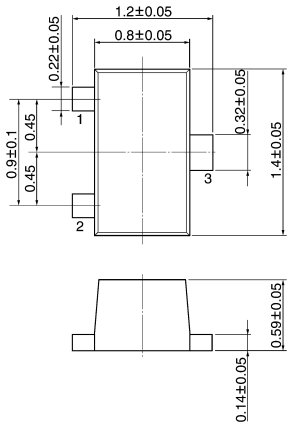
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

RN1114FT, RN1115FT, RN1116FT, RN1117FT, RN1118FT

Switching, Inverter Circuit, Interface Circuit
and Driver Circuit Applications

- Built-in bias resistors
- Enabling simplified circuit design
- Enabling reduction in the quantity of parts and manufacturing process
- Complementary to the RN2114FT~2118FT

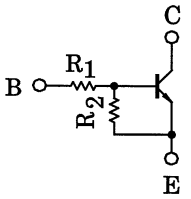
Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-1B1A

Weight: 0.0022 g (typ.)

Equivalent Circuit and Bias Resistor Values



Type No.	R_1 (kΩ)	R_2 (kΩ)
RN1114FT	1	10
RN1115FT	2.2	10
RN1116FT	4.7	10
RN1117FT	10	4.7
RN1118FT	47	10

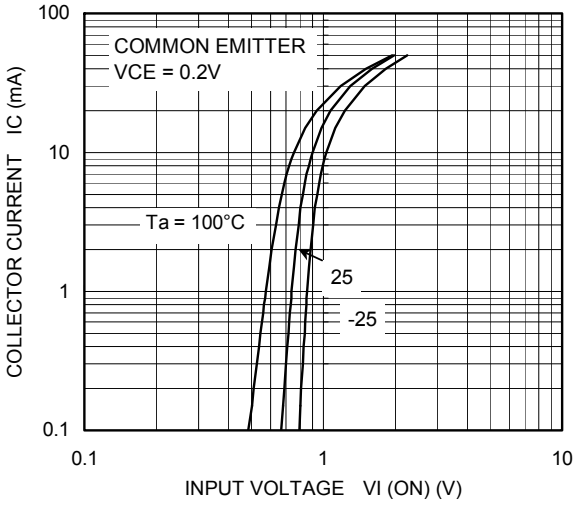
Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN1114FT~1118FT	V_{CBO}	50	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage	RN1114FT	V_{EBO}	5	V
	RN1115FT		6	
	RN1116FT		7	
	RN1117FT		15	
	RN1118FT		25	
Collector current	RN1114FT~1118FT	I_c	100	mA
Collector power dissipation		P_c	100	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55~150	°C

Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	RN1114FT~1118FT	I_{CBO}	—	V_{CB} = 50 V, I_E = 0	—	—	100	nA
	RN1114FT~1118FT	I_{CEO}	—	V_{CE} = 50 V, I_B = 0	—	—	500	nA
Emitter cutoff current	RN1114FT	I_{EBO}	—	V_{EB} = 5 V, I_C = 0	0.35	—	0.65	mA
	RN1115FT		—	V_{EB} = 6 V, I_C = 0	0.37	—	0.71	
	RN1116FT		—	V_{EB} = 7 V, I_C = 0	0.36	—	0.68	
	RN1117FT		—	V_{EB} = 15 V, I_C = 0	0.78	—	1.46	
	RN1118FT		—	V_{EB} = 25 V, I_C = 0	0.33	—	0.63	
DC current gain	RN1114FT~16FT, 18FT	h_{FE}	—	V_{CE} = 5 V, I_C = 10 mA	50	—	—	—
	RN1117FT		—		30	—	—	
Collector-emitter saturation voltage	RN1114FT~1118FT	$V_{CE\ (sat)}$	—	I_C = 5 mA, I_B = 0.25 mA	—	0.1	0.3	V
Input voltage (ON)	RN1114FT	$V_{I\ (ON)}$	—	V_{CE} = 0.2 V, I_C = 5 mA	0.6	—	2.0	V
	RN1115FT		—		0.7	—	2.5	
	RN1116FT		—		0.8	—	2.5	
	RN1117FT		—		1.5	—	3.5	
	RN1118FT		—		2.5	—	10.0	
Input voltage (OFF)	RN1114FT	$V_{I\ (OFF)}$	—	V_{CE} = 5 V, I_C = 0.1 mA	0.3	—	0.9	V
	RN1115FT		—		0.3	—	1.0	
	RN1116FT		—		0.3	—	1.1	
	RN1117FT		—		0.3	—	2.3	
	RN1118FT		—		0.5	—	5.7	
Translation frequency	RN1114FT~1118FT	f_T	—	V_{CE} = 10 V, I_C = 5 mA	—	250	—	MHz
Collector output capacitance	RN1114FT~1118FT	C_{ob}	—	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	3.0	6.0	pF
Input resistor	RN1114FT	R_1	—	—	0.7	1.0	1.3	kΩ
	RN1115FT		—		1.54	2.2	2.86	
	RN1116FT		—		3.29	4.7	6.11	
	RN1117FT		—		7.0	10.0	13.0	
	RN1118FT		—		32.9	47.0	61.1	
Resistor ratio	RN1114FT	R_1/R_2	—	—	—	0.1	—	—
	RN1115FT		—		—	0.22	—	
	RN1116FT		—		—	0.47	—	
	RN1117FT		—		—	2.13	—	
	RN1118FT		—		—	4.7	—	

