

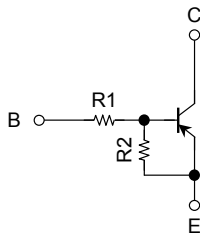
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process) (Transistor with Built-in Bias Resistor)

RN2901AFS, RN2902AFS, RN2903AFS RN2904AFS, RN2905AFS, RN2906AFS

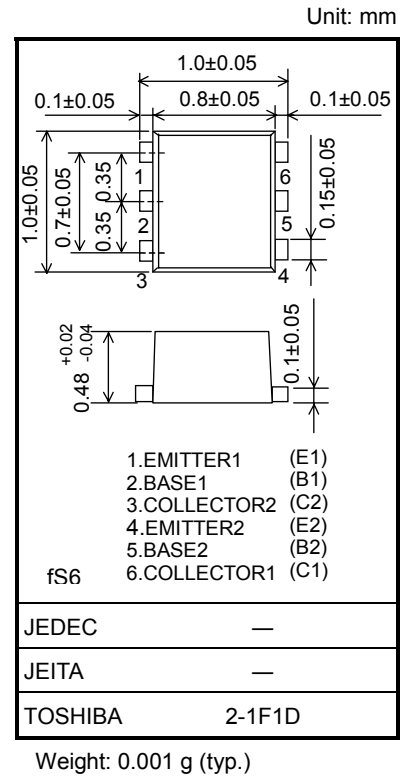
Switching, Inverter Circuit, Interface Circuit and
Driver Circuit Applications

- Two devices are incorporated into a fine-pitch, small-mold (6-pin) package.
- Incorporating a bias resistor into a transistor reduces the parts count.
