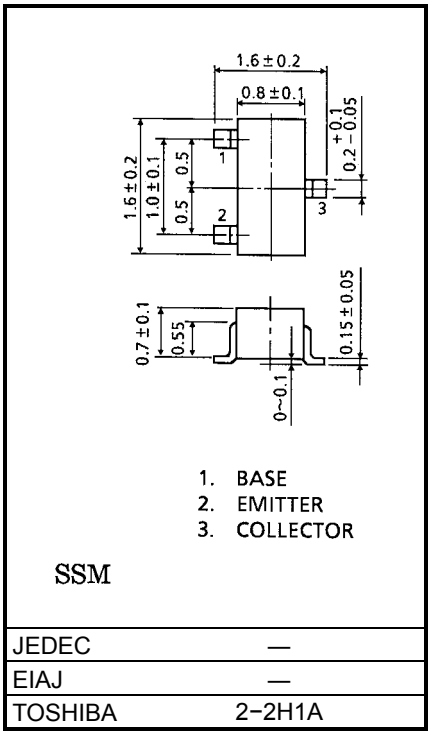
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

RN2114,RN2115,RN2116 RN2117,RN2118

Switching, Inverter Circuit, Interface Circuit
And Driver Circuit Applications

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN1114~RN1118

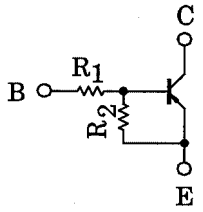
Unit: mm



JEDEC	—
EIAJ	—
TOSHIBA	2−2H1A

Weight: 2.4mg

Equivalent Circuit and Bias Resister Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2114	1	10
RN2115	2.2	10
RN2116	4.7	10
RN2117	10	4.7
RN2118	47	10

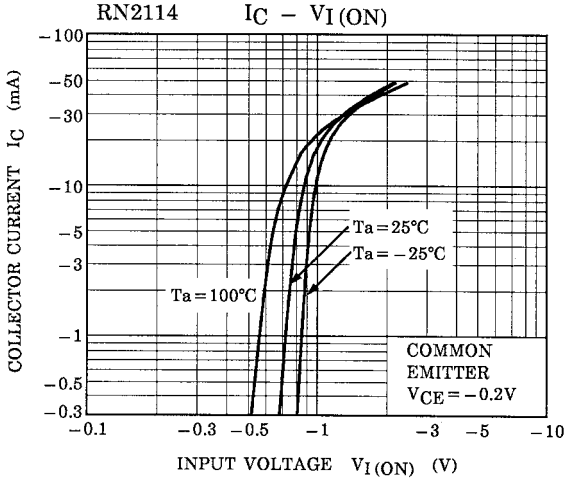
Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN2114~2118	V_{CBO}	−50	V
Collector-emitter voltage	RN2114~2118	V_{CEO}	−50	V
Emitter-base voltage	RN2114	V_{EBO}	−5	V
	RN2115		−6	
	RN2116		−7	
	RN2117		−15	
	RN2118		−25	
Collector current	RN2114~2118	I_C	−100	mA
Collector power dissipation	RN2114~2118	P_C	100	mW
Junction temperature	RN2114~2118	T_j	150	°C
Storage temperature range	RN2114~2118	T_{stg}	−55~150	°C

