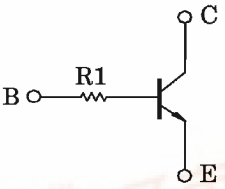
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

RN1441, RN1442, RN1443, RN1444

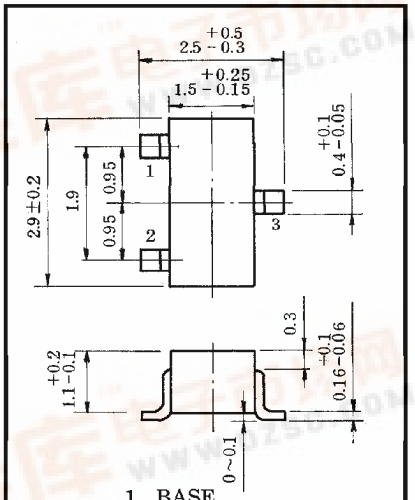
MUTING AND SWITCHING APPLICATIONS

- 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

EQUIVALENT CIRCUIT



Unit in mm



1. BASE
2. EMITTER
3. COLLECTOR

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

Weight : 0.012g

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 NAME	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 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

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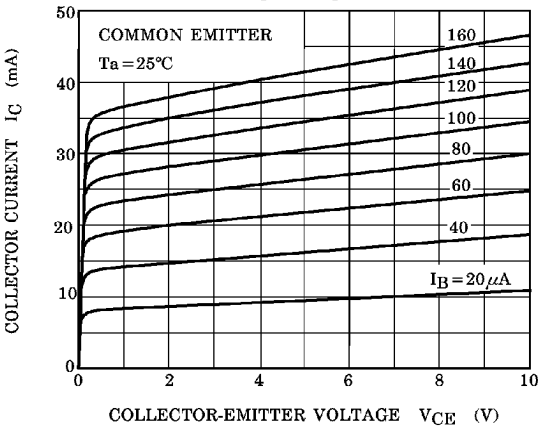
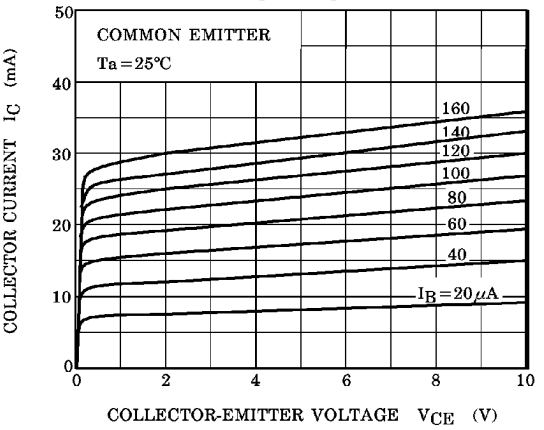
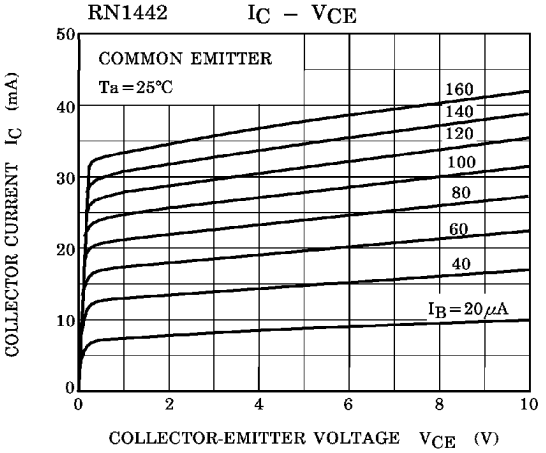
RN1441 I_C – V_{CE}



