



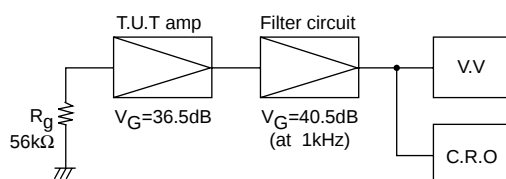
2SA1391/2SC3382

Low Noise AF Amp Applications

Features

- Adoption of FBET process.
- AF amp.
- Low-noise use.

Noise Test Circuit



() : 2SA1391

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)60	V
Collector-to-Emitter Voltage	V_{CE0}		(-)50	V
Emitter-to-Base Voltage	V_{EB0}		(-)6	V
Collector Current	I_C		(-)200	mA
Collector Current (Pulse)	I_{CP}		(-)400	mA
Collector Dissipation	P_C		400	mW
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40\text{V}, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)5\text{V}, I_C=0$			(-)0.1	μA
DC Current Gain	h_{FE1}	$V_{CE}=(-)6\text{V}, I_C=(-)1\text{mA}$	100*		560*	
	h_{FE2}	$V_{CE}=(-)6\text{V}, I_C=(-)0.1\text{mA}$	70			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)6\text{V}, I_C=(-)10\text{mA}$		250		MHz
				(200)		MHz

* : 2SA1391/2SC3382 are classified by 1mA h_{FE} as follows :

Rank	R	S	T	U
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

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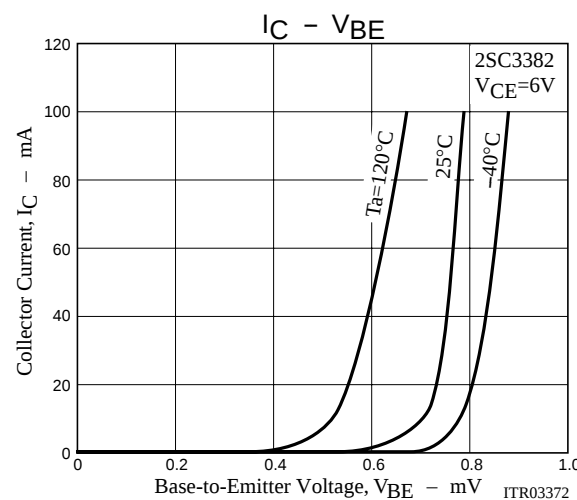
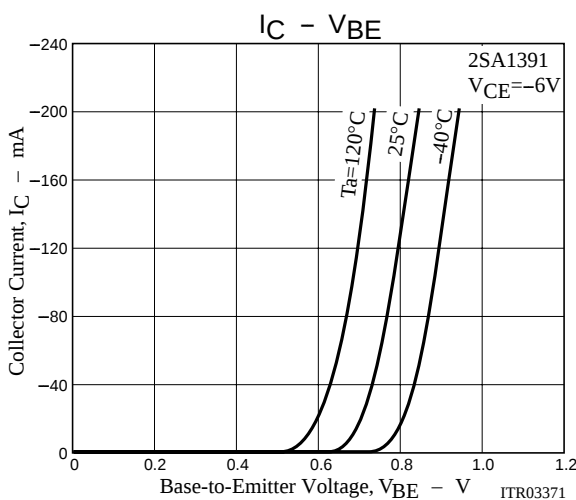
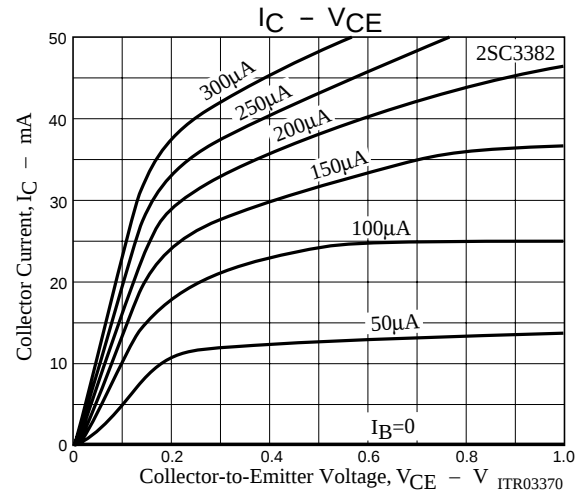
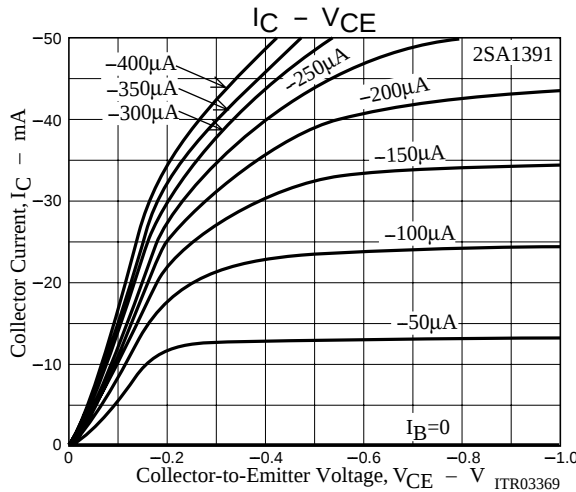
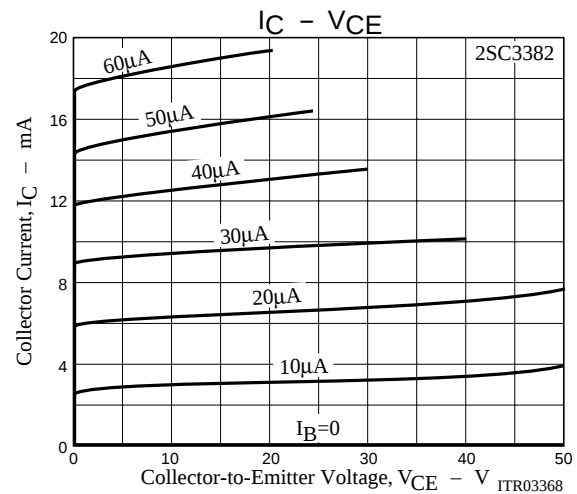