RN1114FT IC - VI (ON)



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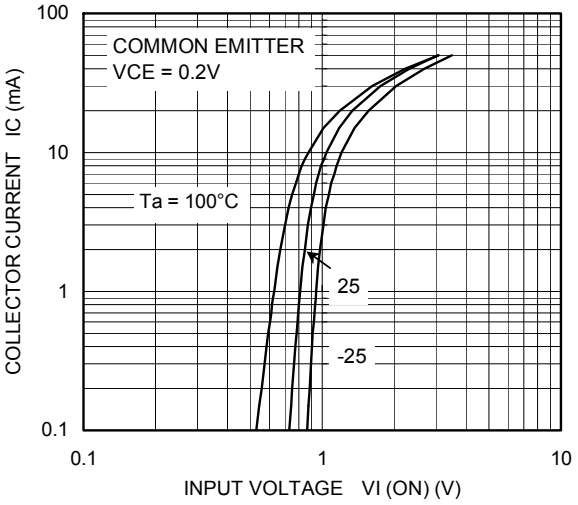

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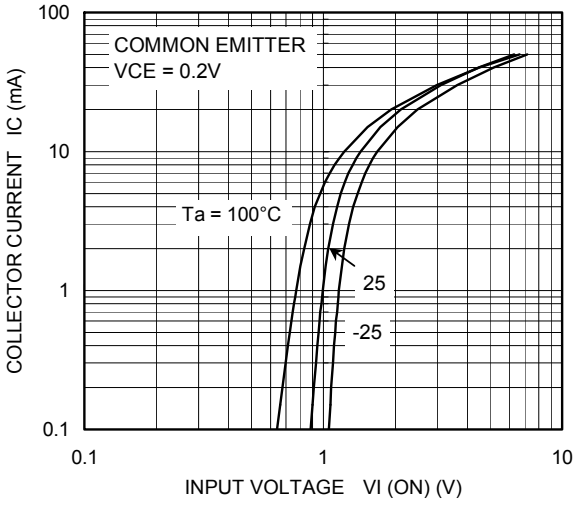

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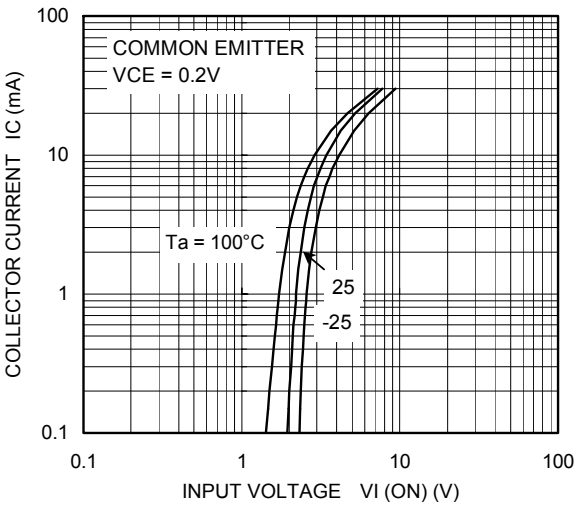