Reducing the parts count enables the manufacture of ever more compact equipment and saves assembly cost.
- Complementary to the RN1901AFS~RN1906AFS
- Lead (Pb) - free

Equivalent Circuit and Bias Resistor Values



Type No.	R1 (kΩ)	R2 (kΩ)
RN2901AFS	4.7	4.7
RN2902AFS	10	10
RN2903AFS	22	22
RN2904AFS	47	47
RN2905AFS	2.2	47
RN2906AFS	4.7	47

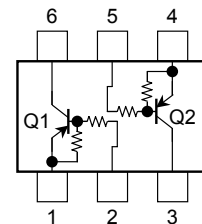


Maximum Ratings (Ta = 25°C) (Q1, Q2 common)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	−50	V
Collector-emitter voltage	V _{CE0}	−50	V
Emitter-base voltage	V _{EB0}	−10	V
		−5	V
Collector current	I _C	−80	mA
Collector power dissipation	P _C (Note)	50	mW
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	−55~150	°C

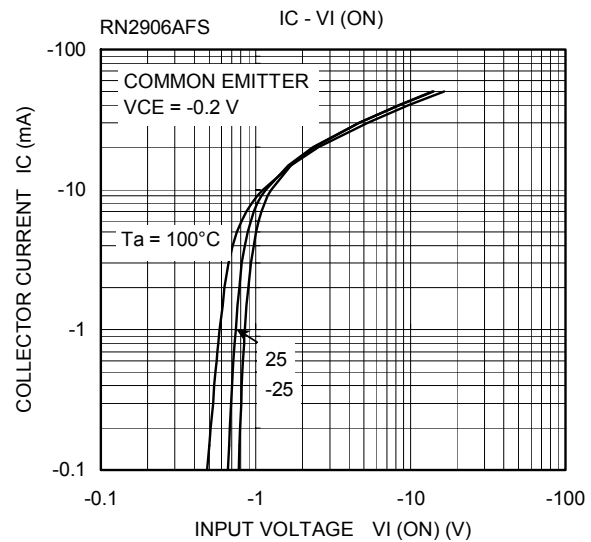
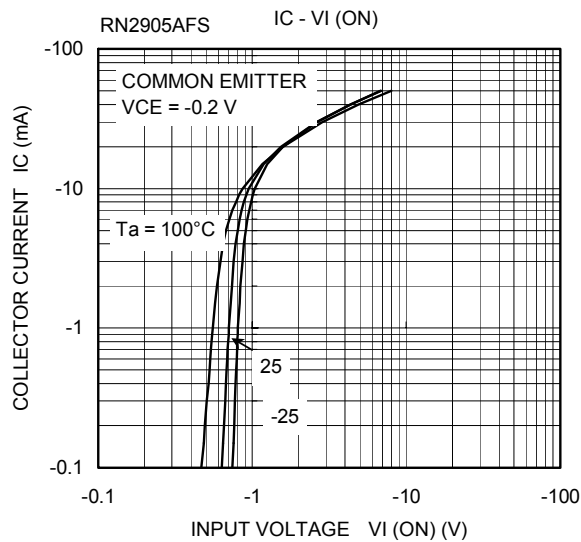
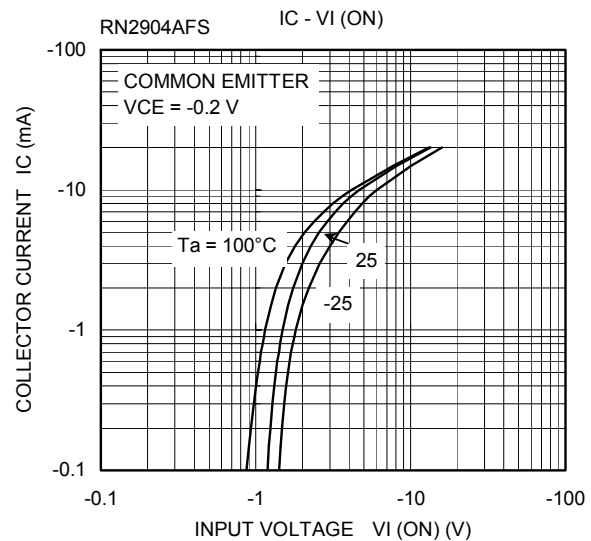
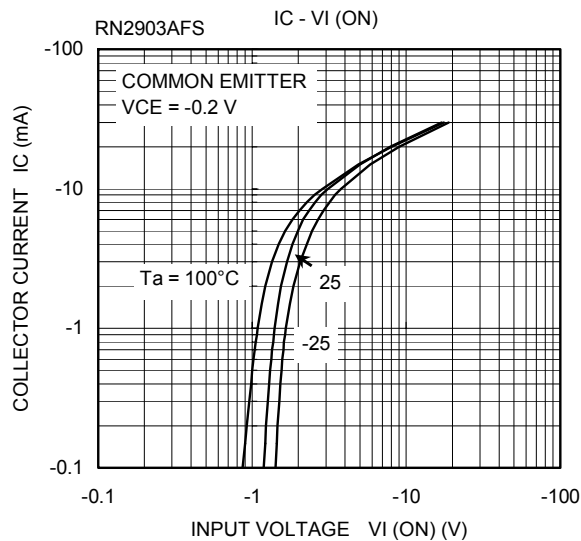
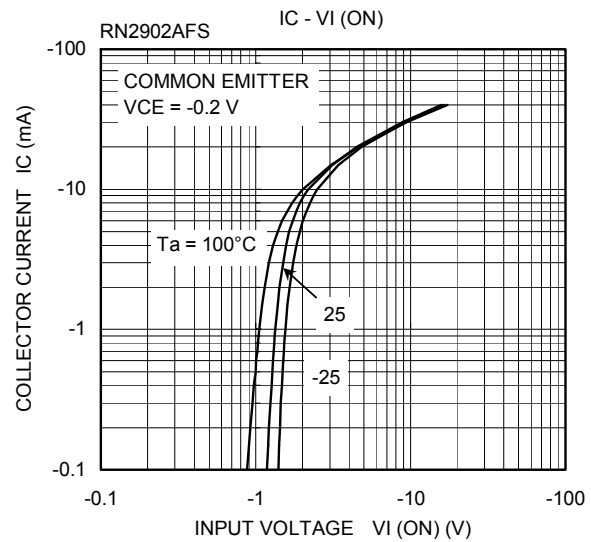
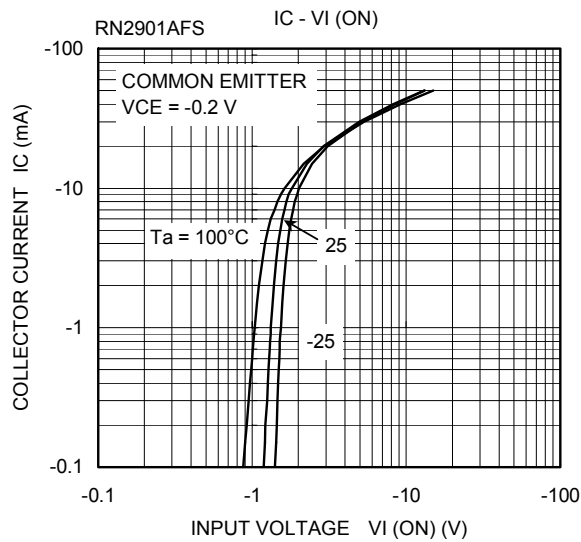
Note: Total rating

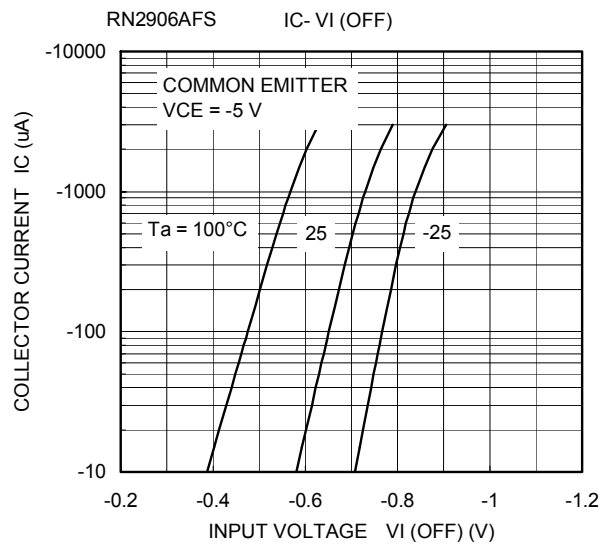
