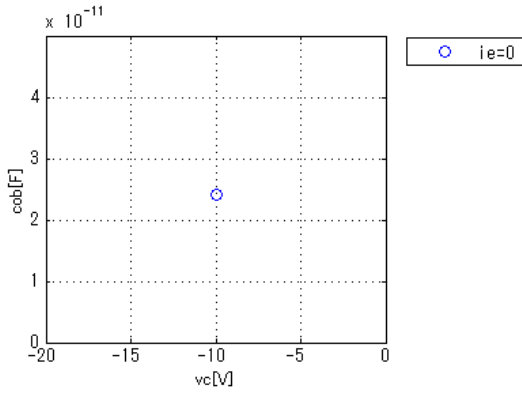
Freq = 10000000Hz



Simulation results are following.
 Explanatory notes — : simulated

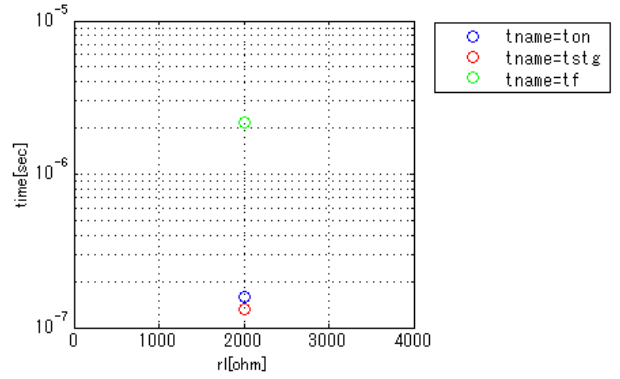
CobVcb

Freq = 1000000Hz



SwitchingRI[Tname]

ib1 = -0.01, ib2 = 0.02, vcc = -200V, Temp = 25degC



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