



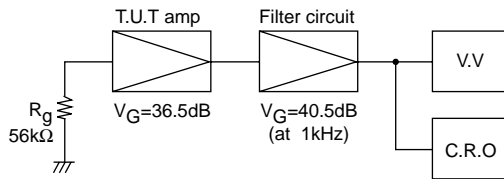
2SA1391/2SC3382

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_{CB0}	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)0.1	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB} = (-)5\text{V}, I_C = 0$			(-)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 :

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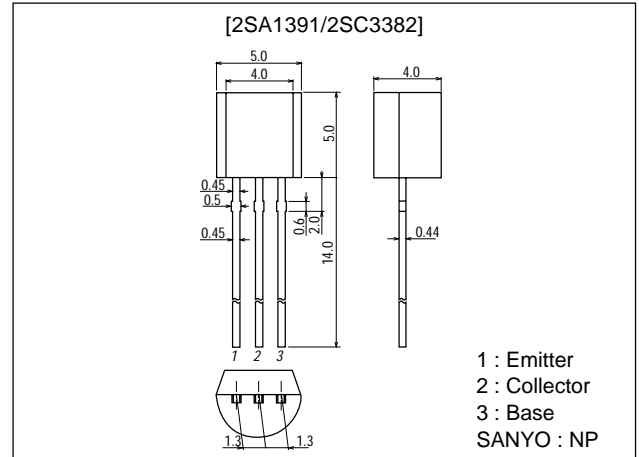
Rank	R	S	T	U
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