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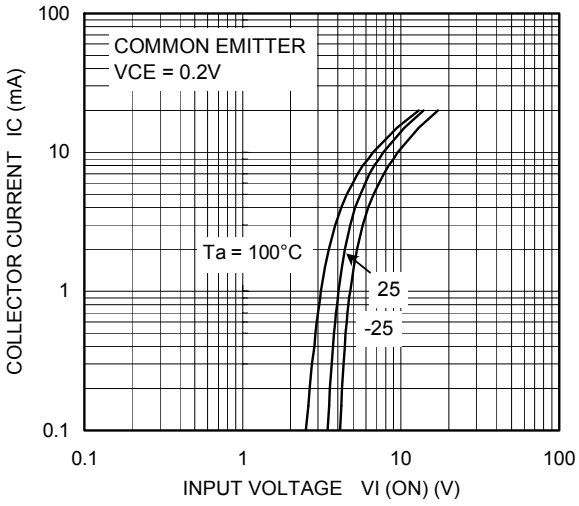

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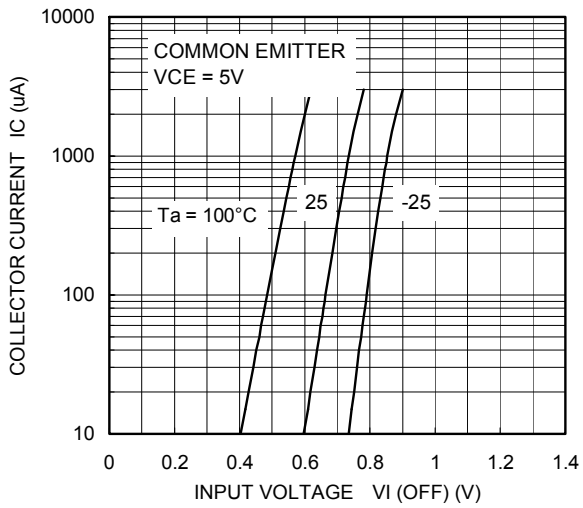

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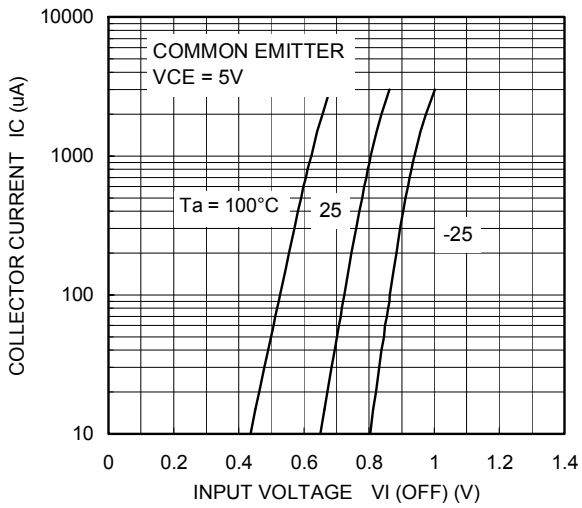

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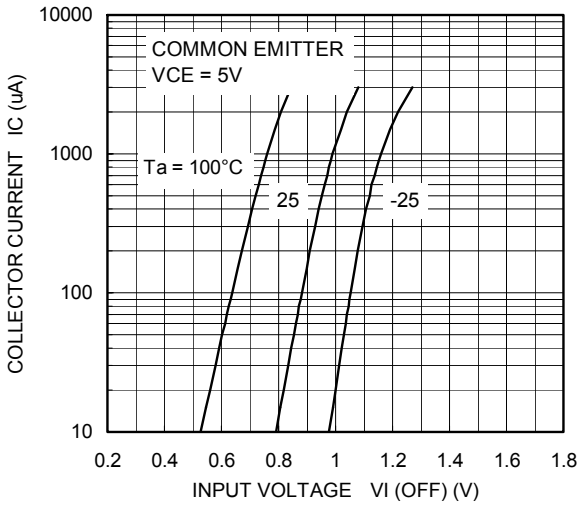