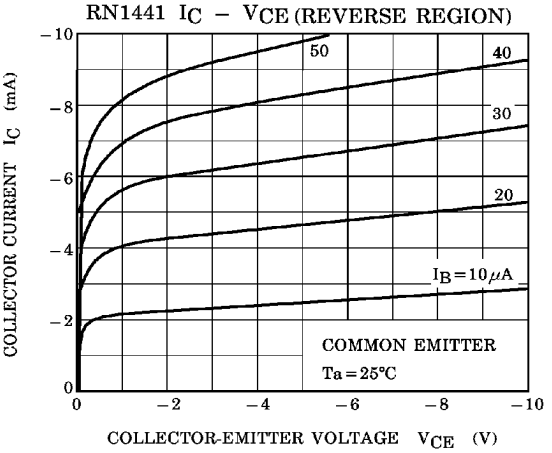
RN1444 I_C – V_{CE}



RN1442 I_C – V_{CE}



RN1441 I_C – V_{CE} (REVERSE REGION)



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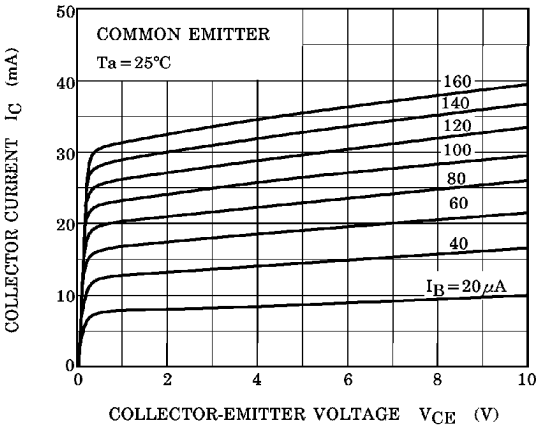

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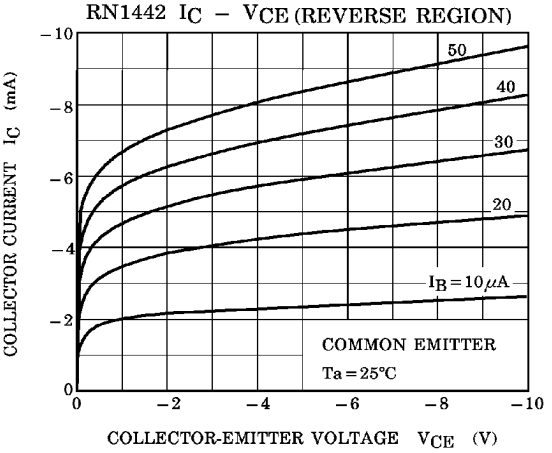

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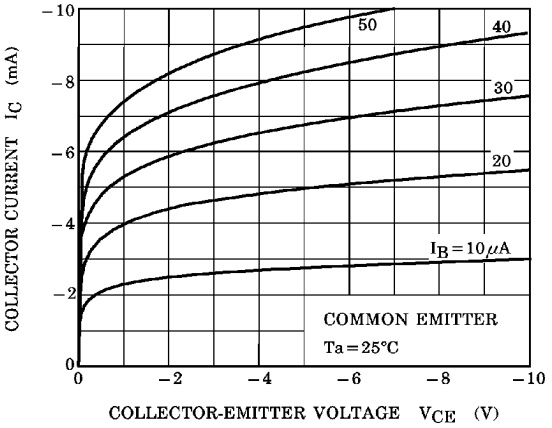
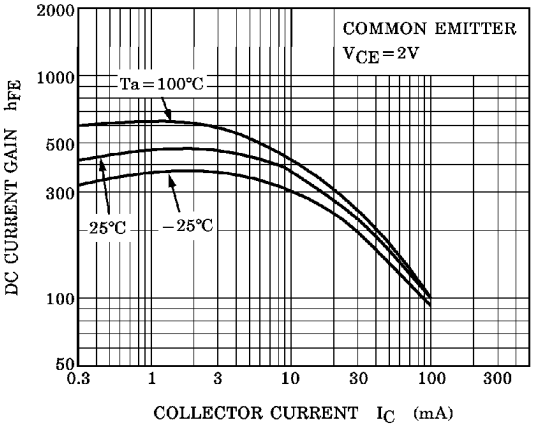