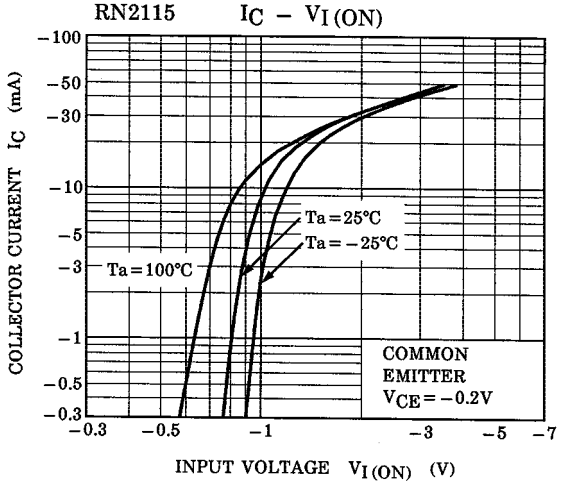
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	RN2114~2118	I_{CBO}	—	V_{CB} = −50V, I_E = 0	—	—	−100	nA
	RN2114~2118	I_{CEO}		V_{CE} = −50V, I_B = 0	—	—	−500	nA
Emitter cut-off current	RN2114	I_{EBO}	—	V_{EB} = −5V, I_C = 0	−0.35	—	−0.65	mA
	RN2115			V_{EB} = −6V, I_C = 0	−0.37	—	−0.71	
	RN2116			V_{EB} = −7V, I_C = 0	−0.36	—	−0.68	
	RN2117			V_{EB} = −15V, I_C = 0	−0.78	—	−1.46	
	RN2118			V_{EB} = −25V, I_C = 0	−0.33	—	−0.63	
DC current gain	RN2114~16, 18	h_{FE}	—	V_{CE} = −5V, I_C = −10mA	50	—	—	—
	RN2117				30	—	—	
Collector-emitter saturation voltage	RN2114~2118	$V_{CE\ (sat)}$	—	I_C = −5mA, I_B = −0.25mA	—	−0.1	−0.3	V
Input voltage (ON)	RN2114	$V_{I\ (ON)}$	—	V_{CE} = −0.2V, I_C = −5mA	−0.5	—	−2.0	V
	RN2115				−0.6	—	−2.5	
	RN2116				−0.7	—	−2.5	
	RN2117				−1.5	—	−3.5	
	RN2118				−2.5	—	−10.0	
Input voltage (OFF)	RN2114	$V_{I\ (OFF)}$	—	V_{CE} = −5V, I_C = −0.1mA	−0.3	—	−0.9	V
	RN2115				−0.3	—	−1.0	
	RN2116				−0.3	—	−1.1	
	RN2117				−0.3	—	−3.0	
	RN2118				−0.5	—	−5.7	
Transition frequency	RN2114~2118	f_T	—	V_{CE} = −10V, I_C = −5mA	—	200	—	MHz
Collector Output capacitance	RN2114~2118	C_{ob}	—	V_{CB} = −10V, I_E = 0, f = 1MHz	—	3.0	6.0	pF
Input resistor	RN2114	R1	—	—	0.7	1.0	1.3	kΩ
	RN2115				1.54	2.2	2.86	
	RN2116				3.29	4.7	6.11	
	RN2117				7.0	10.0	13.0	
	RN2118				32.9	47.0	61.1	
Resistor ratio	RN2114	R1/R2	—	—	—	0.1	—	—
	RN2115				—	0.22	—	
	RN2116				—	0.47	—	
	RN2117				—	2.13	—	
	RN2118				—	4.7	—	

RN2114 I_C – $V_{I(ON)}$



RN2115 I_C – $V_{I(ON)}$



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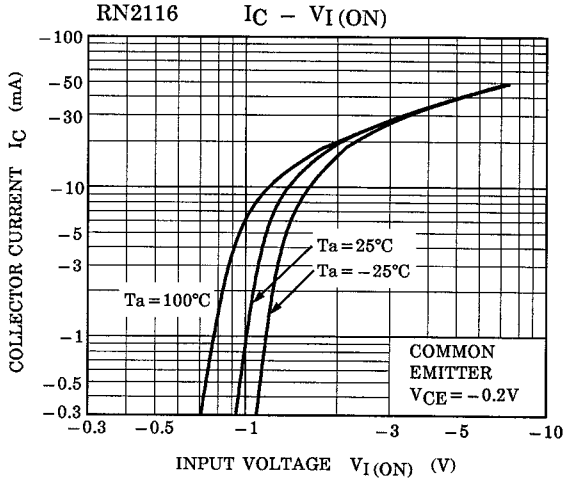