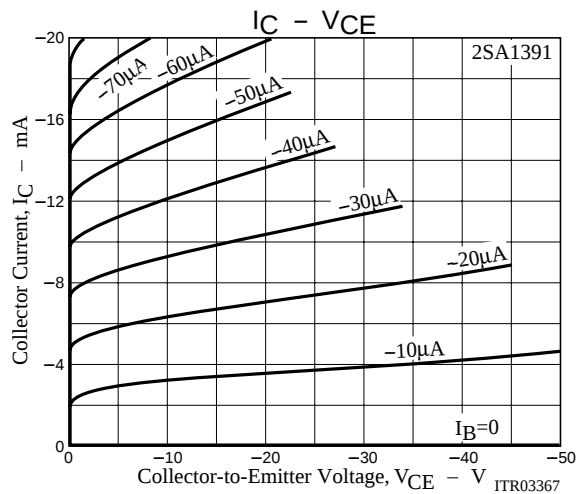
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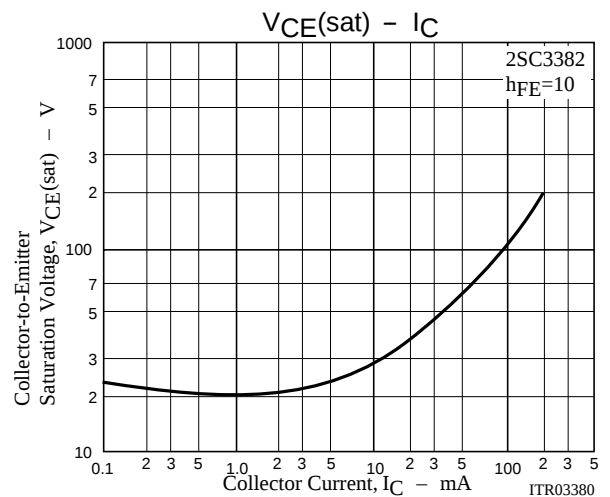
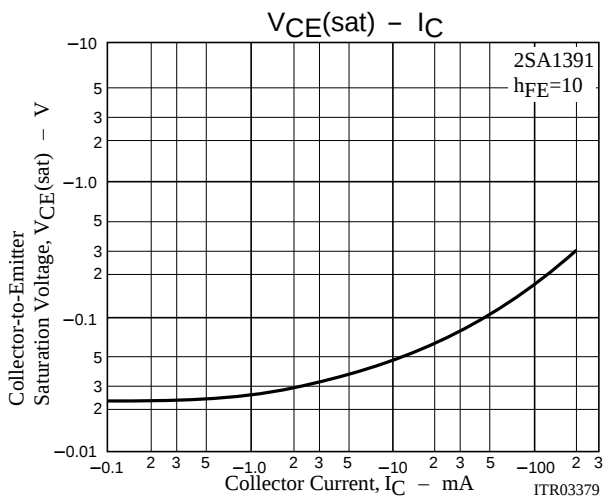
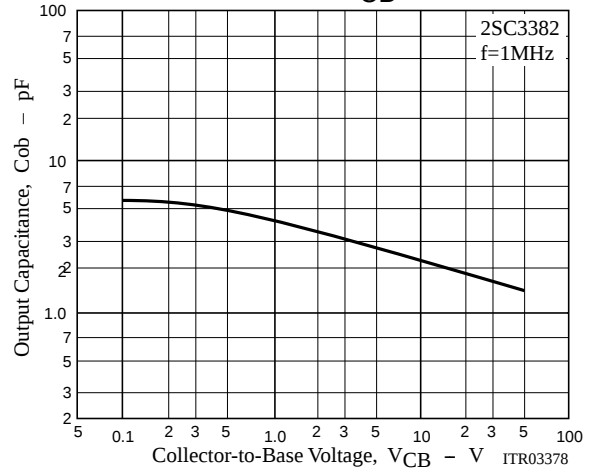
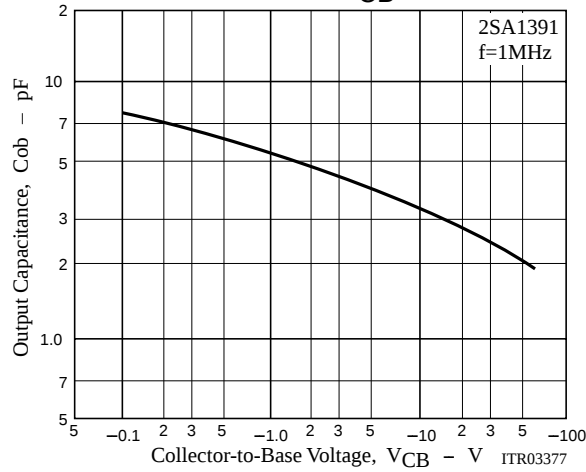
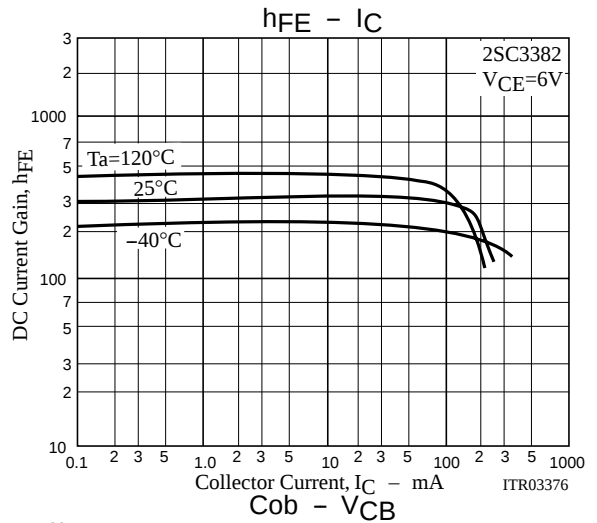
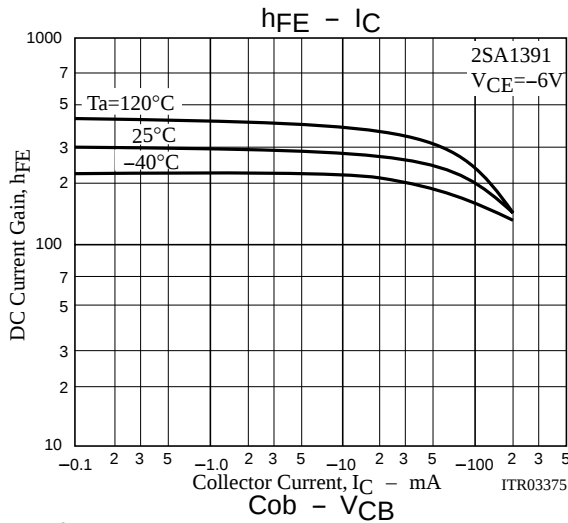
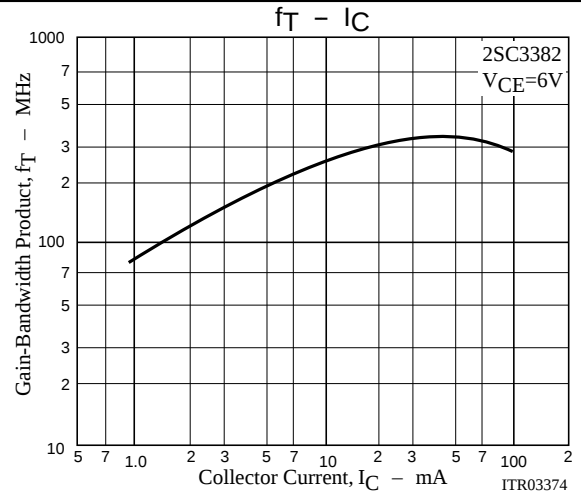
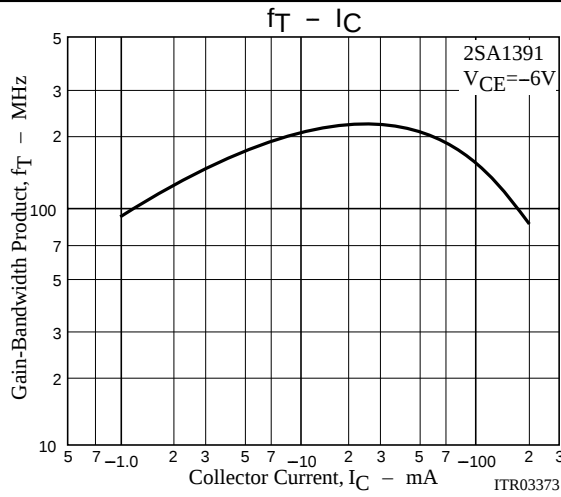