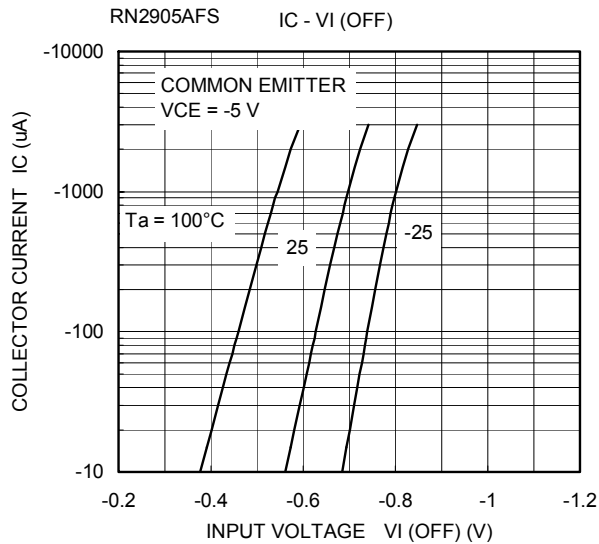
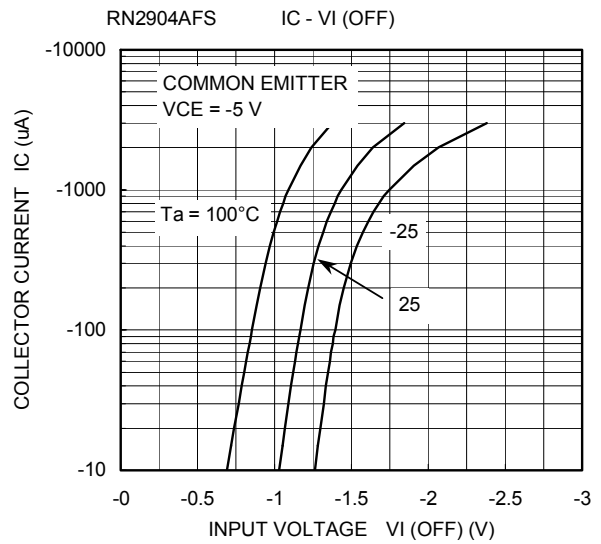
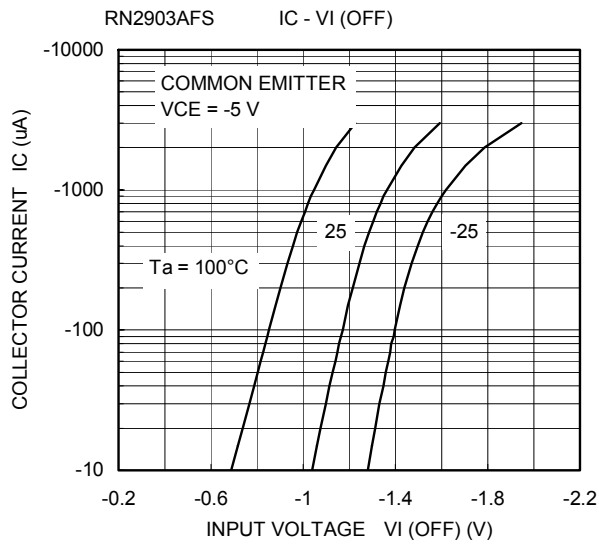
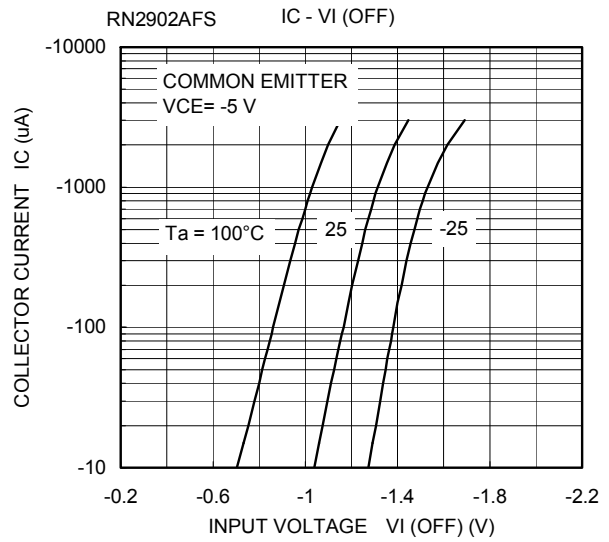
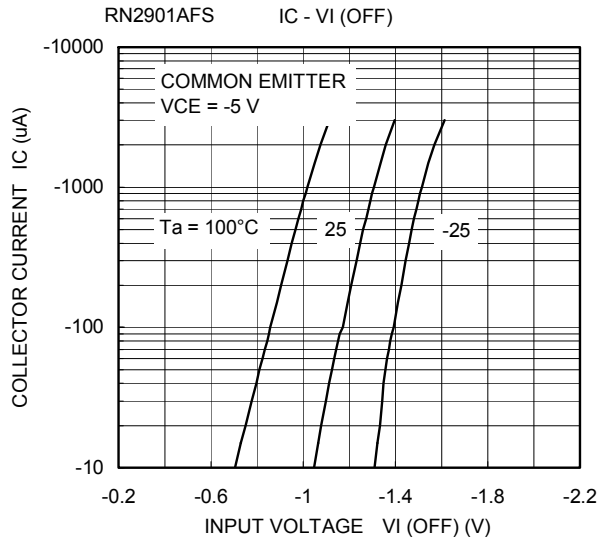
Equivalent Circuit (top view)

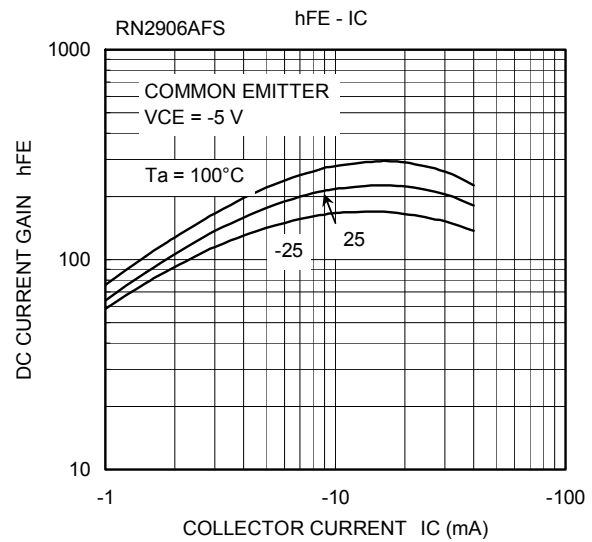
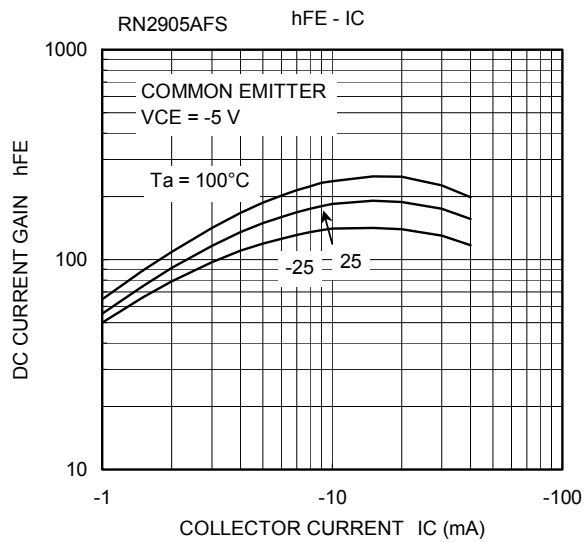
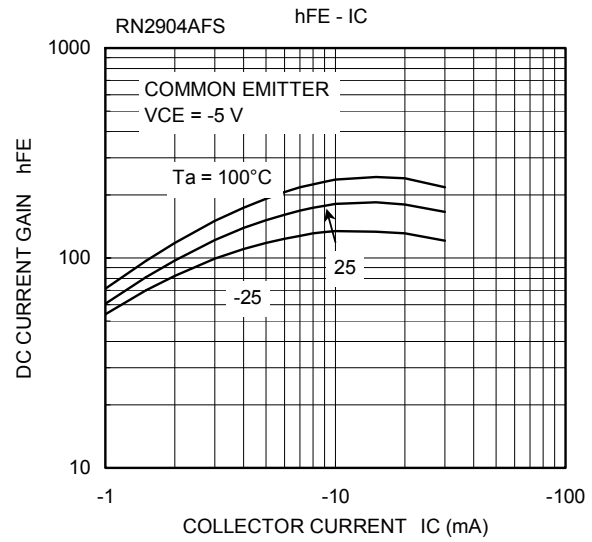
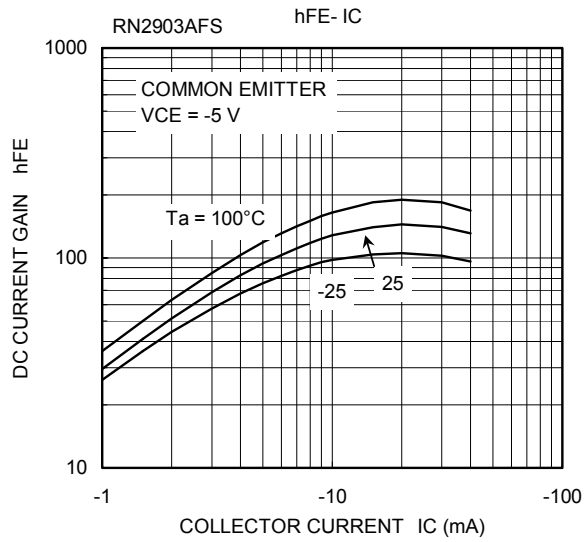
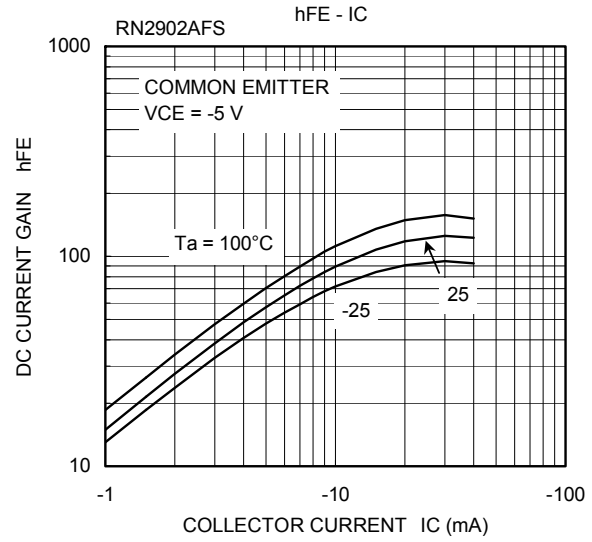
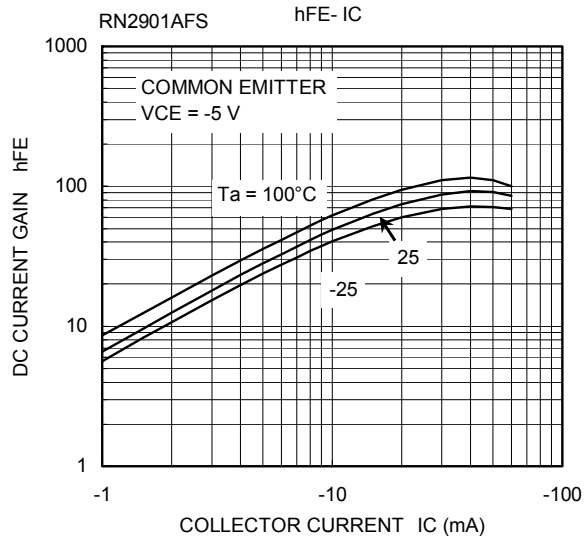