RN1442 h_{FE} – I_C



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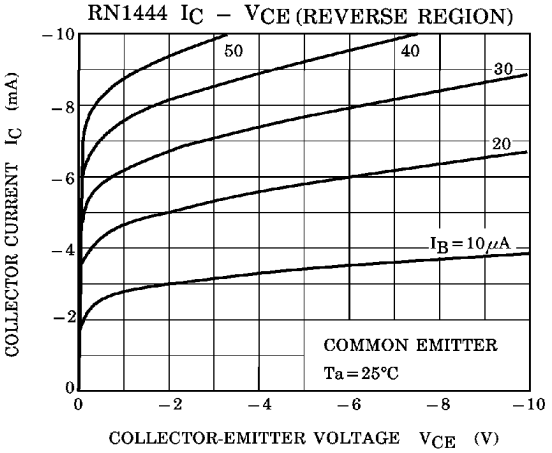

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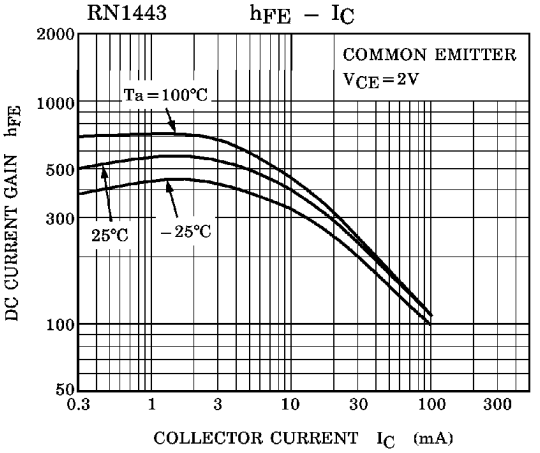
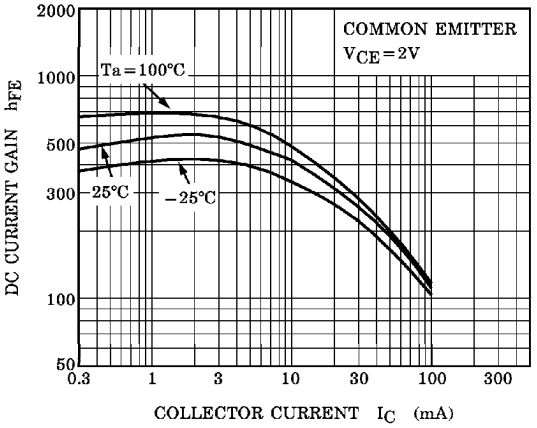
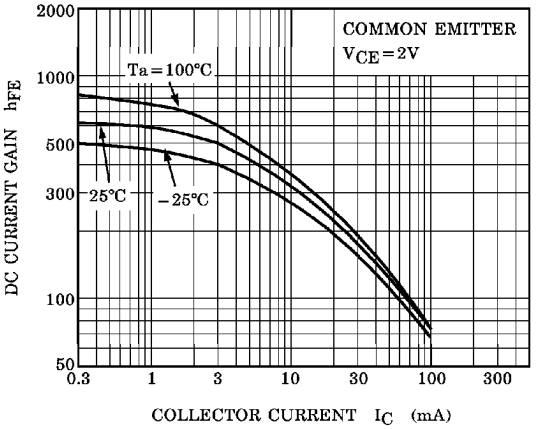