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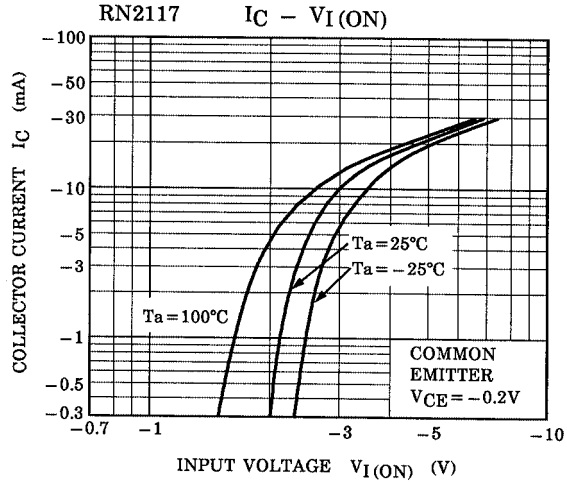
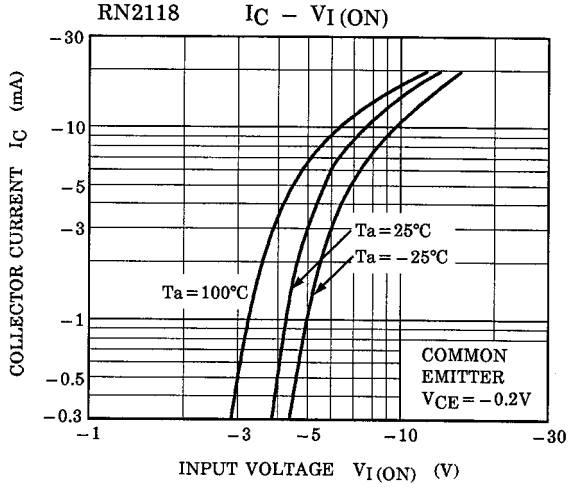
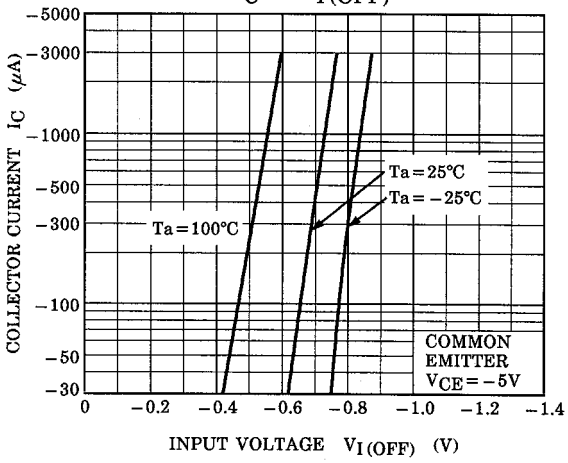


RN2118 I_C – $V_{I(ON)}$



RN2114 $I_C - V_{I(OFF)}$



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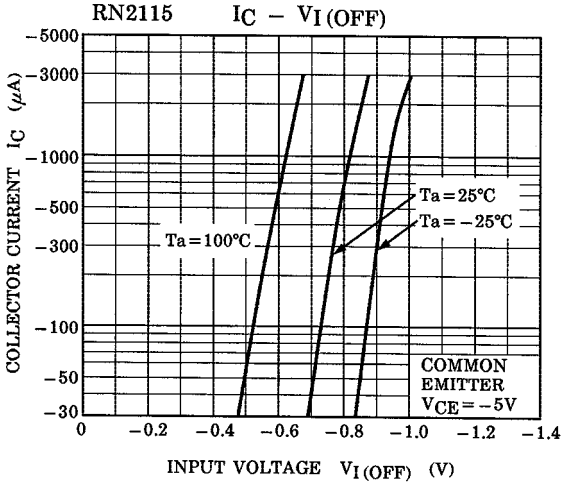

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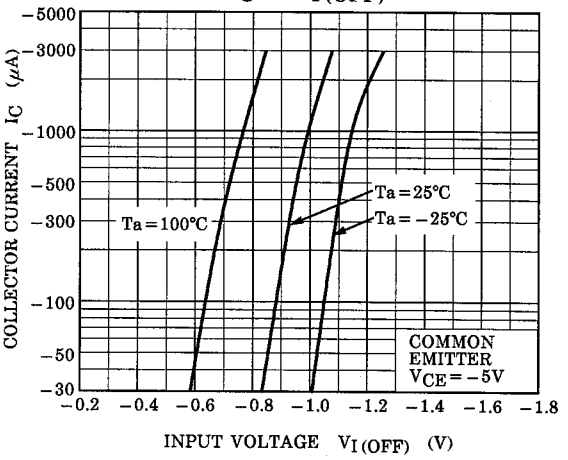

