

P Spice Model

NPN BJT

Nexperia

BC850B

Model Information

Model A macro model
Call Name MDC_BC850B_PS
Pin Assign 1:B 2:E 3:C
File List Model Library MDC_BC850B_PS.lib
 Model Report MDC_BC850B_PS.pdf

Verified Simulator Version

Note

References

The information which was used for modeling is as follow:

- [Data Sheet]
- Date/Version 16 Jane 2004
 - Product name BC850B
 - Company name Nexperia

[Characteristics listed]

- Characteristics $I_c V_{be}[Temp], hFE I_c[V_{ce}], V_{be}(sat) I_c[Temp], V_{ce}(sat) I_c[Temp], C_e, C_c, f_T I_c[V_{ce}]$

Simulation Condition

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

Item	Condition	Unit
Temperature	25	deg C

BJT

○ : Implemented
 × : Not Implemented
 — : Not applicable

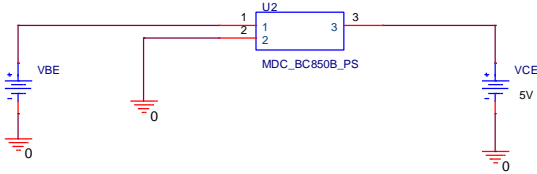
Model Functions Table
RANK=1

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

Simulation results are following.
 Explanatory notes — : simulated

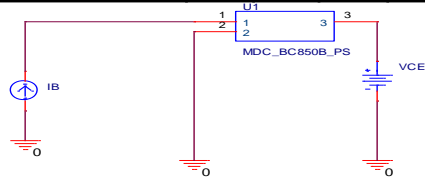
IcVbe[Temp] Testbench

CONDITIONS	MIN.	TYP.	MAX.	UNIT
Ic = 2 mA, Vce = 5V	580	660	700	mV
Ic = 10 mA, Vce = 5 V	-	-	770	mV

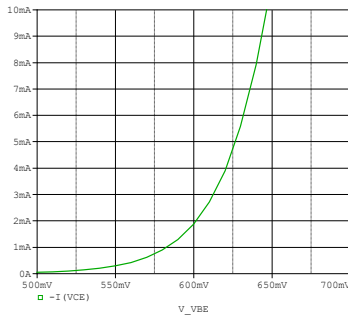


hFEIc[Vce] Testbench

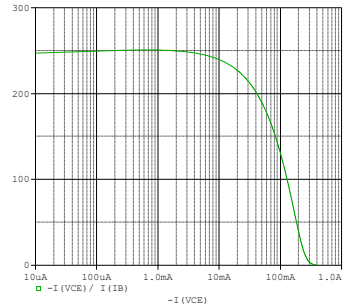
CONDITIONS	MIN.	TYP.	MAX.	UNIT
Ic = 10 μA, Vce = 5 V	-	240	450	-
Ic = 2 mA, Vce = 5 V,	200	290	450	800



IcVbe[Temp] Data Sheet

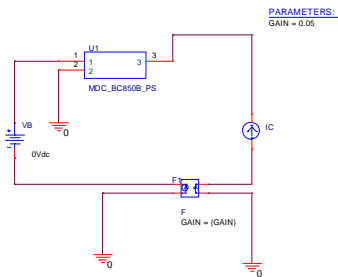


hFEIc[Vce] Data sheet



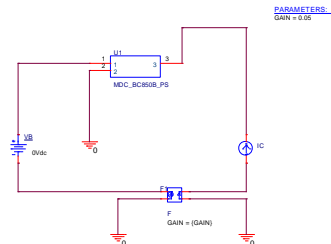
Vbe(sat)Ic[Temp] Testbench

CONDITIONS	MIN.	TYP.	MAX.	UNIT
Ic = 10 mA, Ib = 0.5 mA	-	700	-	mV
Ic = 100 mA, Ib = 5 mA	-	900	-	mV

