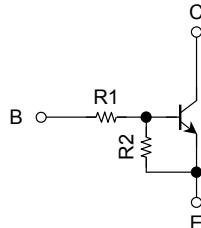


TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process) (Transistor with Built-in Bias Resistor)

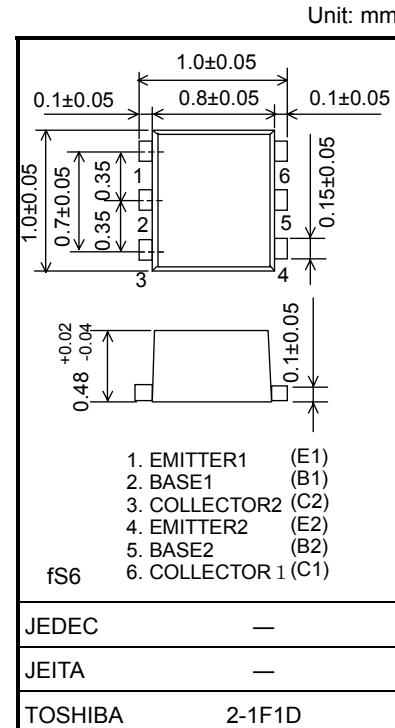
RN1907AFS, RN1908AFS, RN1909AFS

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 lowers the assembly cost.
- Complementary to the RN2907AFS~RN2909AFS
- Lead (Pb) - free

Equivalent Circuit and Bias Resistor Values

Type No.	R1 (kΩ)	R2 (kΩ)
RN1907AFS	10	47
RN1908AFS	22	47
RN1909AFS	47	22

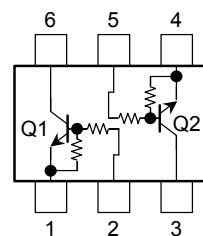


Weight: 0.001 g (typ.)

