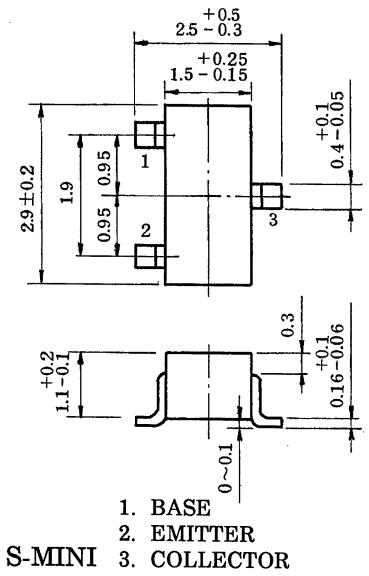
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1441,RN1442,RN1443,RN1444

Muting And Switching Applications

- High emitter-base voltage: V_{EBO} = 25V (min)
- High reverse h_{FE}: reverse h_{FE} = 150 (typ.) (V_{CE} = −2V, I_C = −4mA)
- Low on resistance: R_{ON} = 1Ω (typ.) (I_B = 5mA)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

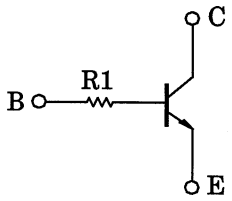
Unit in mm



JEDEC	TO-236MOD
EIAJ	SC-59
TOSHIBA	2-3F1A

Weight: 0.012g

Equivalent Circuit



Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	25	V
Collector current	I_C	300	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55~150	°C

Marking

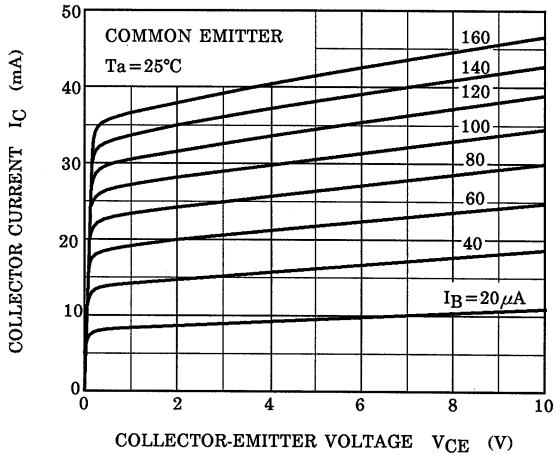
Type No.	H_{FE} classification	
	A	B
RN1441	KA	KB
RN1442	LA	LB
RN1443	NA	NB
RN1444	CA	CB

Electrical Characteristics (Ta = 25°C)

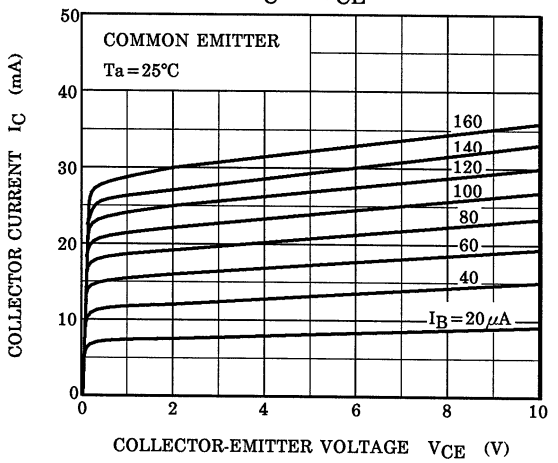
Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	—	V_{CB} = 50V, I_E = 0	—	—	0.1	μA
Emitter cut-off current		I_{EBO}	—	V_{EB} = 25V, I_C = 0	—	—	0.1	μA
DC current gain		$h_{FE\ (Note)}$	—	V_{CE} = 2V, I_C = 4mA	200	—	1200	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	—	I_C = 30mA, I_B = 3mA	—	—	0.1	V
Transition frequency		f_T	—	V_{CE} = 6V, I_C = 4mA	—	30	—	MHz
Collector output capacitance		C_{ob}	—	V_{CB} = 10V, I_E = 0, f = 1MHz	—	4.8	—	pF
Input resistor	RN1441	R1	—	—	3.9	5.6	7.3	kΩ
	RN1442				7	10	13	
	RN1443				15.4	22	28.6	
	RN1444				1.54	2.2	2.86	