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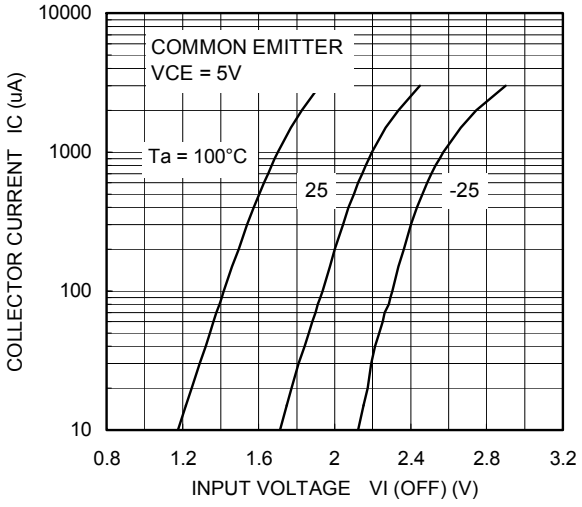

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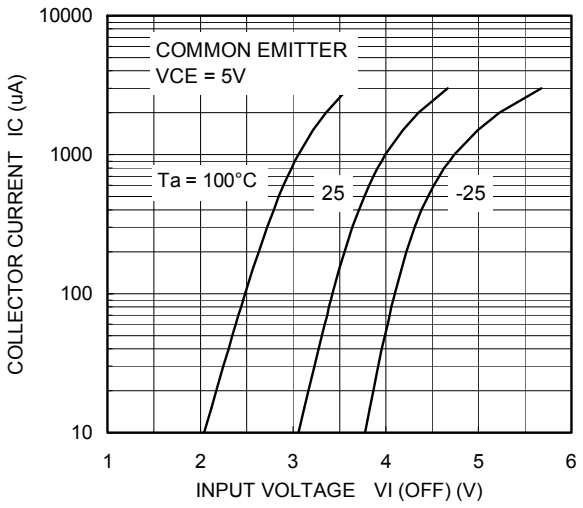

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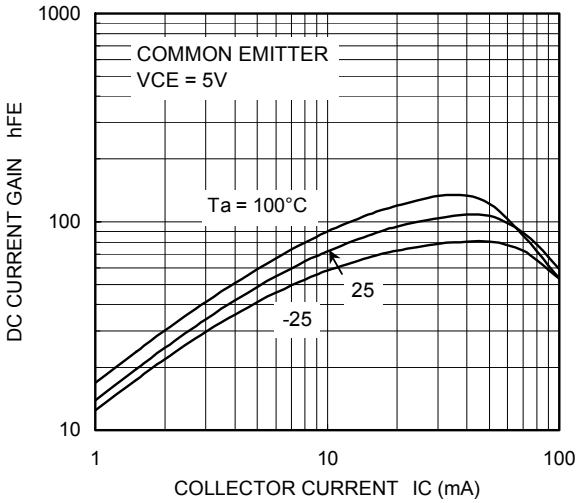

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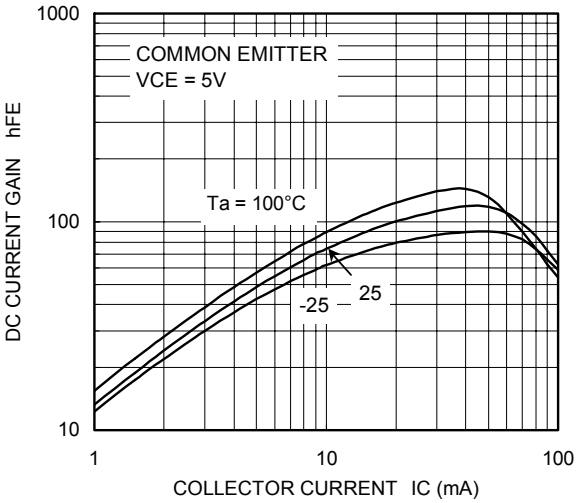