Equivalent Circuit (top view)**Maximum Ratings (Ta = 25°C) (Q1, Q2 common)**

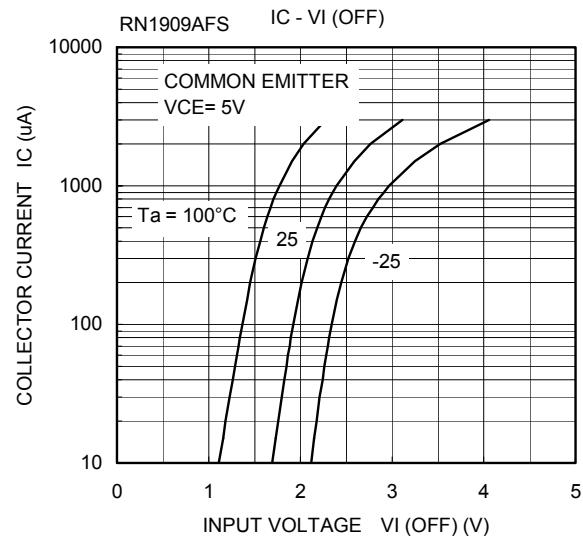
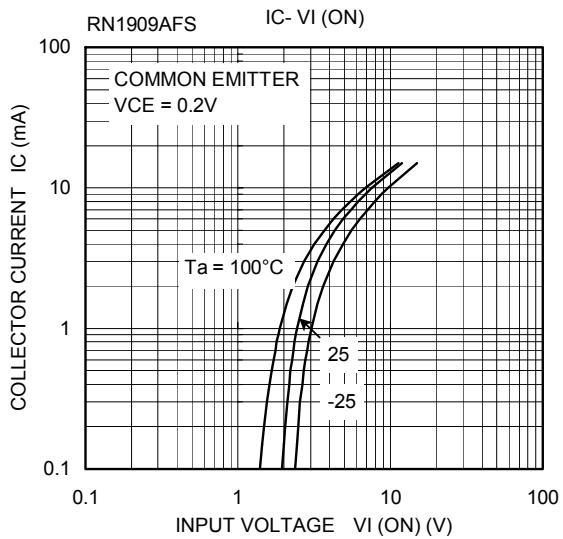
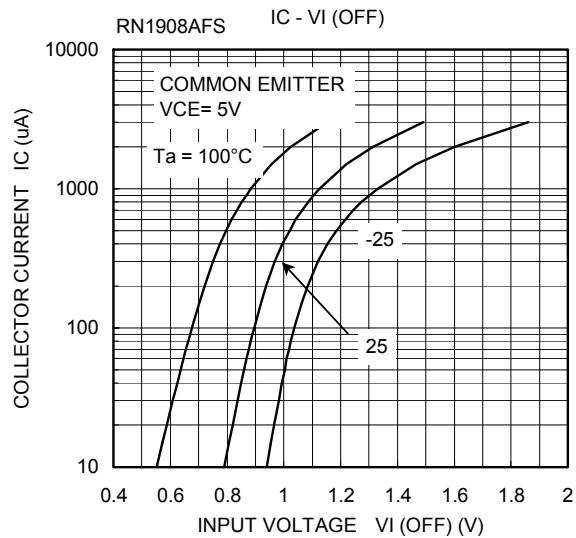
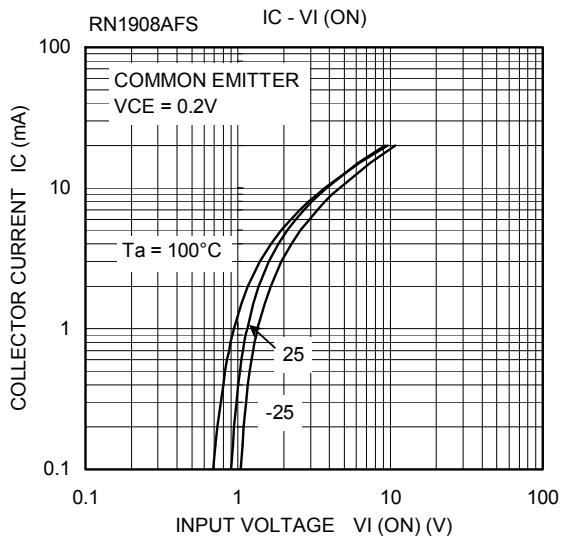
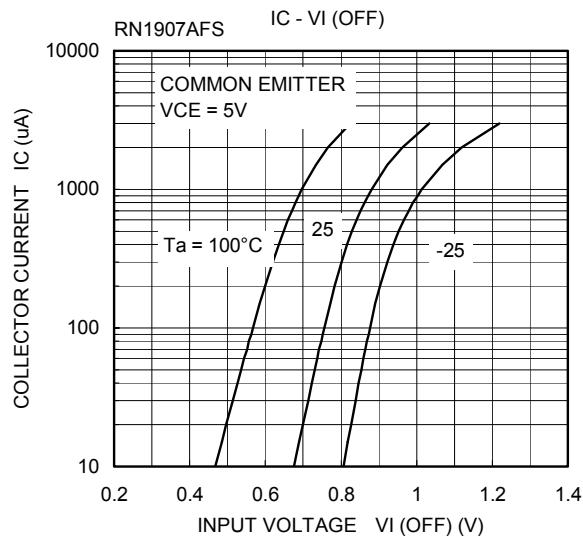
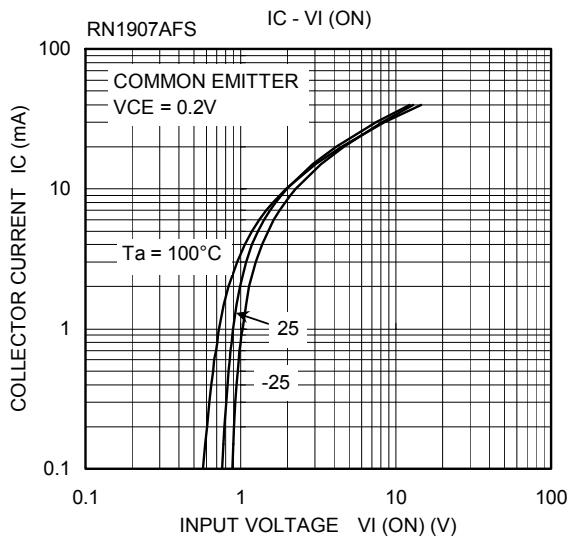
Characteristic		Symbol	Rating	Unit
Collector-base voltage	RN1907AFS~RN1909AFS	V _{CBO}	50	V
Collector-emitter voltage		V _{CEO}	50	V
Emitter-base voltage	RN1907AFS	V _{EBO}	6	V
			7	
			15	
Collector current	RN1907AFS~RN1909AFS	I _C	80	mA
Collector power dissipation		P _C (Note)	50	mW
Junction temperature		T _j	150	°C
Storage temperature range		T _{stg}	-55~150	°C