Note : h_{FE} classification A: 200~700 B: 350~1200

RN1441 $I_C - V_{CE}$



RN1444 $I_C - V_{CE}$



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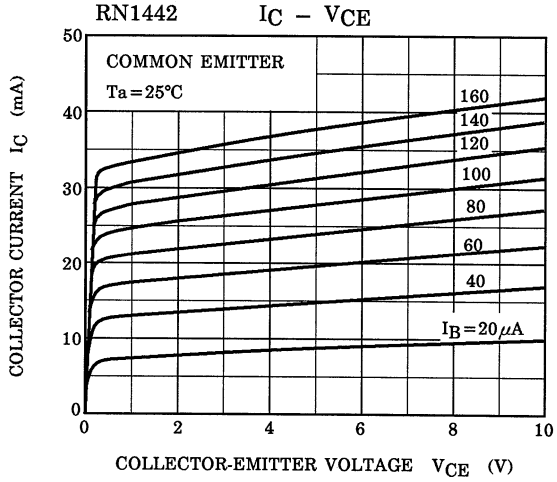
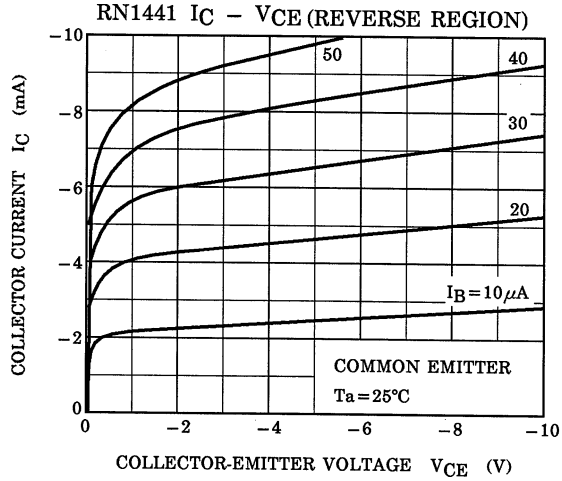


RN1441 $I_C - V_{CE}$ (REVERSE REGION)



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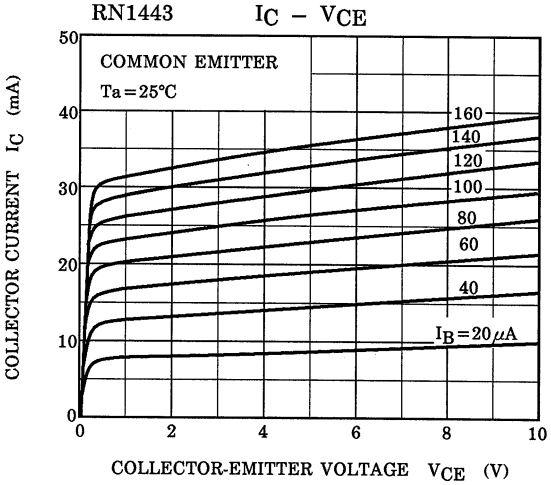

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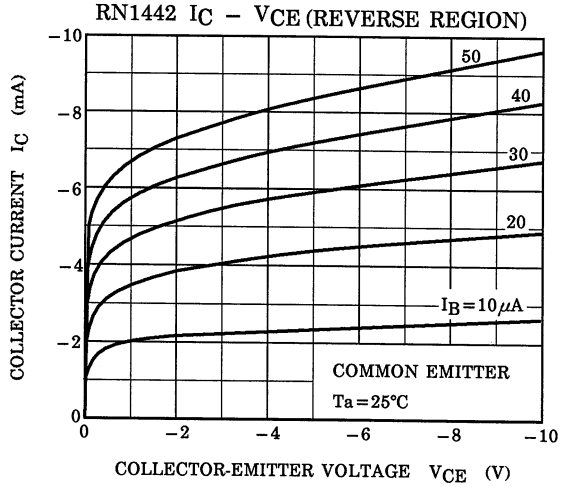