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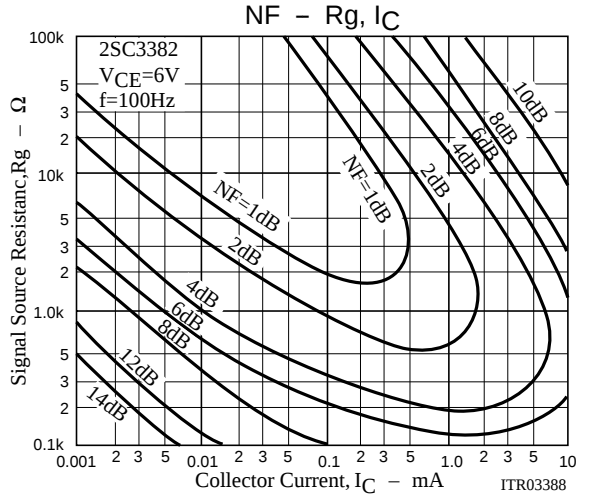
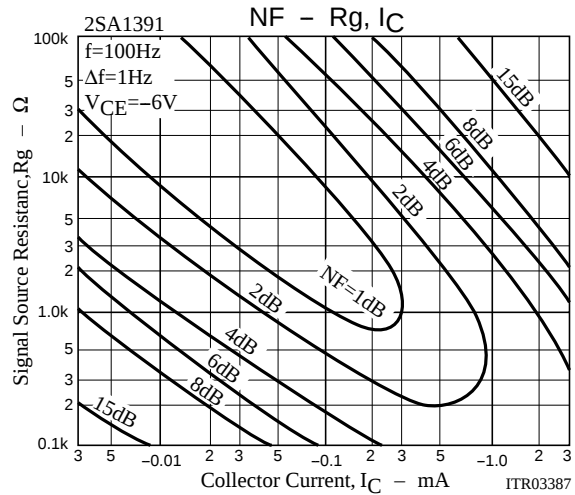
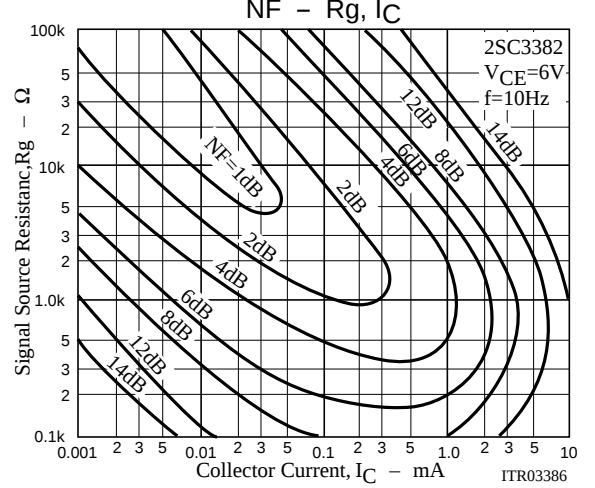
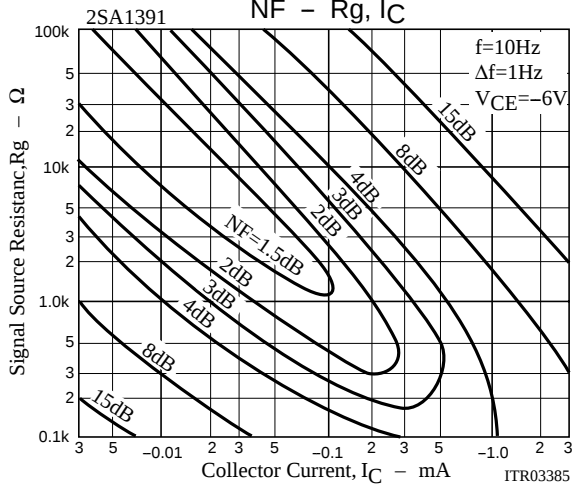
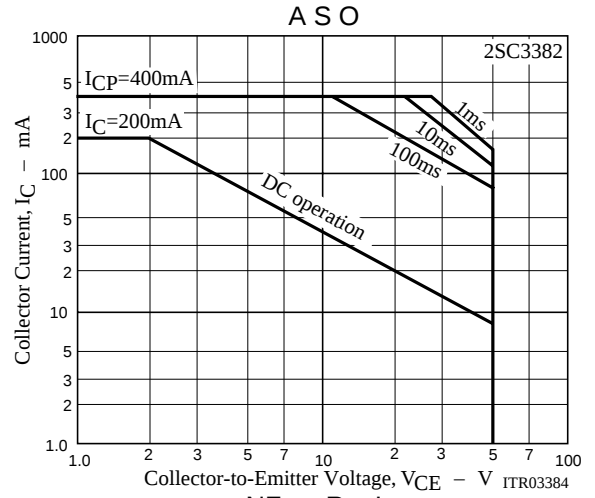
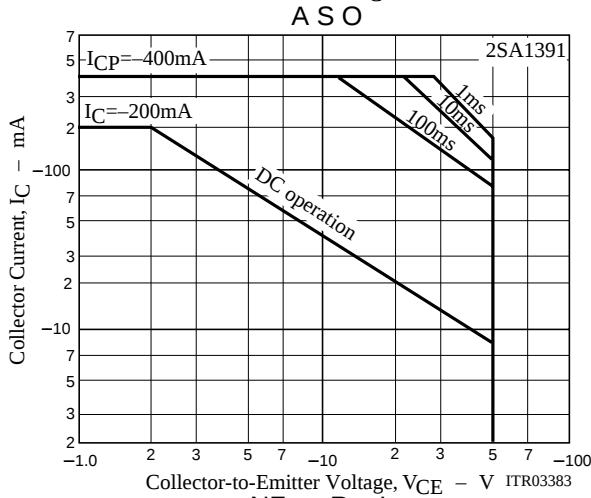
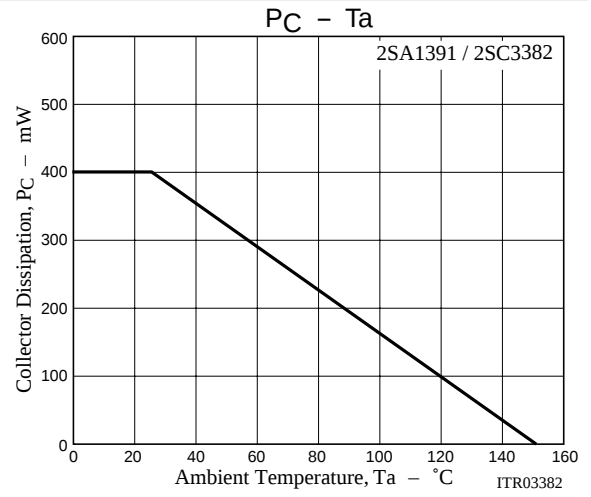
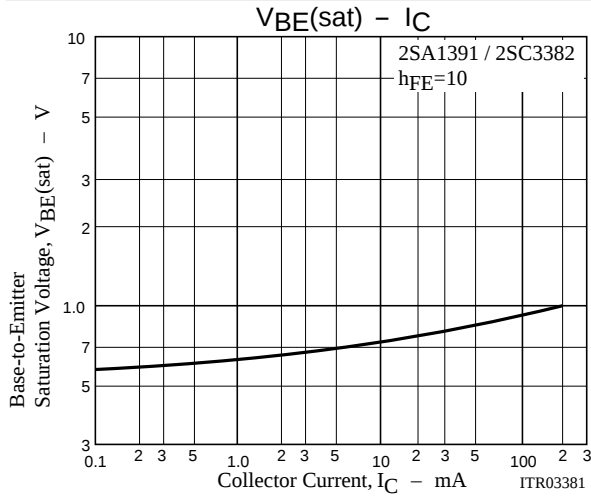