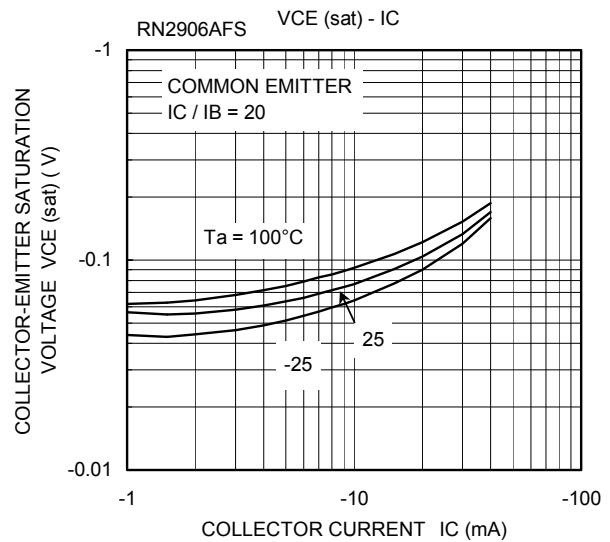
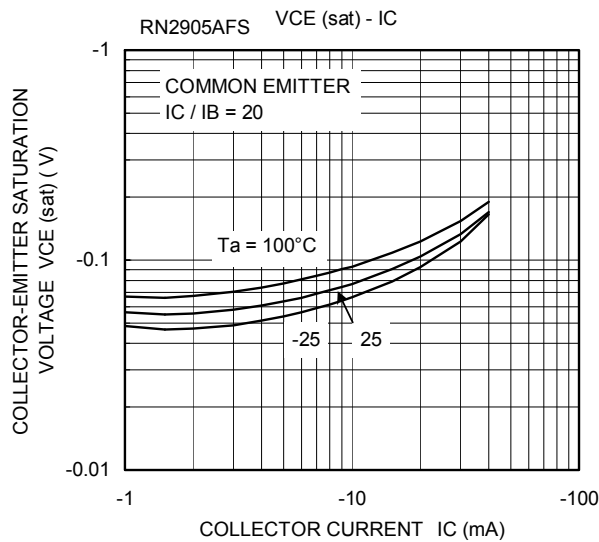
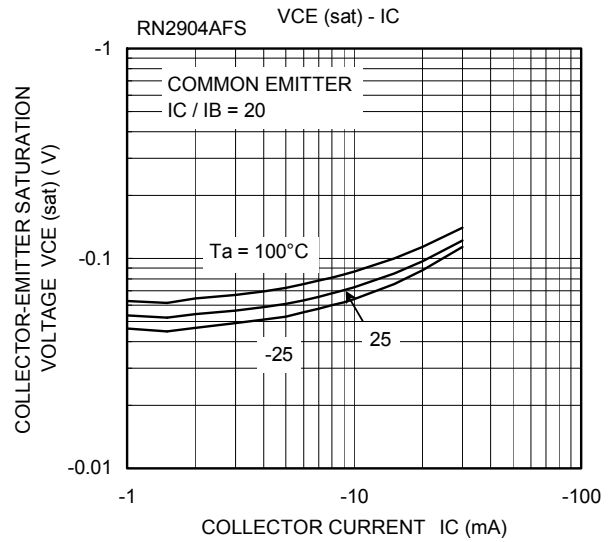
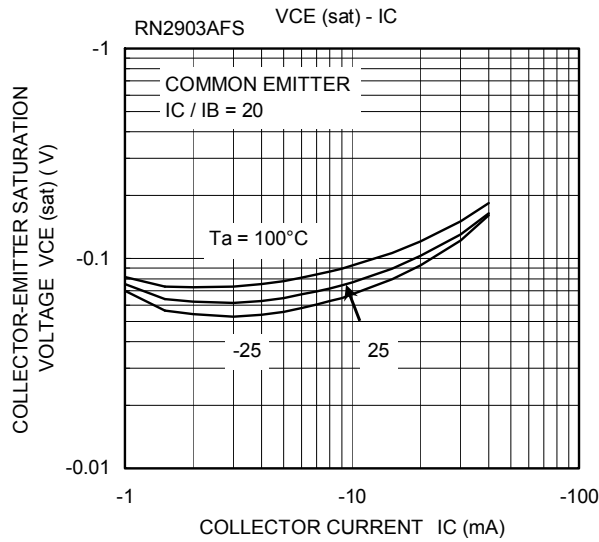
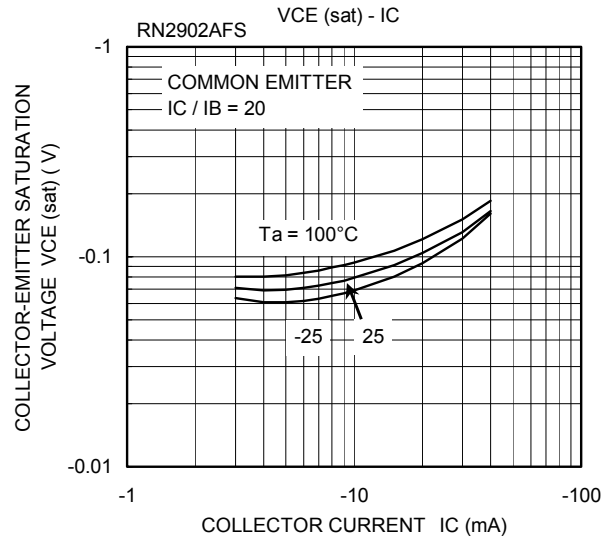
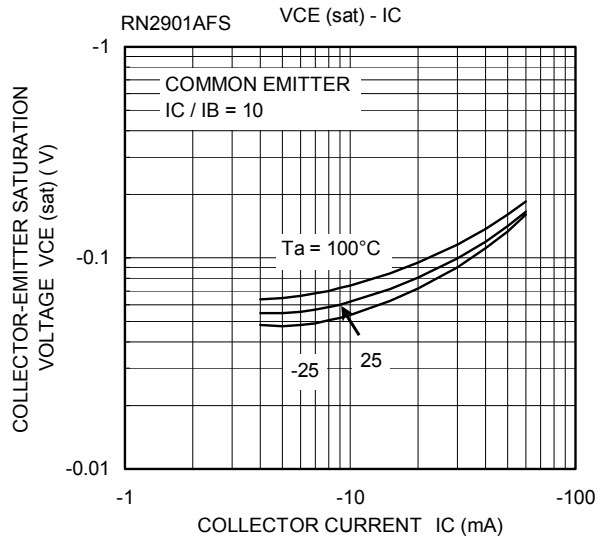
Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	RN2901AFS~2906AFS	I_{CBO}	$V_{CB} = -50 \text{ V}, I_E = 0$	—	—	-100	nA
		I_{CEO}	$V_{CE} = -50 \text{ V}, I_B = 0$	—	—	-500	
Emitter cutoff current	RN2901AFS	I_{EBO}	$V_{EB} = -10 \text{ V}, I_C = 0$	-0.89	—	-1.33	mA