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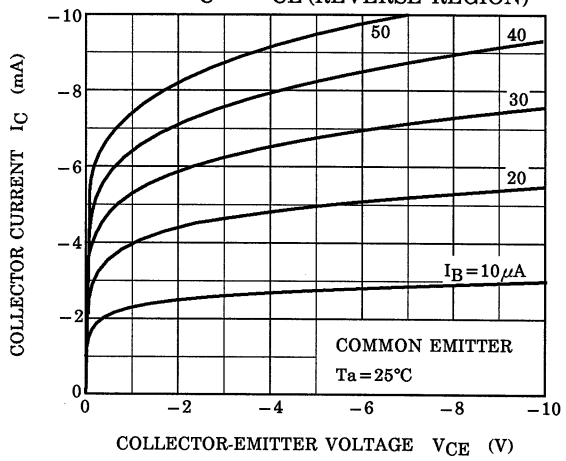
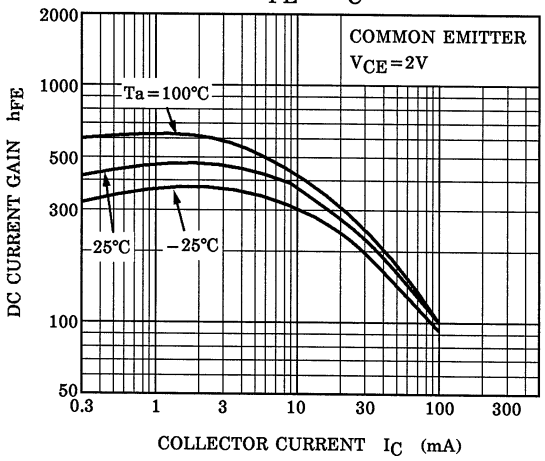


RN1442 h_{FE} – I_C



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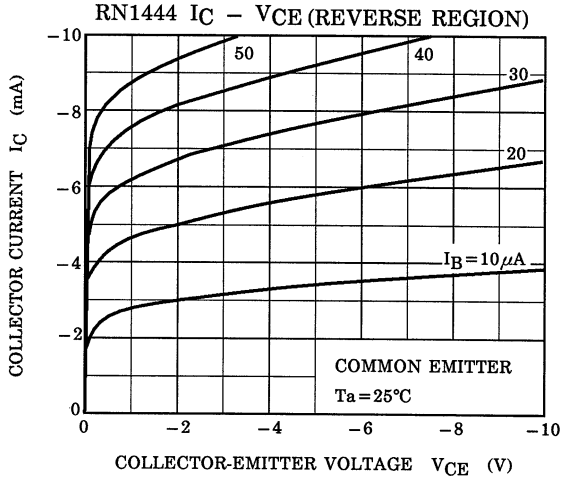

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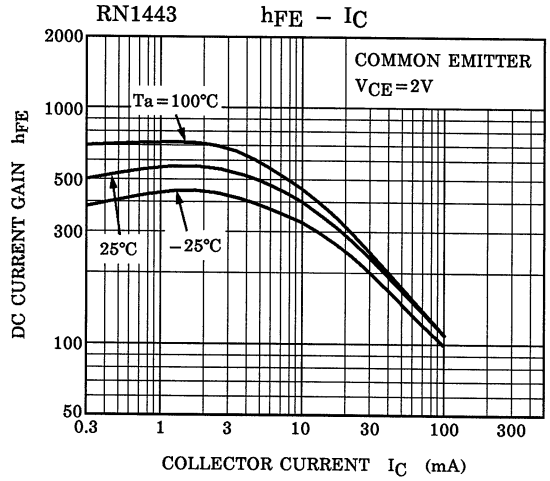