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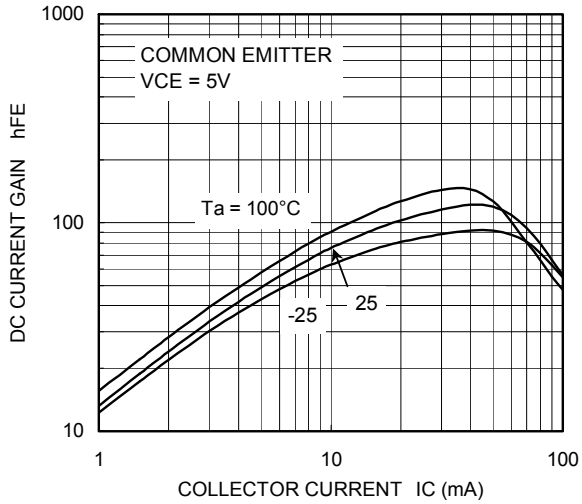

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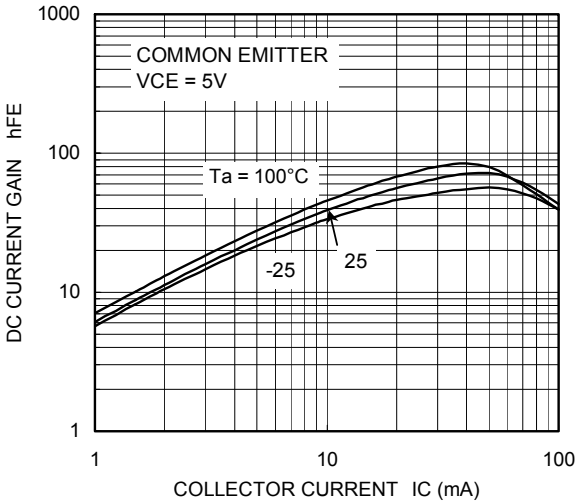

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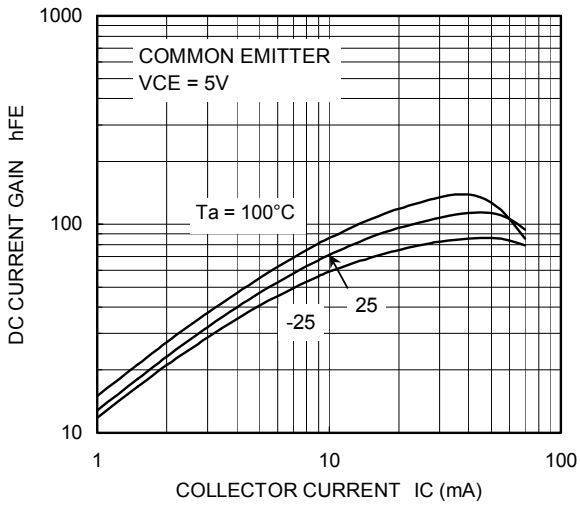
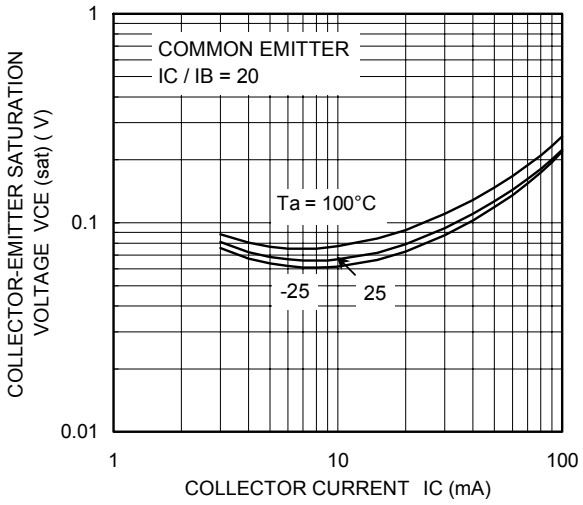


RN1114FT VCE(sat) - IC



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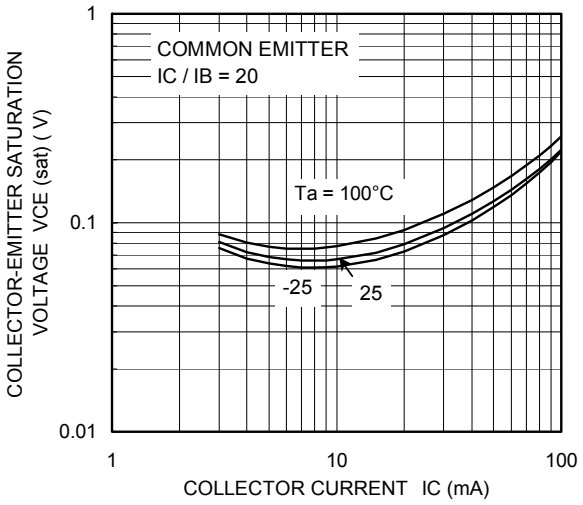