	RN2902AFS			-0.41	—	-0.63	
	RN2903AFS			-0.18	—	-0.29	
	RN2904AFS			-0.088	—	-0.133	
	RN2905AFS	I_{EBO}	$V_{EB} = -5 \text{ V}, I_C = 0$	-0.085	—	-0.127	
	RN2906AFS			-0.08	—	-0.121	
DC current gain	RN2901AFS	h_{FE}	$V_{CE} = -5 \text{ V}, I_C = -10 \text{ mA}$	30	—	—	
	RN2902AFS			50	—	—	
	RN2903AFS			70	—	—	
	RN2904AFS			80	—	—	
	RN2905AFS			80	—	—	
	RN2906AFS			80	—	—	
Collector-emitter saturation voltage	RN2901AFS	$V_{CE(sat)}$	$I_C = -5 \text{ mA}, I_B = -0.5 \text{ mA}$	—	—	-0.15	V
	RN2902AFS~2906AFS		$I_C = -5 \text{ mA}, I_B = -0.25 \text{ mA}$				
Input voltage (ON)	RN2901AFS	$V_{I(ON)}$	$V_{CE} = -0.2 \text{ V}, I_C = -5 \text{ mA}$	-1.2	—	-2.2	V
	RN2902AFS			-1.2	—	-2.6	
	RN2903AFS			-1.3	—	-3.5	
	RN2904AFS			-1.5	—	-5.0	
	RN2905AFS			-0.6	—	-1.1	
	RN2906AFS			-0.7	—	-1.3	
Input voltage (OFF)	RN2901AFS~2904AFS	$V_{I(OFF)}$	$V_{CE} = -5 \text{ V}, I_C = -0.1 \text{ mA}$	-0.8	—	-1.5	V
	RN2905AFS, 2906AFS			-0.5	—	-0.8	
Collector output capacitance	RN2901AFS~2906AFS	C_{ob}	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	-0.9	—	pF
Input resistor	RN2901AFS	R1	—	3.76	4.7	5.64	kΩ
	RN2902AFS			8	10	12	
	RN2903AFS			17.6	22	26.4	
	RN2904AFS			37.6	47	56.4	
	RN2905AFS			1.76	2.2	2.64	
	RN2906AFS			3.76	4.7	5.64	
Resistor ratio	RN2901AFS~2904AFS	R1/R2	—	0.8	1.0	1.2	
	RN2905AFS			0.0376	0.0468	0.0562	
	RN2906AFS			0.08	0.1	0.12	









Type Name	Marking
RN2901AFS	
RN2902AFS	
RN2903AFS	
RN2904AFS	
RN2905AFS	
RN2906AFS	

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