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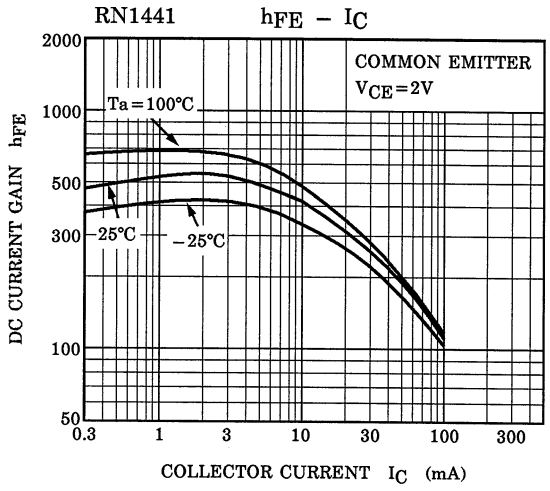
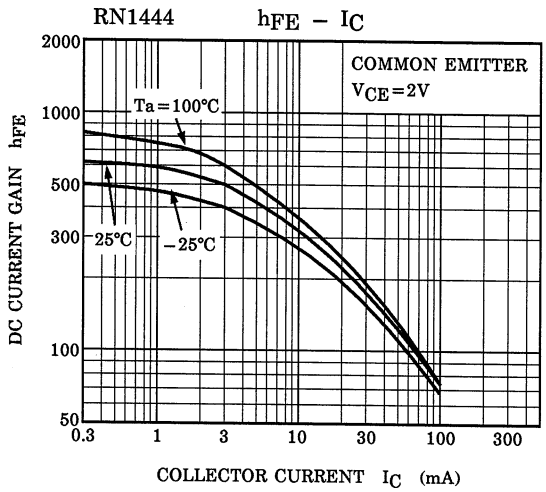
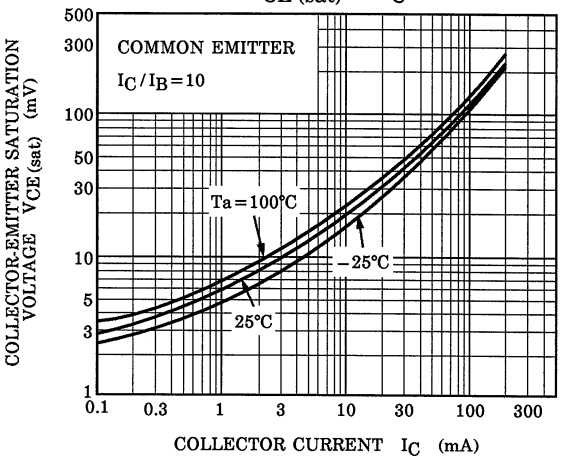


RN1444 h_{FE} – I_C



RN1441 $V_{CE\,(sat)}$ – I_C



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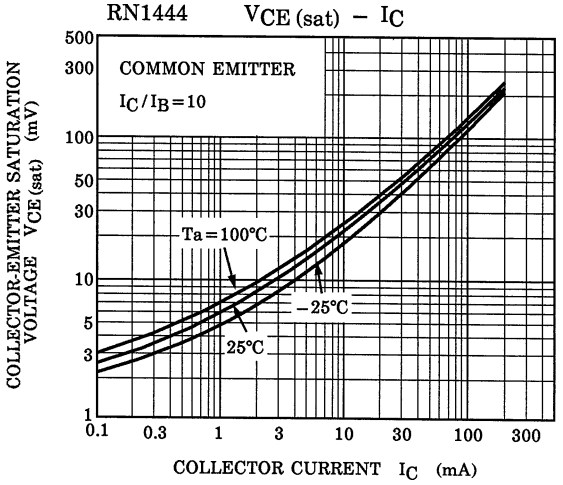

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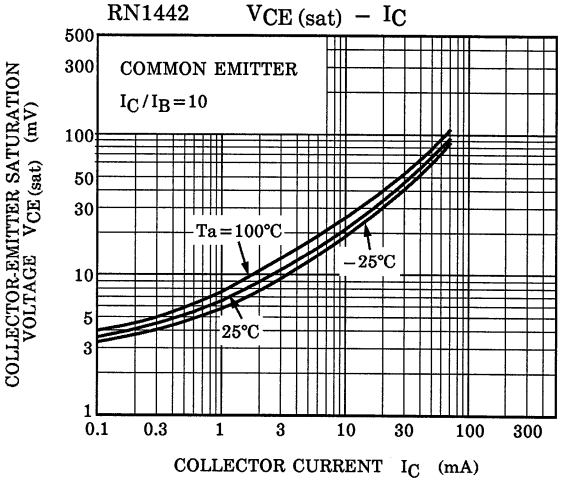