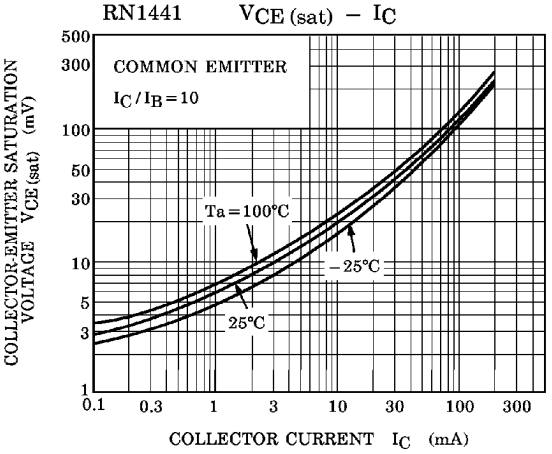
RN1441 h_{FE} – I_C



RN1444 h_{FE} – I_C



RN1441 $V_{CE\,(sat)}$ – I_C



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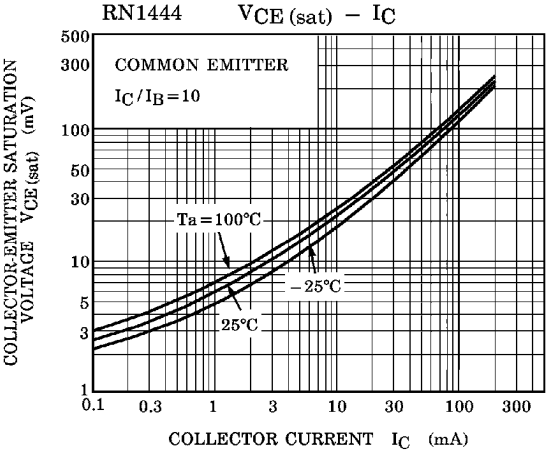

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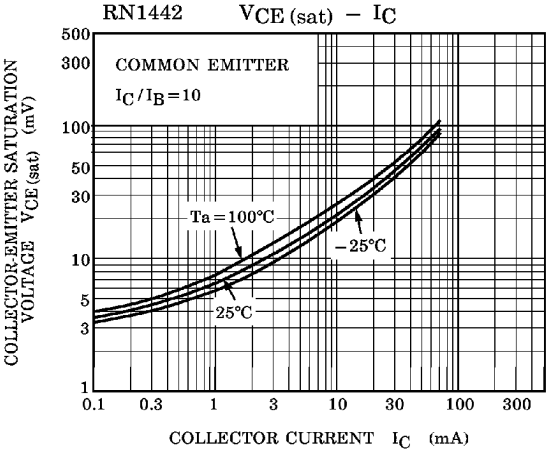
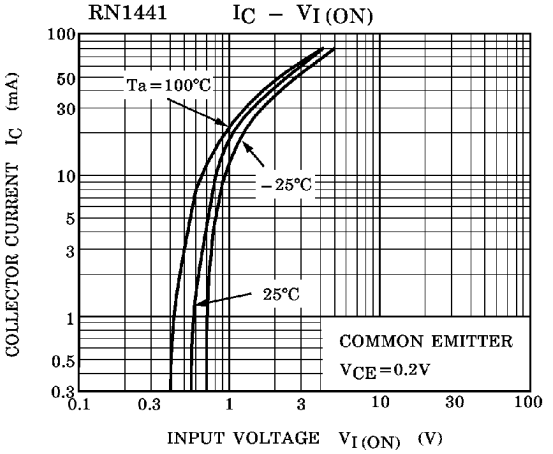
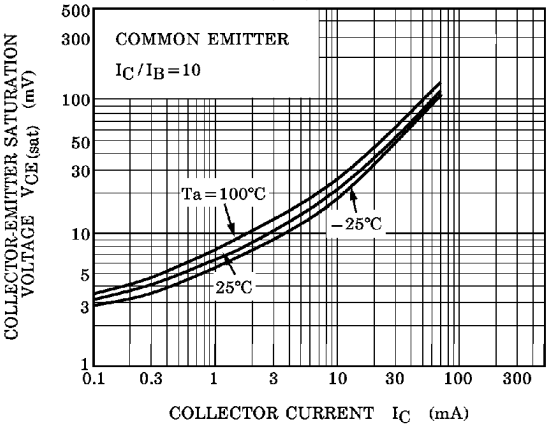


RN1441 I_C – $V_{I\,(ON)}$



RN1443 $V_{CE\,(sat)}$ – I_C



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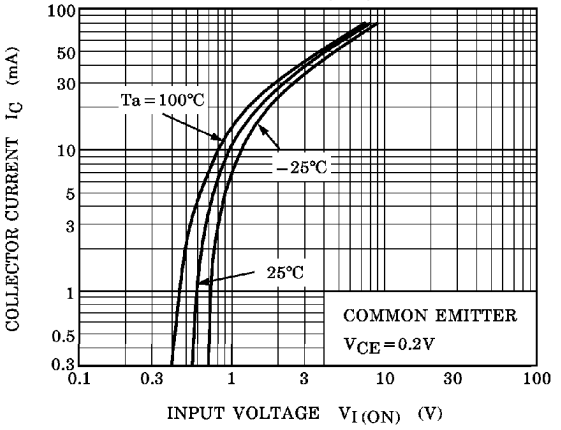