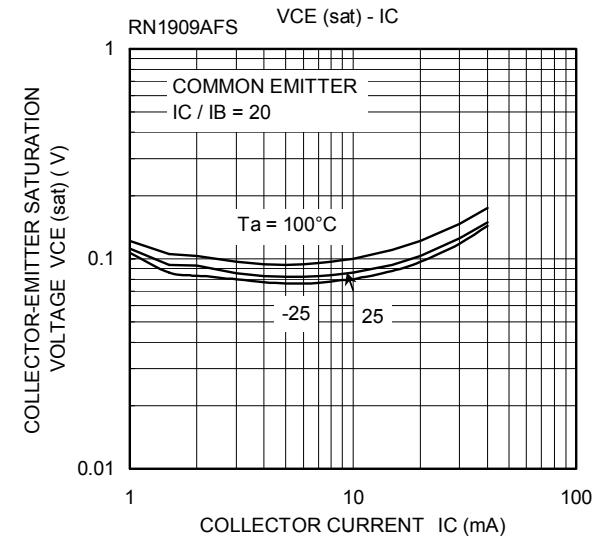
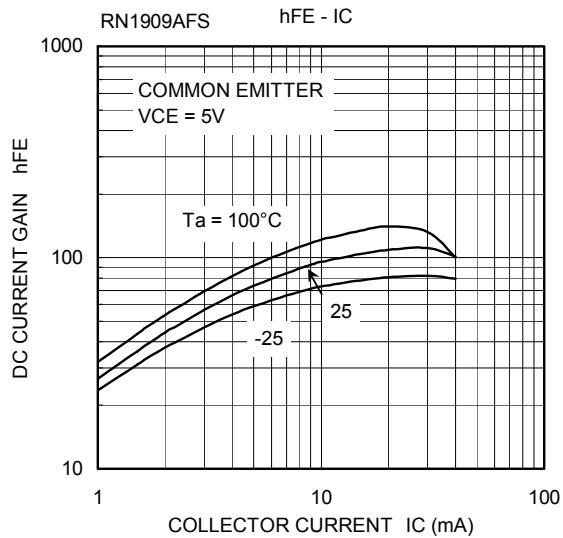
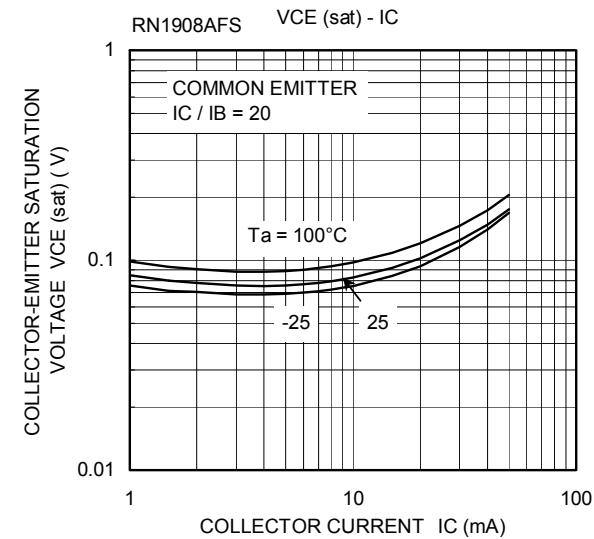
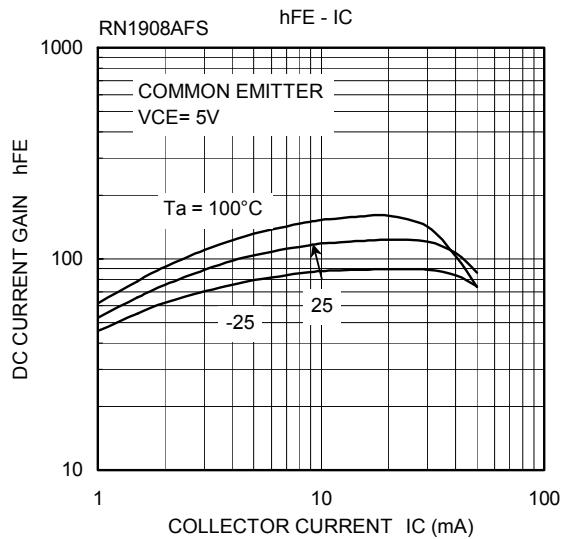
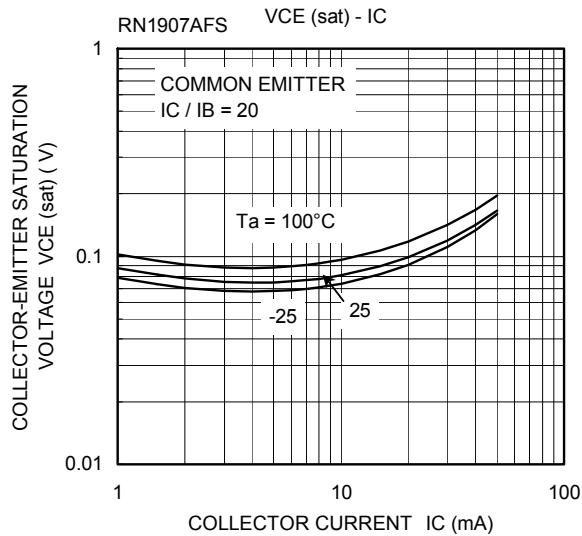
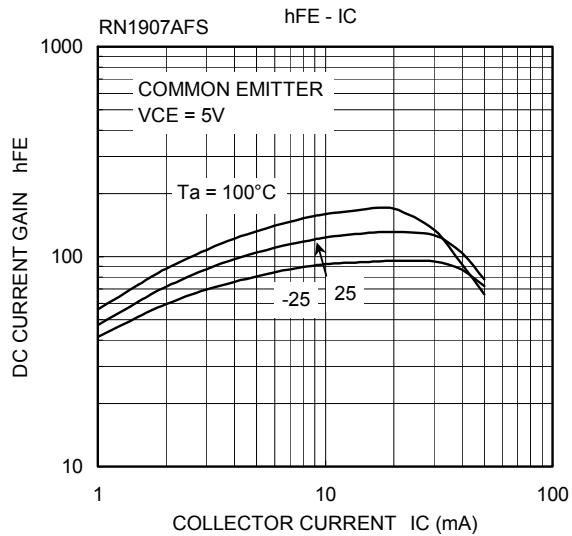
Note: Total rating