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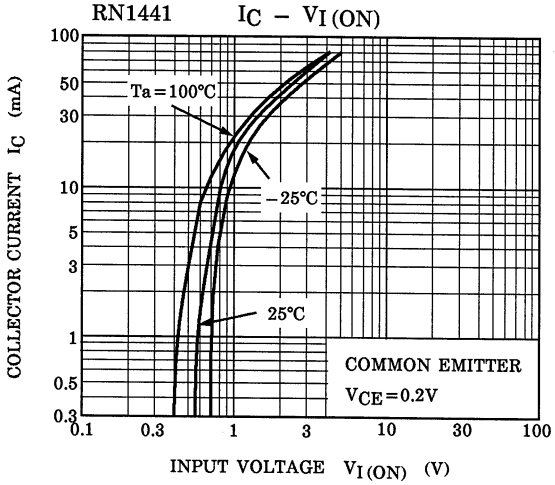
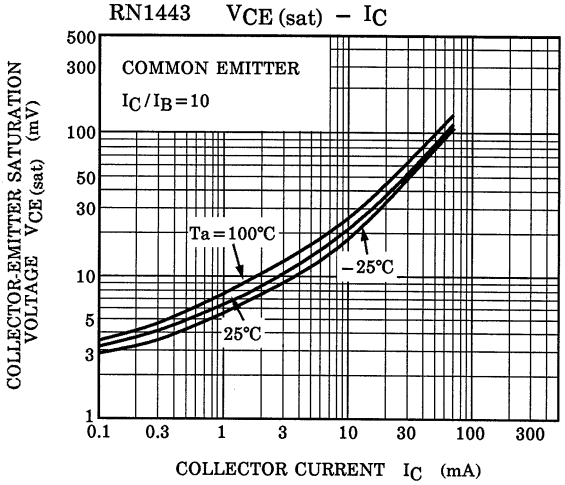


RN1443 $V_{CE\,(sat)}$ – I_C



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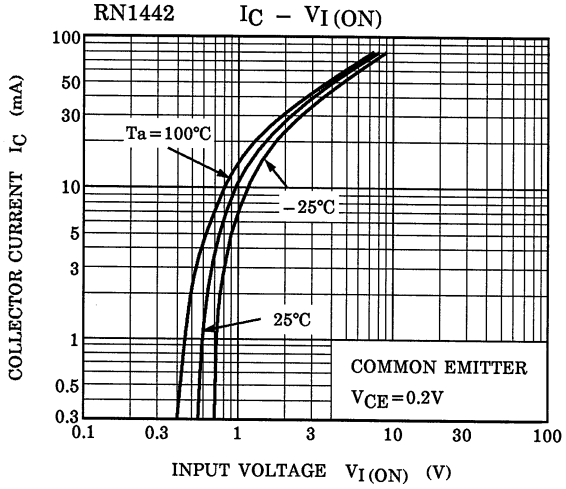

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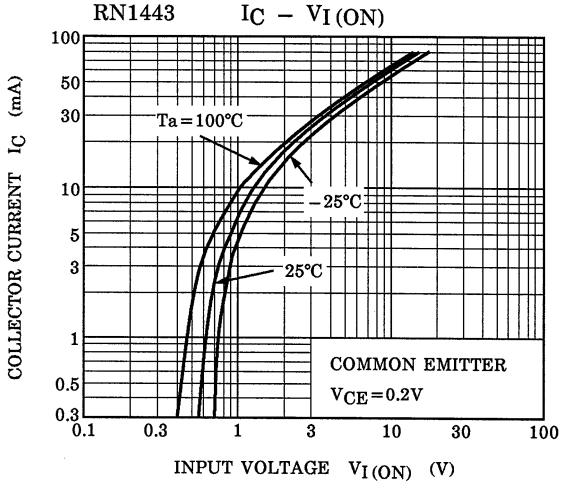

