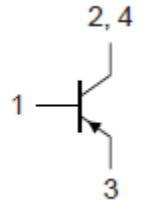
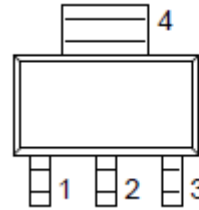


# PSpice Model

## PNP

### Nexperia

### BCP51



### Model Information

<b>Model</b>	Gummel-Poon model		
<b>Call Name</b>	MDC_BCP51_PS		
<b>Pin Assign</b>	1:B 2:C 3:E 4:C		
<b>File List</b>	Model Library	MDC_BCP51_PS01.lib	
	Model Report	MDC_BCP51_PS.pdf (this file)	
<b>Verified Simulator Version</b>	PSpice version 17.2		
<b>Note</b>			

### References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version Rev. 9 - 13 October 2011
- Product name BCP51
- Company name Nexperia B.V.
- Characteristics  $hFEIc[Temp]$ ,  $IcVce[ib]$ ,  $Vbelc[Temp]$ ,  $Vce(sat)Ic[Temp]$ ,  $CobVcb$ ,  $fT Ic[Vce]$

### 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	-45	V
Collector current (DC)	0	to	-1	A
Temperature	-65	to	150	deg C

**BJT**

○ : Implemented  
 × : Not Implemented  
 — : Not applicable

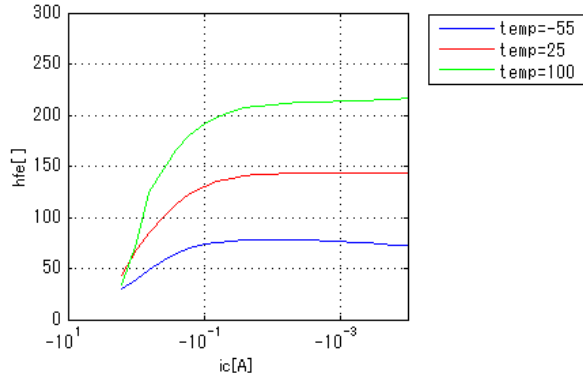
**Model Functions Table**
**RANK=1**

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

Simulation results are following.  
 Explanatory notes — : simulated

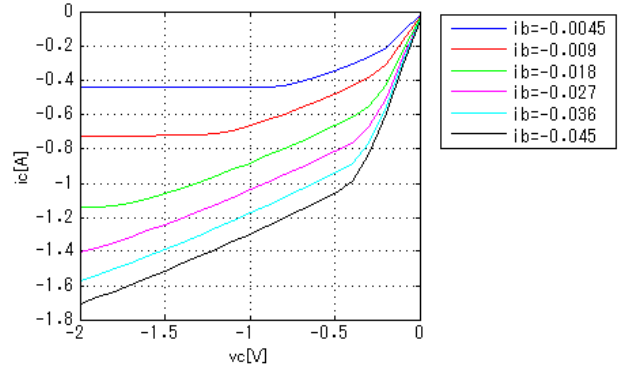
**hFEIc[Temp]**

Vce = -2V



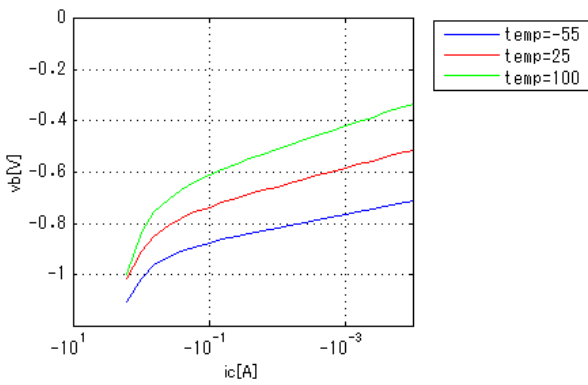
**IcVce[ib]**

Temp = 25degC



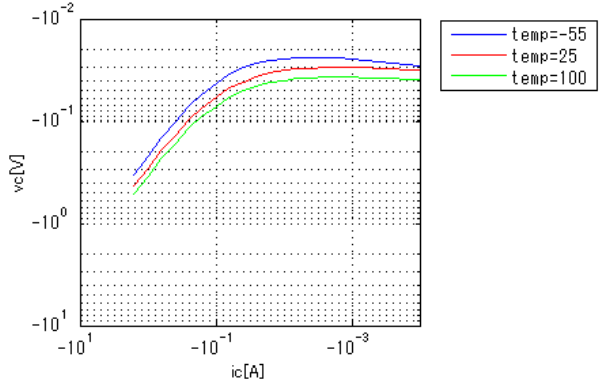
**Vbelc[Temp]**

Vce = -2V



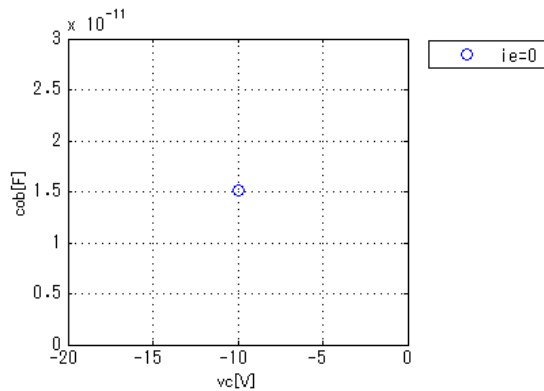
**Vce(sat)Ic[Temp]**

IC/IB = 10



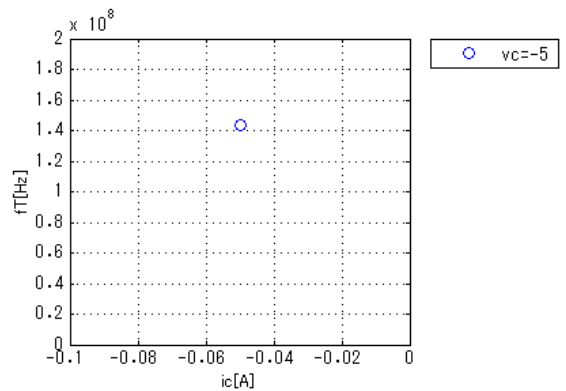
**CobVcb**

Freq = 1000000Hz



**fTIC[Vce]**

Freq = 100000000Hz



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