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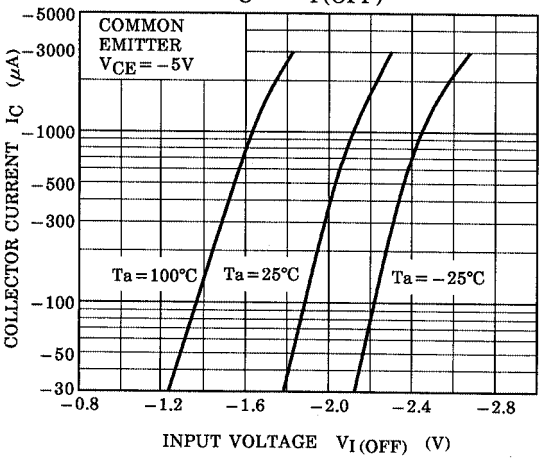

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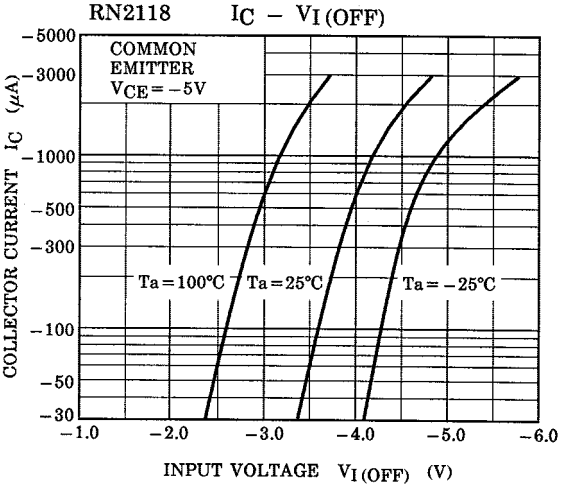
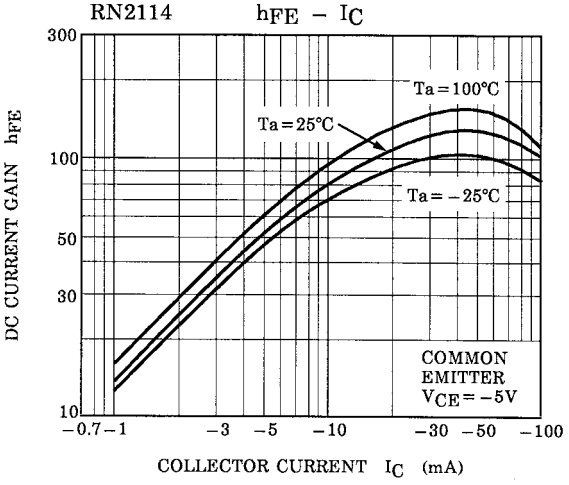
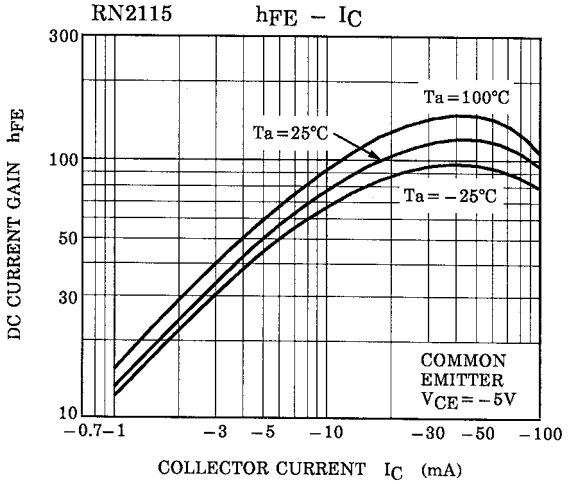