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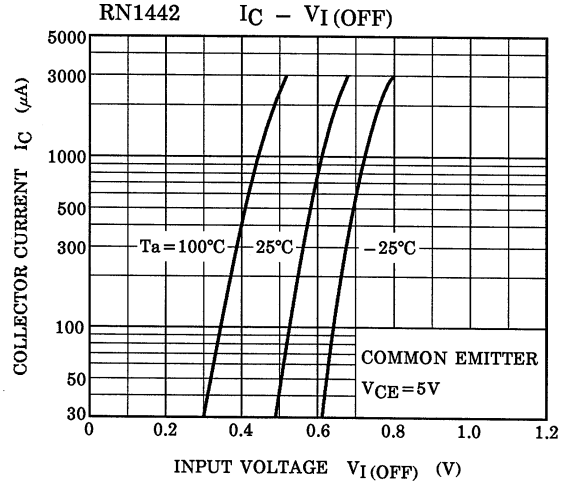

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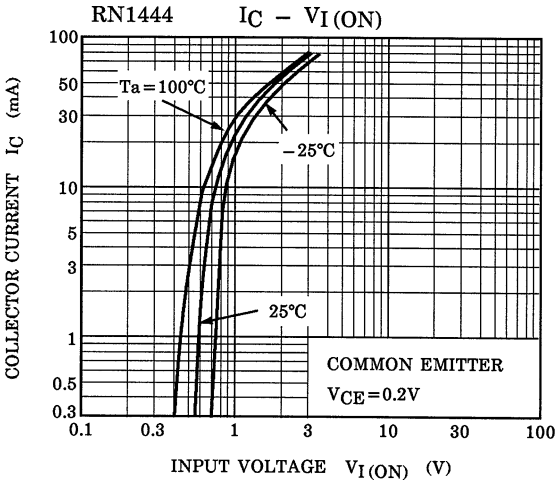

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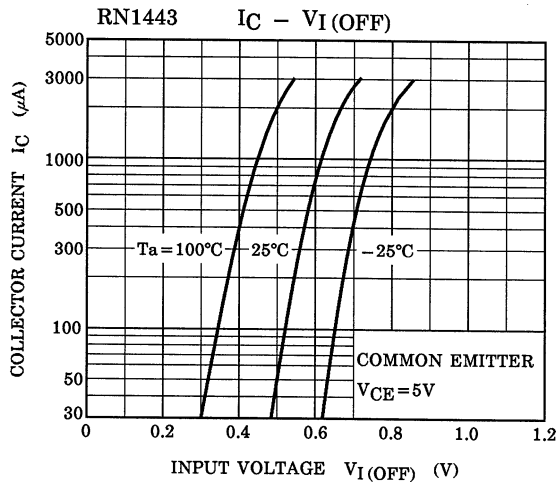

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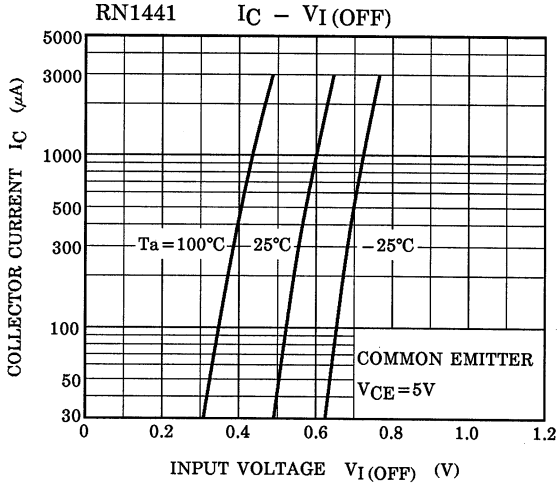

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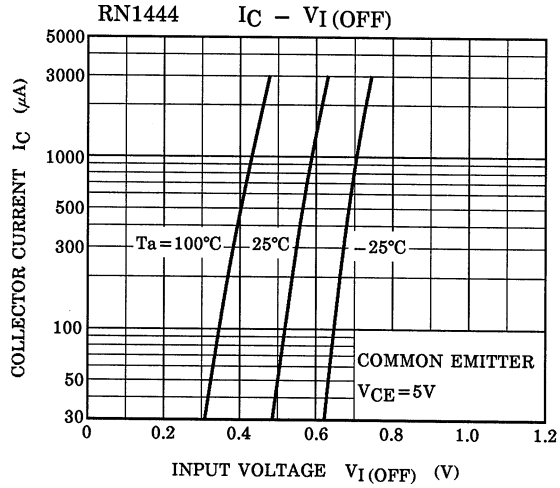

