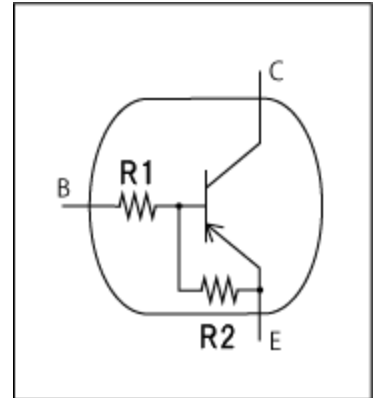


# ADS Model BRT (Bias Resistor Transistor) Isahaya RT1N141M



## Model Information

**Model** A macro model based on Gummel-Poon model  
**Call Name** MDC\_RT1N141M\_AD  
**Pin Assign** 1:B 2:E 3:C  
**File List** Model Library MDC\_RT1N141M\_AD01.lib  
 Model Report MDC\_RT1N141M\_AD.pdf (this file)

**Verified Simulator Version** ADS version 2016  
**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  $hFEI_c[Temp]$ ,  $V_{ionI_c}[Temp]$ ,  $I_{cVioff}[Temp]$ ,  $V_{ce(sat)I_c}[Temp]$ ,  $f_{Tle}[V_{ce}]$

## 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
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**

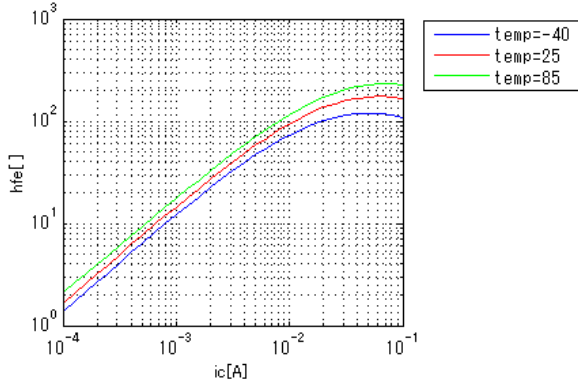
**RANK=1**

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

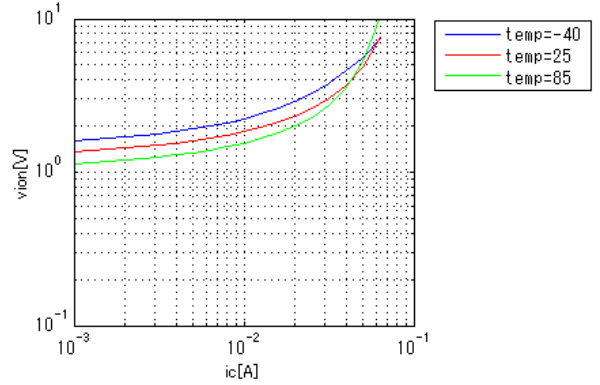
**hFEIc[Temp]**

Vce = 5V



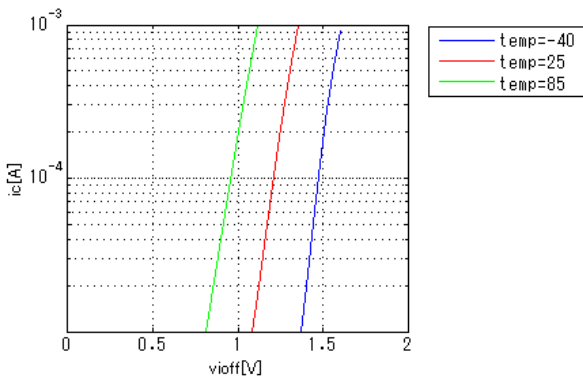
**VionIc[Temp]**

Vce = 0.2V



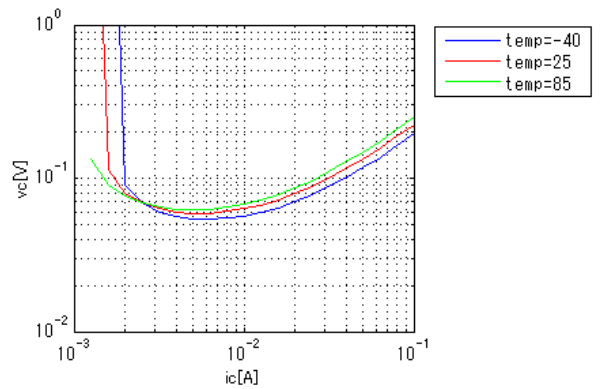
**IcVioff[Temp]**

Vce = 5V



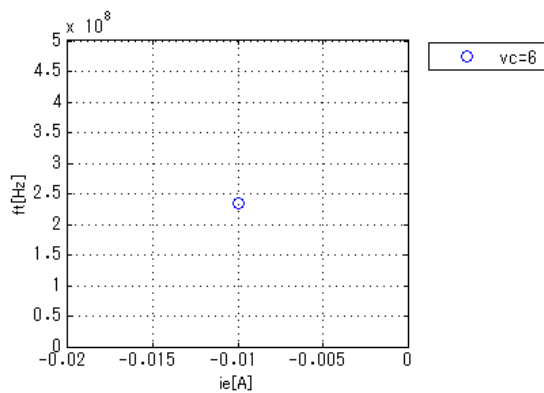
**Vce(sat)Ic[Temp]**

IC/IB = 20



**fTle[Vce]**

Freq = 200000000Hz



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