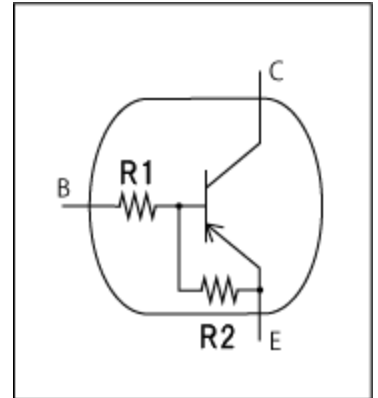


# PSpice Model

## BRT (Bias Resistor Transistor)

### Isahaya

### RT1N141M



### Model Information

**Model** A macro model based on Gummel-Poon model  
**Call Name** MDC\_RT1N141M\_PS  
**Pin Assign** 1:B 2:E 3:C  
**File List** Model Library MDC\_RT1N141M\_PS02.lib  
 Model Report MDC\_RT1N141M\_PS.pdf (this file)

**Verified Simulator Version** PSpice version 17.2  
**Note**

### References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 2016/11
- Product name RT1N141M
- Company name Isahaya Electronics Corporation
- Characteristics  $hFEIc[Temp]$ ,  $VionIc[Temp]$ ,  $IcVioff[Temp]$ ,  $Vce(sat)Ic[Temp]$ ,  $fTle[Vce]$

### 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	50	V
R1	10,000	to	10,000	ohm
R2	10,000	to	10,000	ohm
Temperature	-55	to	150	deg C

**BRT**

○ : Implemented  
 × : Not Implemented  
 — : Not applicable

**Model Functions Table**

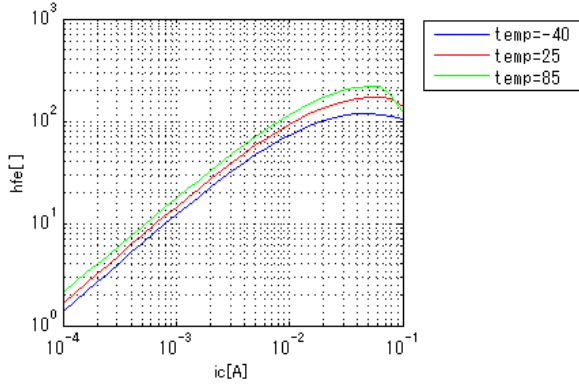
**RANK=1**

Functions	RANK	Implemented
VIN(on)-Iout(Temp)	1	○
Iout-VIN(off)(Temp)	1	○
hFE-Ic(Temp)	1	○
Vce(sat)-Ic(Temp)	1	○
Capacitance	1	—
Transition Frequency	1	○
Switching(Typ.)	1	—

Simulation results are following.  
 Explanatory notes — : simulated

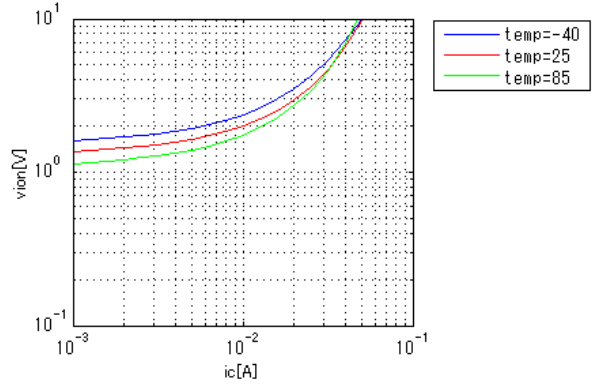
**hFEIc[Temp]**

Vce = 5V



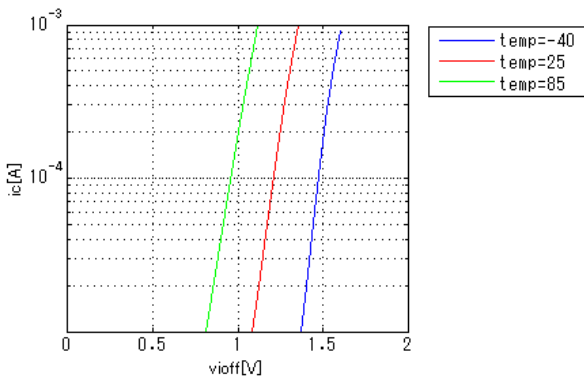
**VionIc[Temp]**

Vce = 0.2V



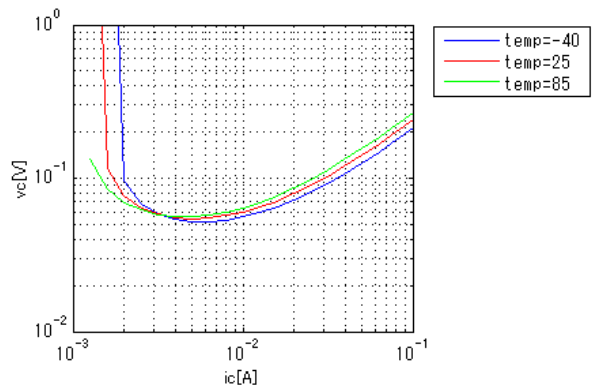
**IcVioff[Temp]**

Vce = 5V



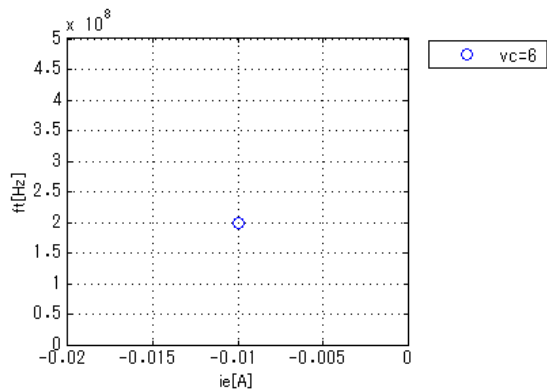
**Vce(sat)Ic[Temp]**

IC/IB = 20



**fTle[Vce]**

Freq = 20000000Hz



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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](mailto:model-on-support@modech.co.jp)

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