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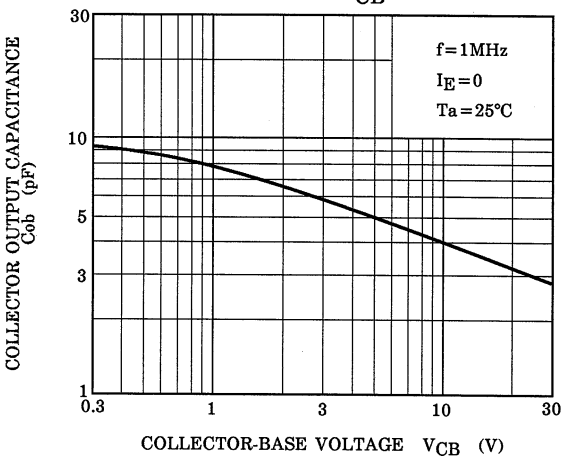

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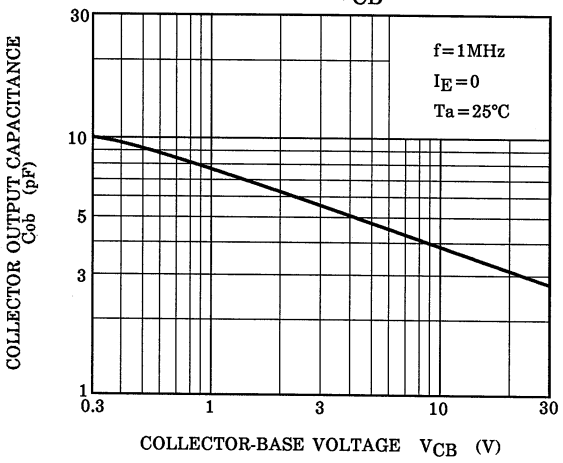

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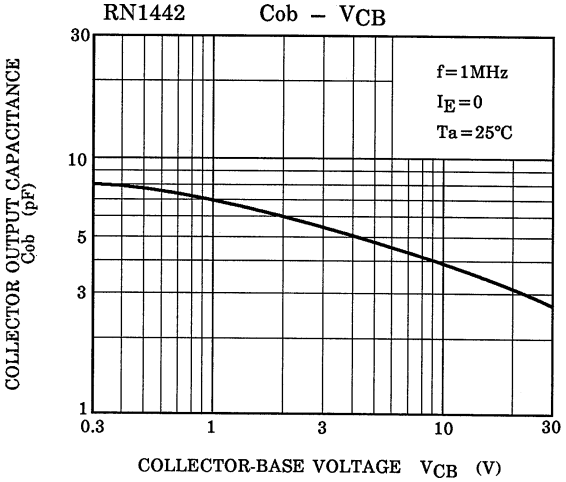

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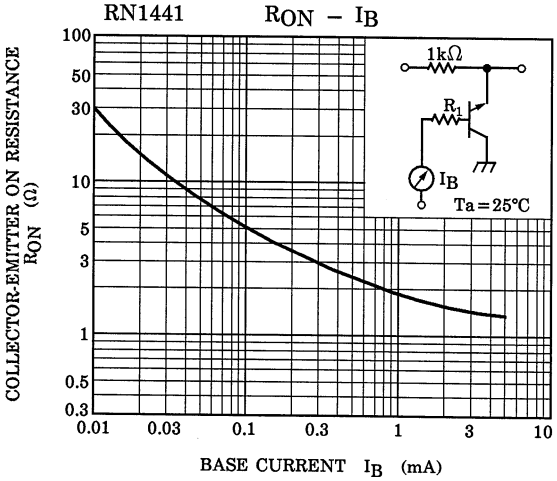

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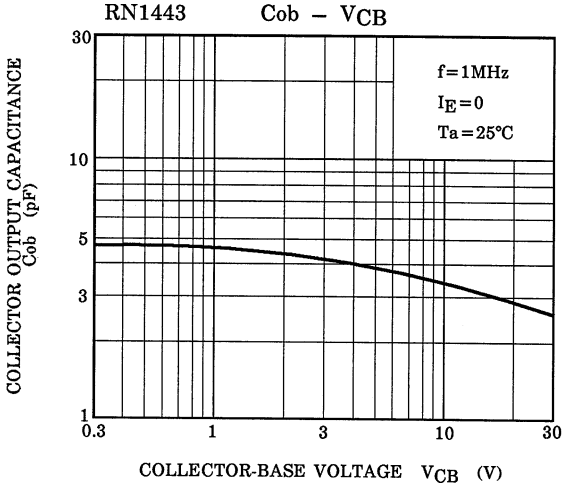