RN2114 h_{FE} – I_C



RN2115 h_{FE} – I_C



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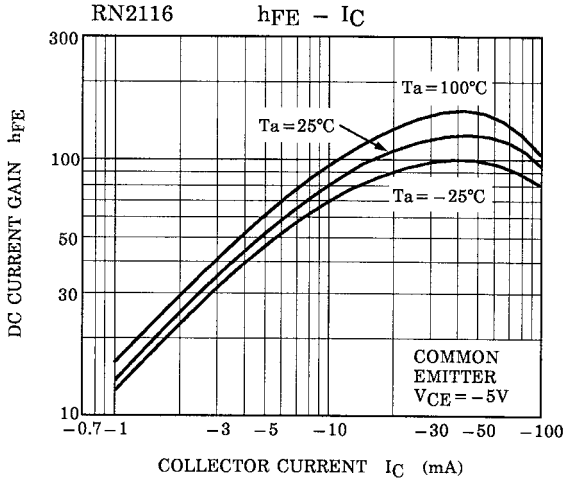

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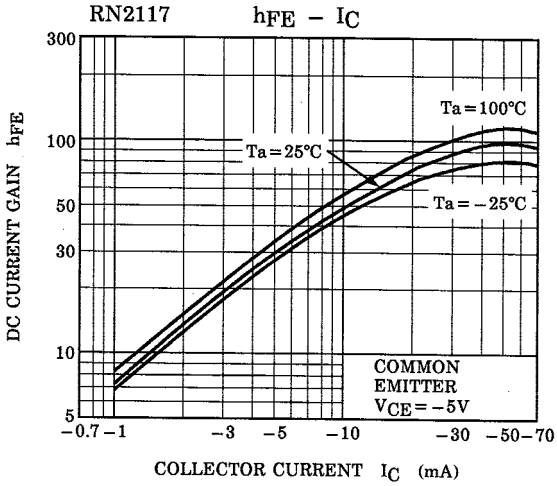
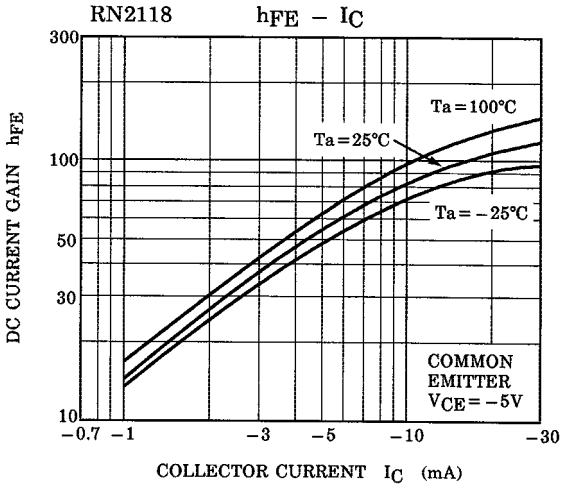
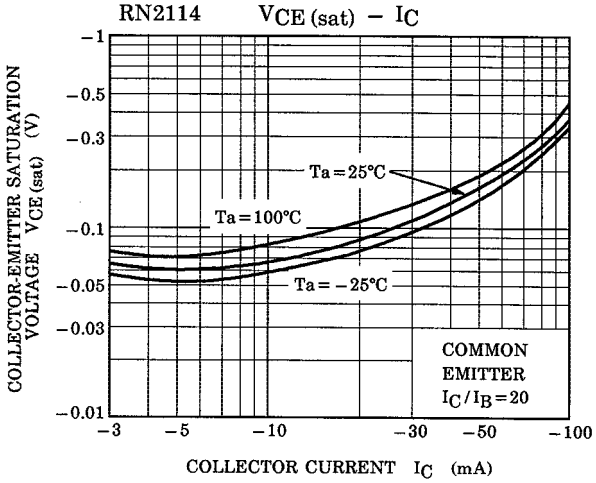