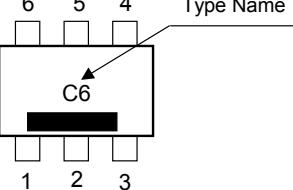
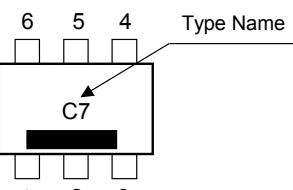
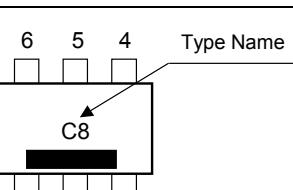


Electrical Characteristics (Ta = 25°C) (Q1, Q2 common)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	RN1907AFS~1909AFS	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	RN1907AFS	I_{EBO}	$V_{EB} = 6 \text{ V}, I_C = 0$	0.088	—	0.131	mA
	RN1908AFS		$V_{EB} = 7 \text{ V}, I_C = 0$	0.085	—	0.126	
	RN1909AFS		$V_{EB} = 15 \text{ V}, I_C = 0$	0.182	—	0.271	
DC current gain	RN1907AFS	h_{FE}	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$	80	—	—	
	RN1908AFS			80	—	—	
	RN1909AFS			70	—	—	
Collector-emitter saturation voltage	RN1907AFS~1909AFS	$V_{CE} (\text{sat})$	$I_C = 5 \text{ mA}, I_B = 0.25 \text{ mA}$	—	—	0.15	V
Input voltage (ON)	RN1907AFS	$V_I (\text{ON})$	$V_{CE} = 0.2 \text{ V}, I_C = 5 \text{ mA}$	0.8	—	1.8	V
	RN1908AFS			1.0	—	3.0	
	RN1909AFS			2.0	—	6.4	
Input voltage (OFF)	RN1907AFS	$V_I (\text{OFF})$	$V_{CE} = 5 \text{ V}, I_C = 0.1 \text{ mA}$	0.6	—	0.9	V
	RN1908AFS			0.7	—	1.2	
	RN1909AFS			1.5	—	2.6	
Collector output capacitance	RN1907AFS~1909AFS	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	0.7	—	pF
Input resistor	RN1907AFS	R1	—	8	10	12	kΩ
	RN1908AFS			17.6	22	26.4	
	RN1909AFS			37.6	47	56.4	
Resistor ratio	RN1907AFS	R1/R2	—	0.17	0.213	0.255	
	RN1908AFS			0.374	0.468	0.562	
	RN1909AFS			1.71	2.14	2.56	





Type Name	Marking
RN1907AFS	
RN1908AFS	
RN1909AFS	

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