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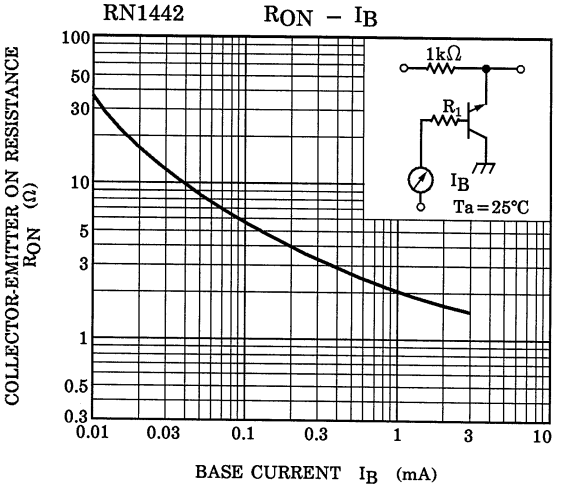

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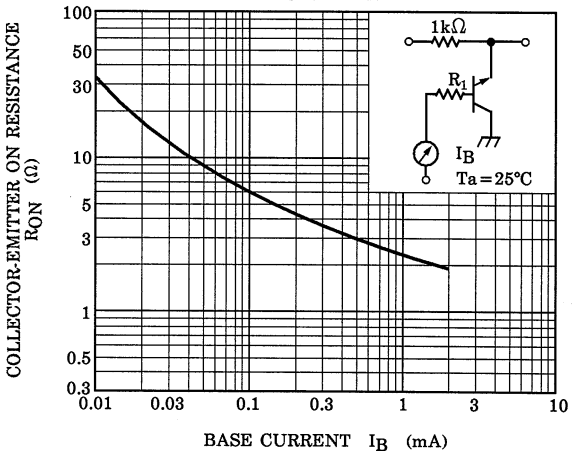

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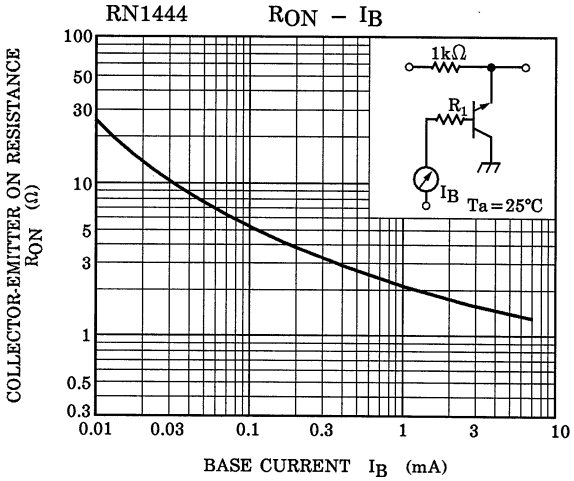
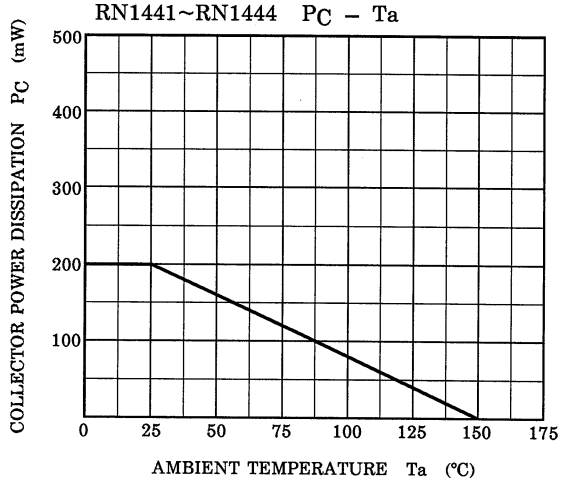


RN1441~RN1444 P_C – Ta



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