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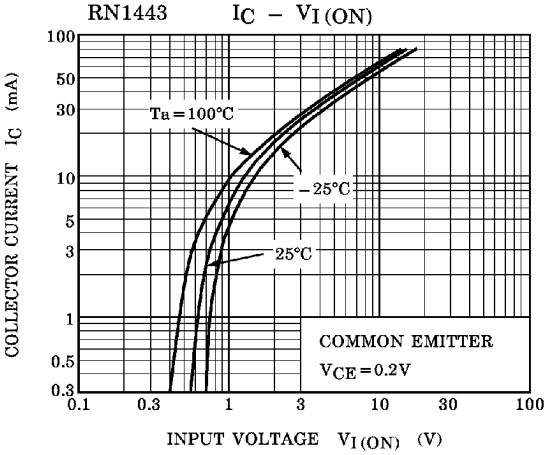

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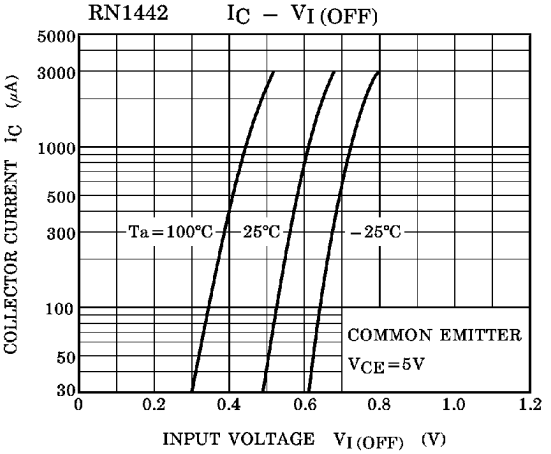

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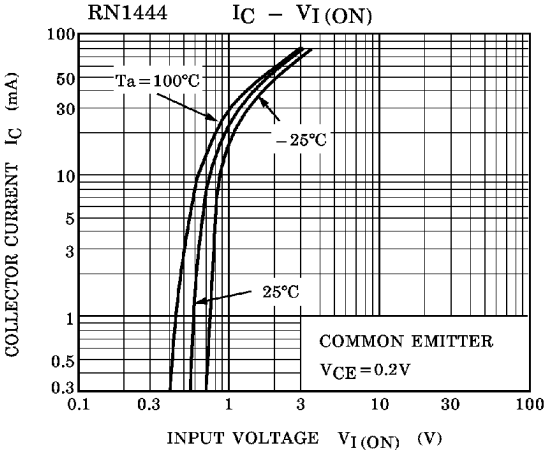
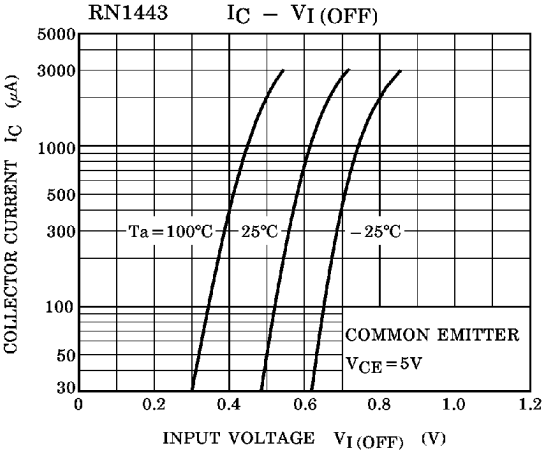


RN1443 I_C – $V_{I(OFF)}$



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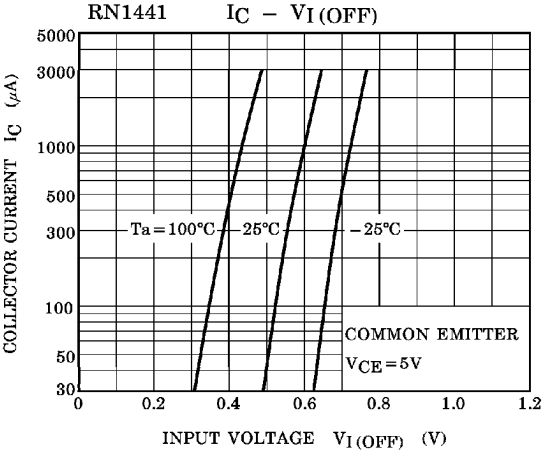

