

# PSpice Model

## NPN

## RENESAS

## 2SD1582



### Model Information

**Model** Mextram model  
**Call Name** MDC\_2SD1582\_PS  
**Pin Assign** 1:C 2:B 3:E  
**File List** Model Library MDC\_2SD1582\_PS01.lib  
 Model Report MDC\_2SD1582\_PS.pdf (this file)

**Verified Simulator Version** PSpice version 16.6  
**Note**

### References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version April 2002
- Product name 2SD1582
- Company name Renesas Electronics Corporation
- Characteristics  $I_{cV_{ce}}[I_b], h_{FE}I_{c[V_{ce}]}, h_{FE}I_{c[Temp]}, I_{cV_{be}}[Temp], V_{be(sat)}I_{c[Temp]}, V_{ce(sat)}I_{c[h_{FE}]}, f_{T}I_{c[V_{ce}]}, C_{ob}$

### Simulation Range

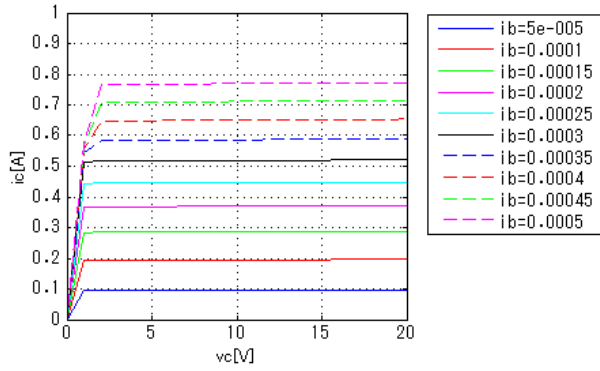
This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

Item	Range			Unit
	Min.		Max.	
Collector-emitter voltage (DC)	0	to	50	V
Base current (DC)	0	to	0.05	A
Temperature	-50	to	150	deg C

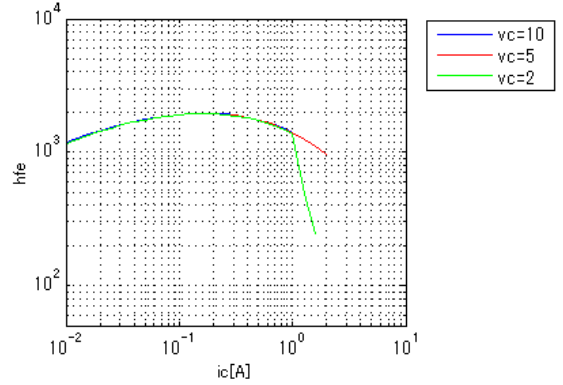
Simulation results are following.  
 Explanatory notes — : simulated

**IcVce[ib]**

Temp. = 25deg C

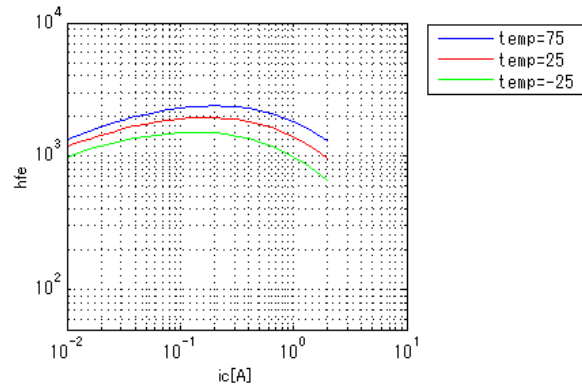


**hFEIc[Vce]**



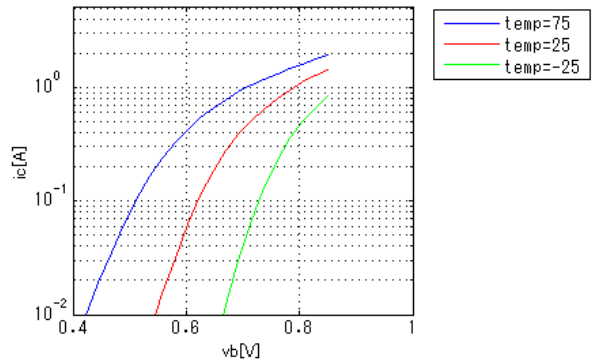
**hFEIc[Temp]**

Vce = 5V



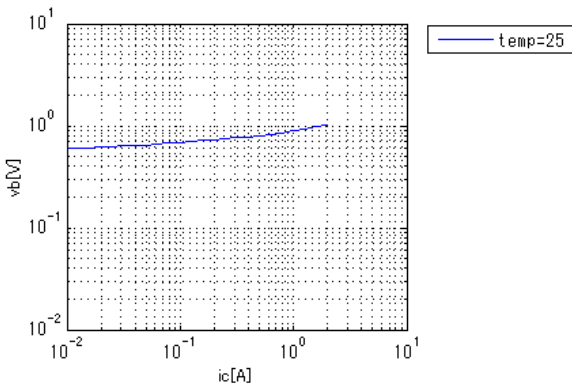
**IcVbe[Temp]**

Vce = 5V

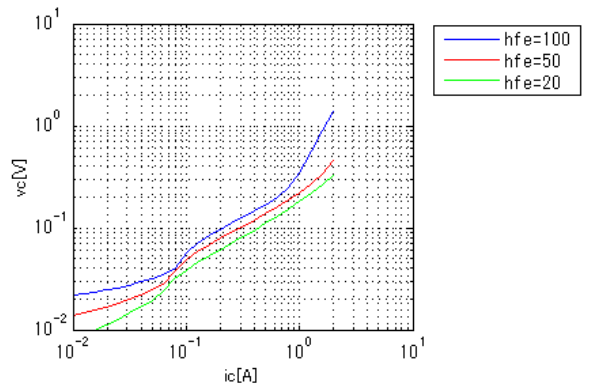


**Vbe(sat)Ic[Temp]**

IC/IB = 20

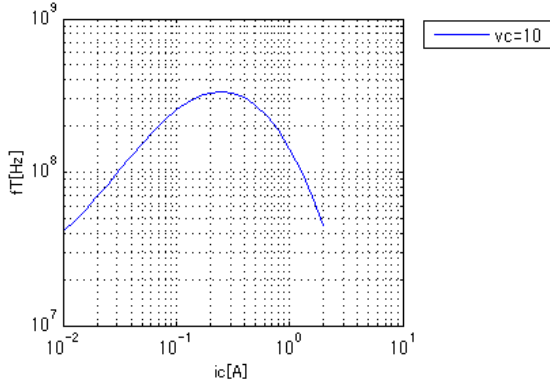


**Vce(sat)Ic[hFE]**



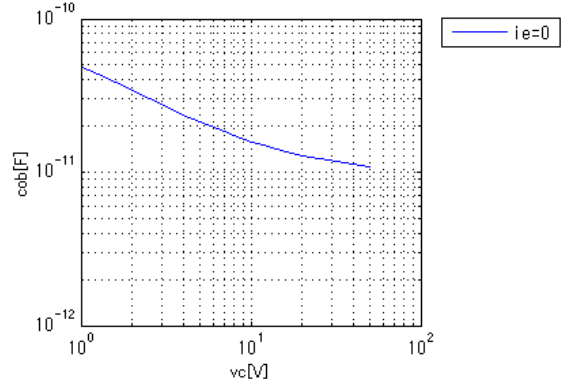
Simulation results are following.  
 Explanatory notes — : simulated

**fT<sub>lc</sub>[Vce]**



**Cob**

Freq. = 1MHz



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