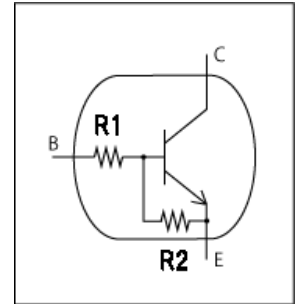


LTspice Model

BRT (Bias Resistor Transistor)

ROHM

DTC043ZMT2L



Model Information

Model A macro model based on Gummel-Poon model
Call Name MDC_DTC043ZMT2L_LT
Pin Assign 1:B 2:E 3:C
File List Model Library MDC_DTC043ZMT2L_LT01.lib
 Model Report MDC_DTC043ZMT2L_LT.pdf (this file)

Verified Simulator Version LTspice version XVII
Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 20160325 - Rev.002
- Product name DTC043ZMT2L
- Company name ROHM Co., Ltd.
- Characteristics $V_{be}(I_c, T)$, $I_c(V_{be}, T)$, $I_c(V_{ce}, I_b, T)$, $h_{FE}(I_c, T)$, $V_{ce}(sat)(I_c, T)$, $f_T(I_c, V_{ce})$

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	50	V
Collector current (DC)	0	to	100m	A
Temperature	-55	to	150	deg C
R1(typ)	4.7k	to	4.7k	ohm
R2(typ)	47k	to	47k	ohm

BRT

○ : Implemented
 × : Not Implemented
 — : Not applicable

Model Functions Table

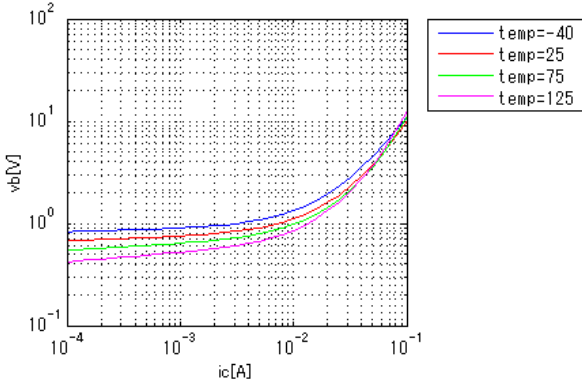
RANK=1

Functions	RANK	Implemented
VIN(on)-Iout(Temp)	1	○
Iout-VIN(off)(Temp)	1	○
Iout-Vo-Iin	1	○
DC_Current_Gain-Iout	1	○
VOOUT(on)-Iout(Temp)	1	—
VOOUT(sat)-Iin(Temp)	1	○
Capacitance	1	—
Transition Frequency	1	○
Switching(Typ.)	1	—

Simulation results are following.
 Explanatory notes — : simulated

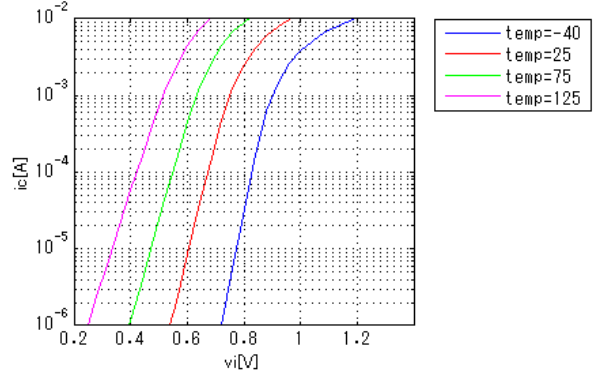
VbeIc[Temp]

Vce = 0.3V



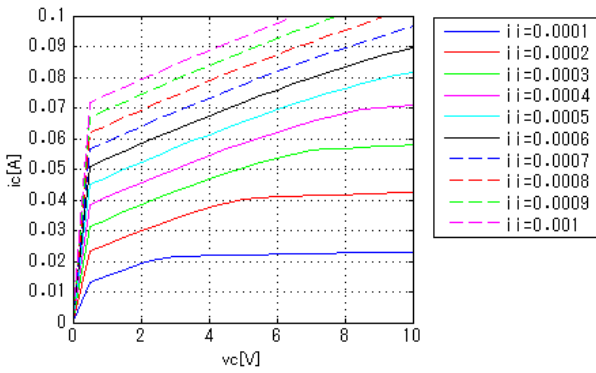
IcVbe[Temp]

Vce = 5V



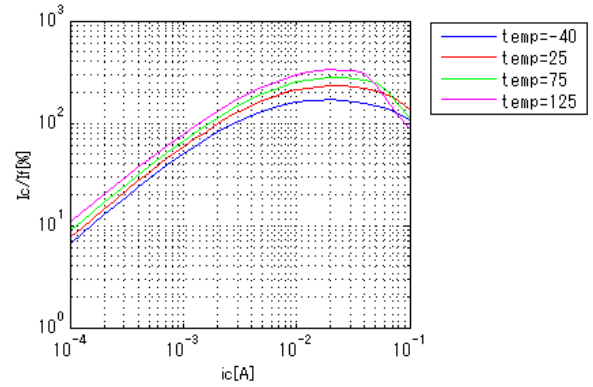
IcVce[ib]

Temp = 25degC



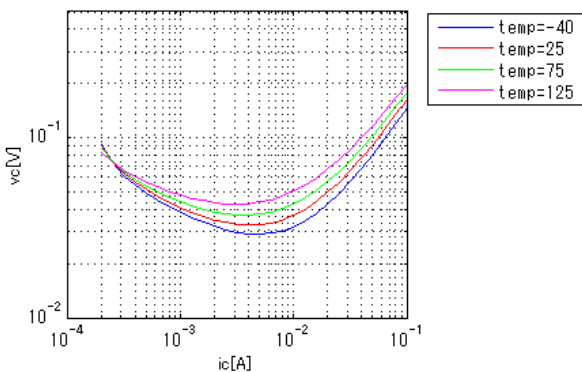
hFEIc[Temp]

Vce = 10V



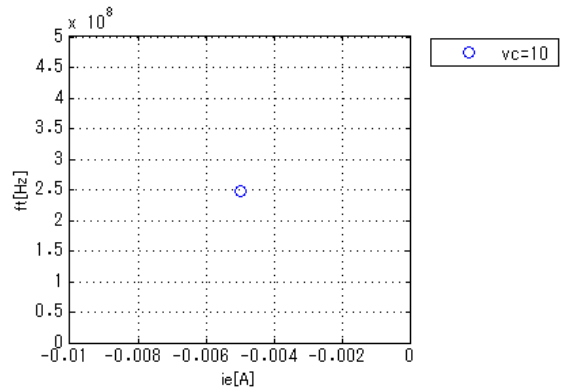
Vce(sat)Ic[Temp]

IC/IB = 10



fTle[Vce]

Freq = 100000000Hz



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MoDeCH Inc.

Head Office

Location: 5-15 Yokoyama-cho, Hachioji-Shi, Tokyo 192-0081, Japan

Tel:+81-42-656-3360

E-Mail:model-on-support@modech.co.jp

URL:<http://www.modech.com/en/>