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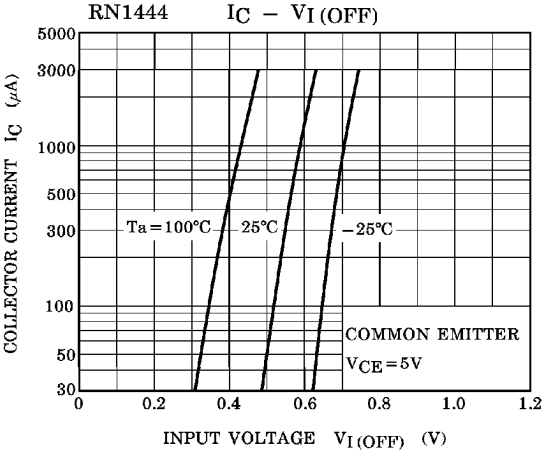
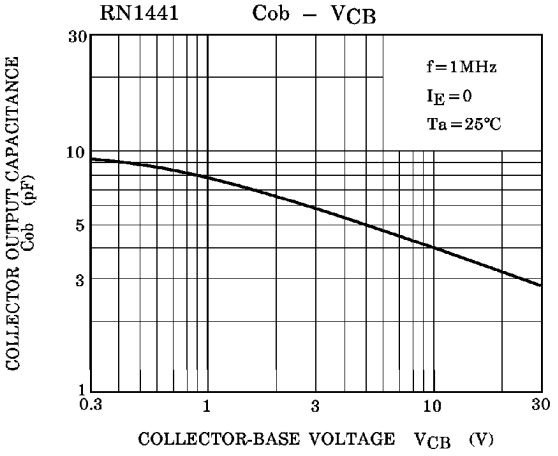
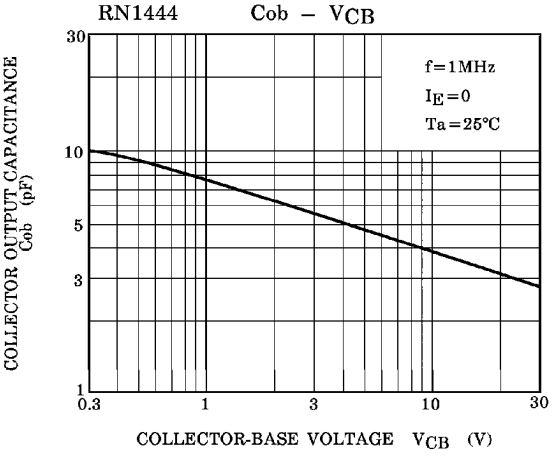


RN1441 Cob – V_{CB}



RN1444 Cob – V_{CB}



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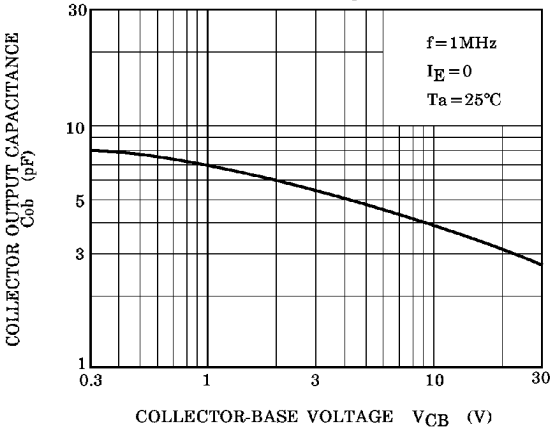