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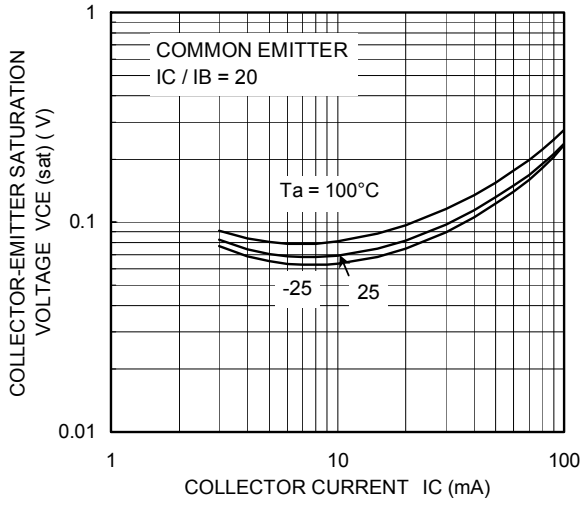

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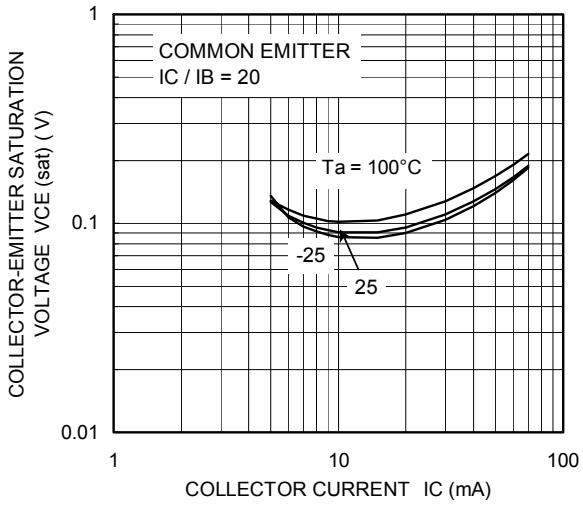

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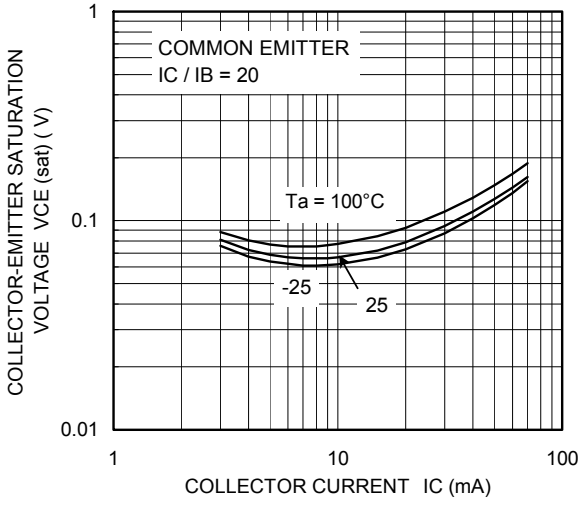

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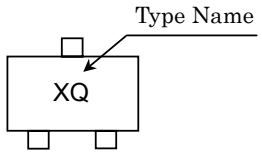
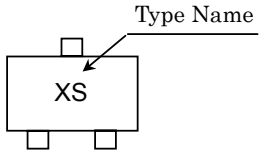
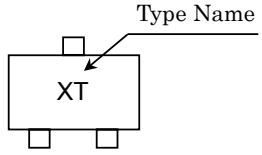
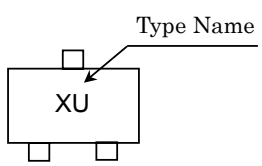
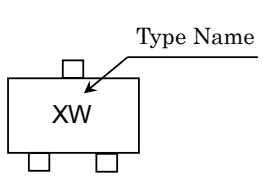
RN1114FT	
RN1115FT	
RN1116FT	
RN1117FT	
RN1118FT	

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