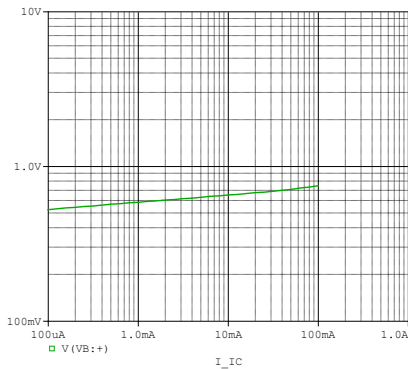


Vce(sat)Ic[Temp] Testbench

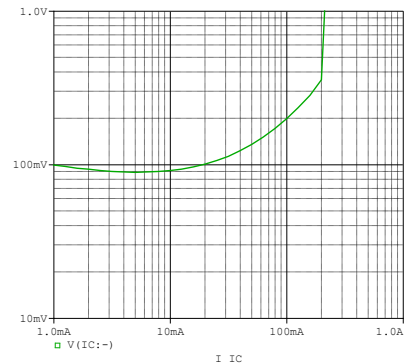
CONDITIONS	MIN.	TYP.	MAX.	UNIT
Ic = 10 mA, Ib = 0.5 mA	-	90	250	mV
Ic = 100 mA, Ib = 5 mA	-	200	600	mV



Vbe(sat)Ic[Temp] Data Sheet



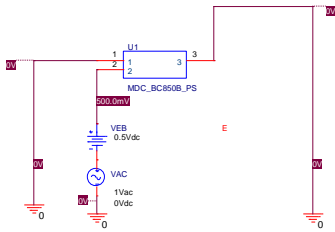
Vce(sat)Ic[Temp] Data Sheet



Simulation results are following.
 Explanatory notes — : simulated

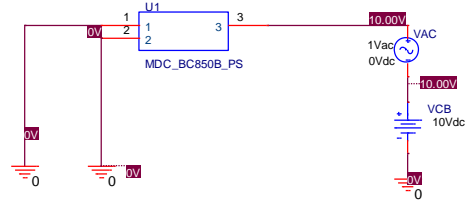
Ce Testbench

CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_C = I_C = 0, V_{eb} = 500 \text{ mV}, f = 1 \text{ MHz}$	-	11	-	pF

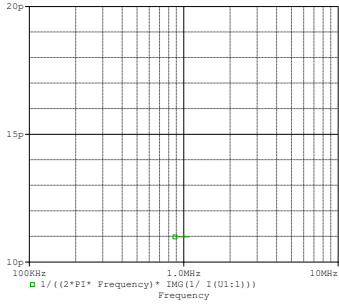


Cc Testbench

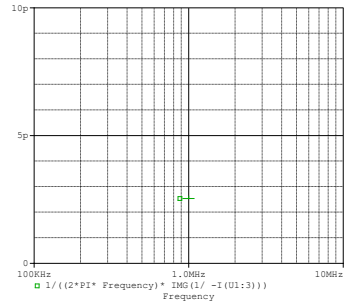
CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_e = I_e = 0, V_{cb} = 10 \text{ V}, f = 1 \text{ MHz}$	-	2.5	-	pF



Ce Data Sheet

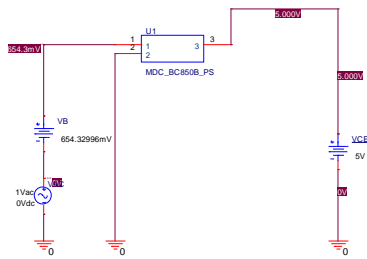


Cc Data sheet

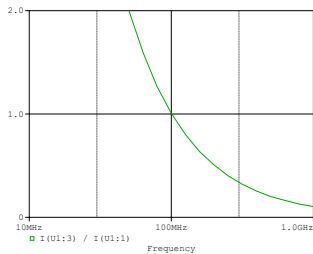


fTic[Vce] Testbench

CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_C = 10 \text{ mA}, V_{ce} = 5 \text{ V}, f = 100 \text{ MHz}$	100	-	-	MHz



fTic[Vce] Data Sheet



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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/>