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)100mA, I_B=(-)10mA$			$(-)0.3$	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)100mA, I_B=(-)10mA$			$(-)1.0$	V
Output Capacitance	C_{ob}	$V_{CB}=(-)6V, f=1MHz$		2.7		pF
				(3.7)		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	$(-)60$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	$(-)50$			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	$(-)6$			V
Noise Level	$V_{NO(ave)}$	$V_{CC}=(-)30V, I_C=(-)1mA, R_g=56k\Omega, V_G=77dB/1kHz$			40	mV
					(35)	mV
Noise Peak Level	$V_{NO(peak)}$	$V_{CC}=(-)30V, I_C=(-)1mA, R_g=56k\Omega, V_G=77dB/1kHz$			280	mV
					(200)	mV



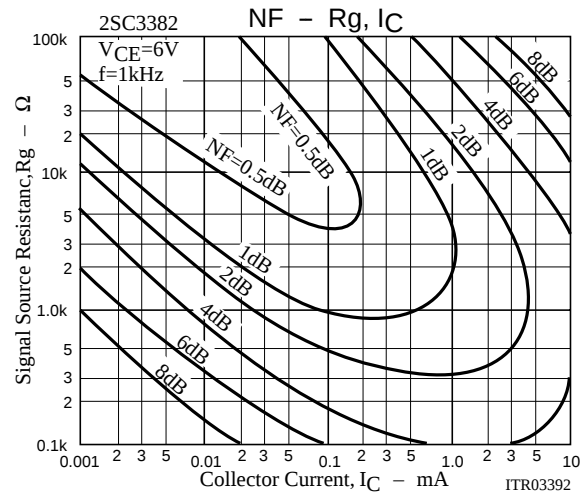
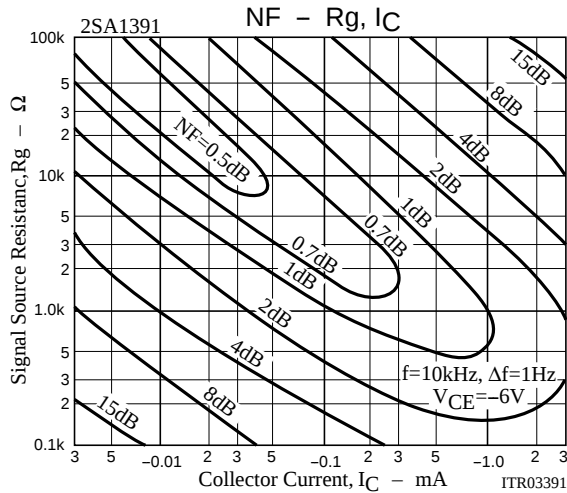
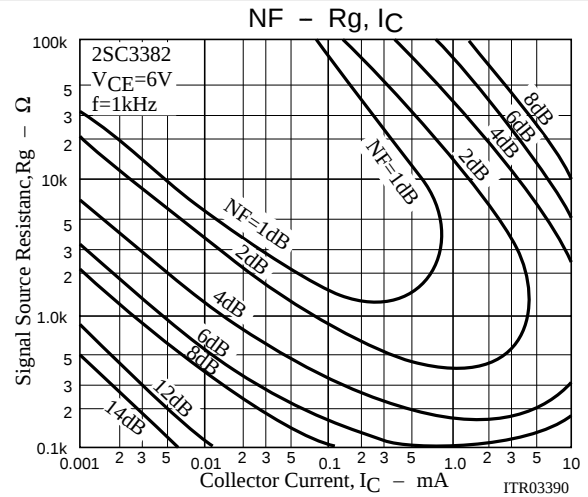
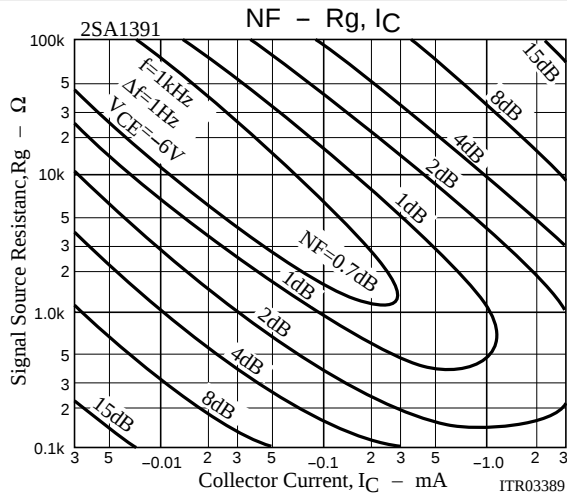
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