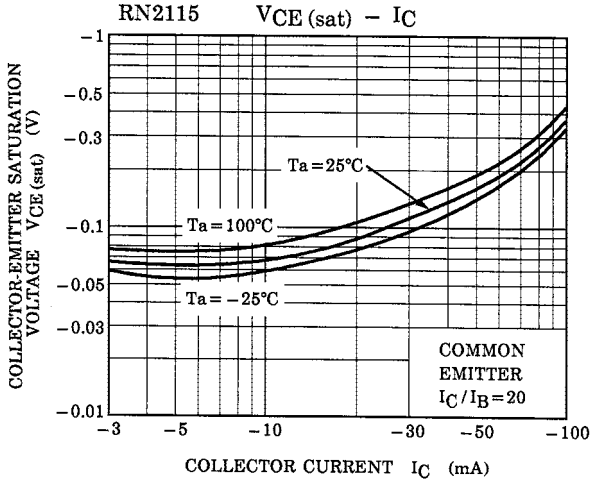
RN2118 h_{FE} – I_C



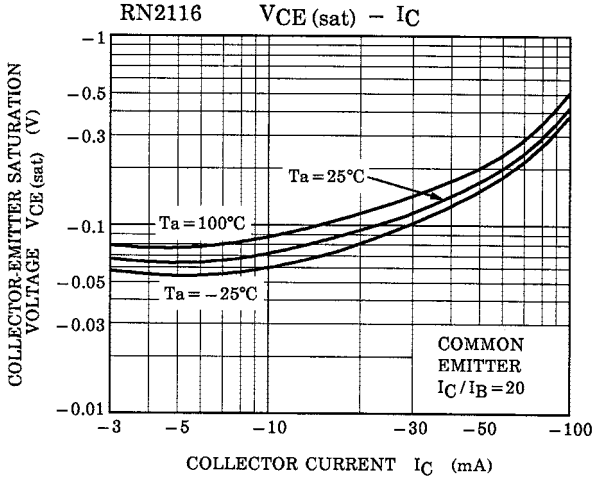
RN2114 $V_{CE\,(sat)}$ – I_C



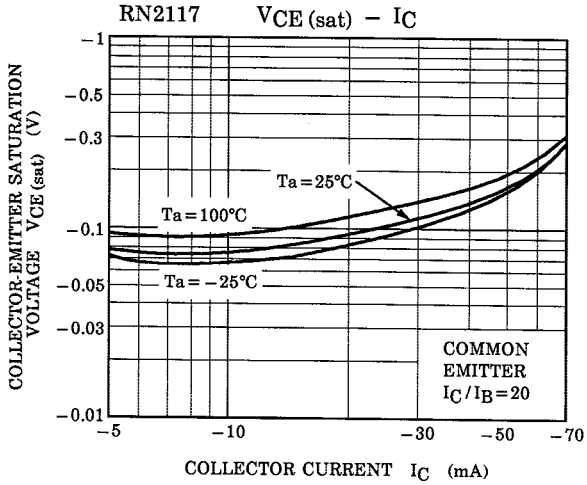
RN2115 $V_{CE\,(sat)}$ – I_C



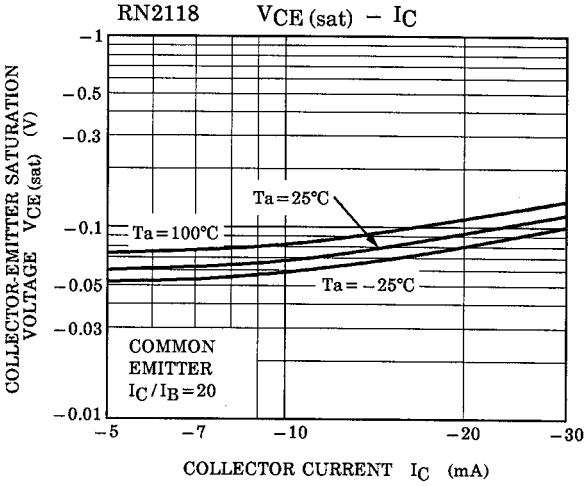
RN2116 $V_{CE\,(sat)}$ – I_C



RN2117 $V_{CE\,(sat)}$ – I_C



RN2118 $V_{CE\,(sat)}$ – I_C



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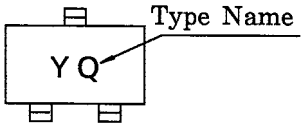
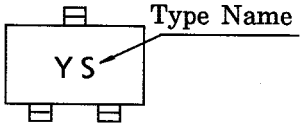
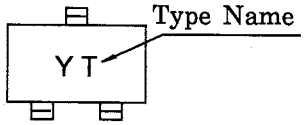
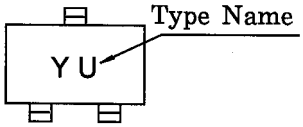
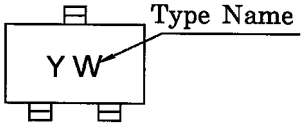
RN2114	
RN2115	
RN2116	
RN2117	
RN2118	

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