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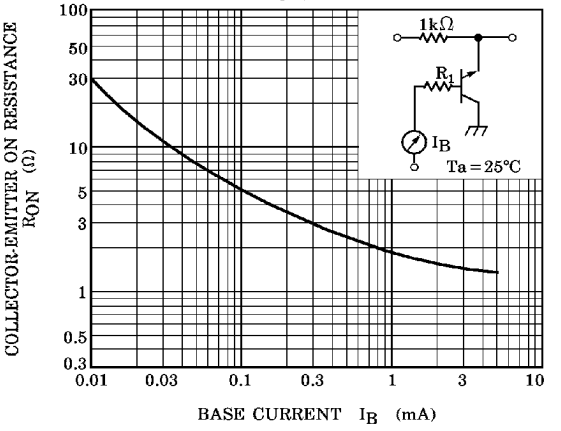

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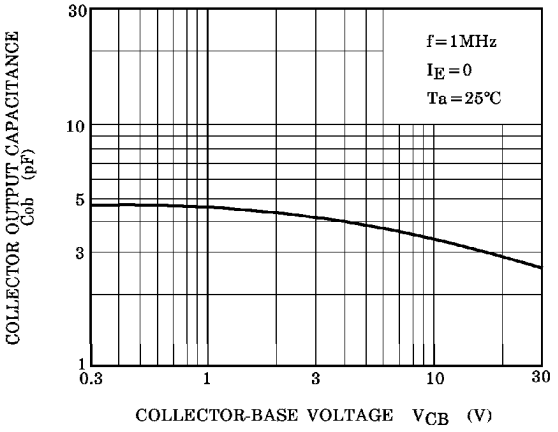

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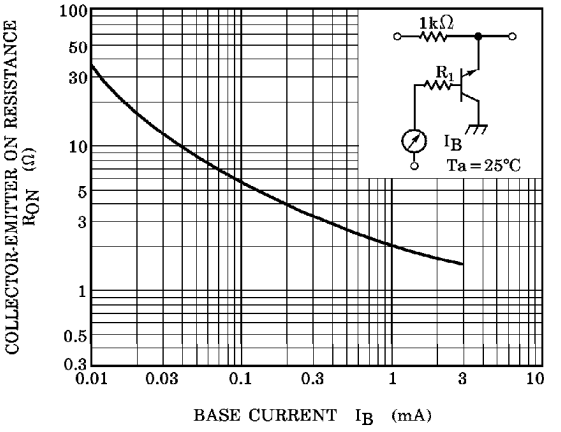

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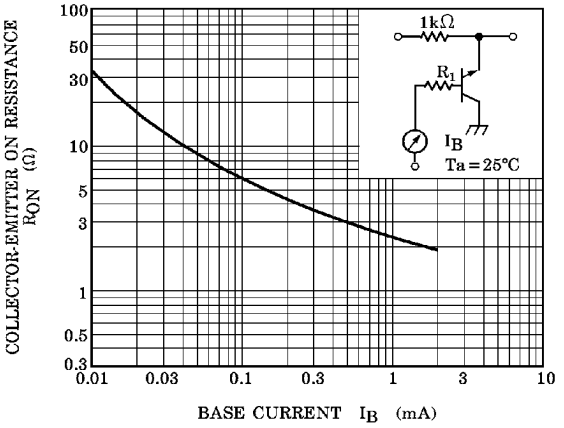

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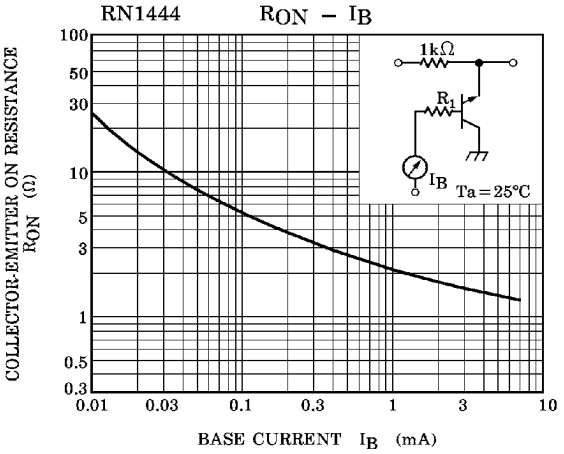

RN1441~RN1444 P_C – Ta