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Package Dimensions

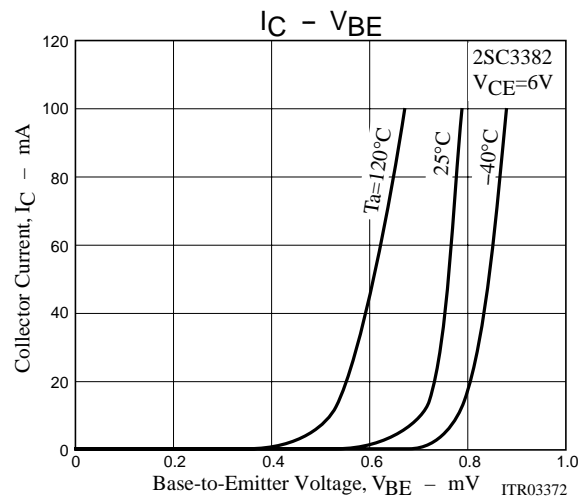
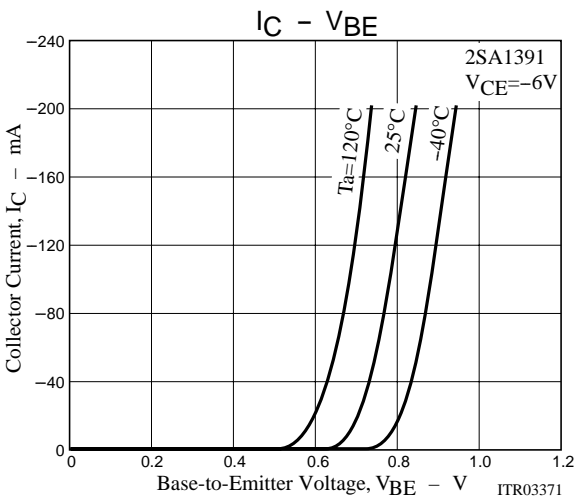
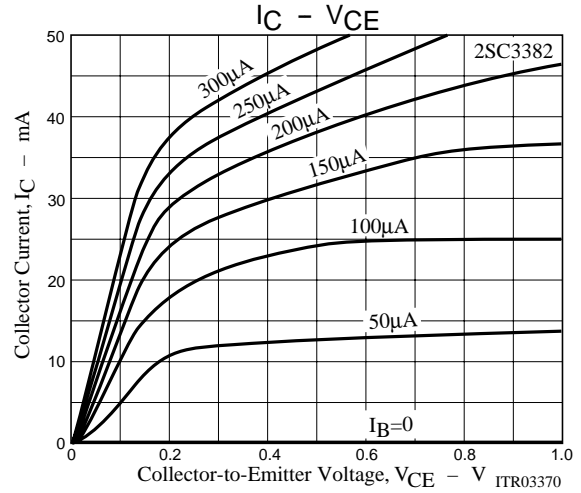
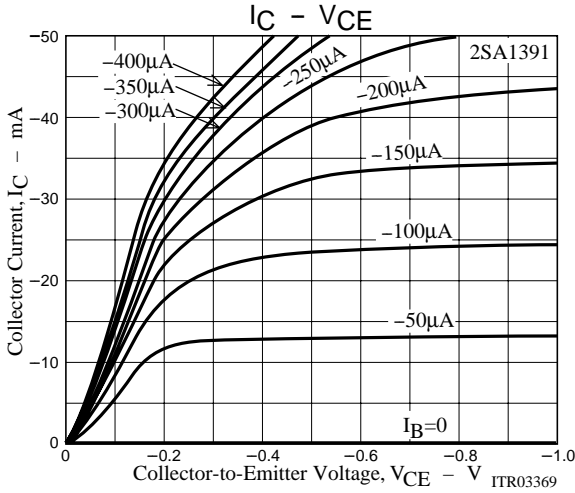
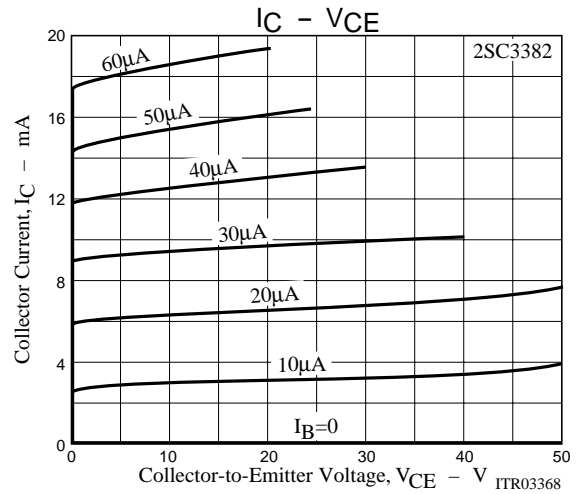
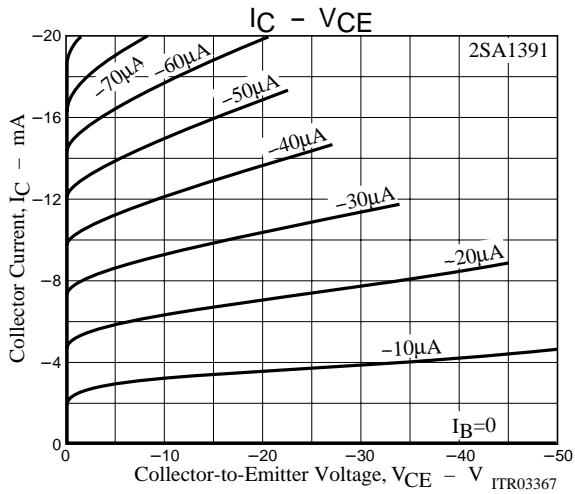
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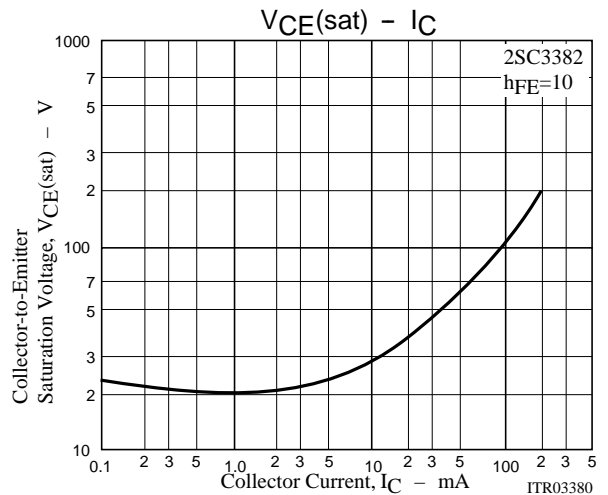
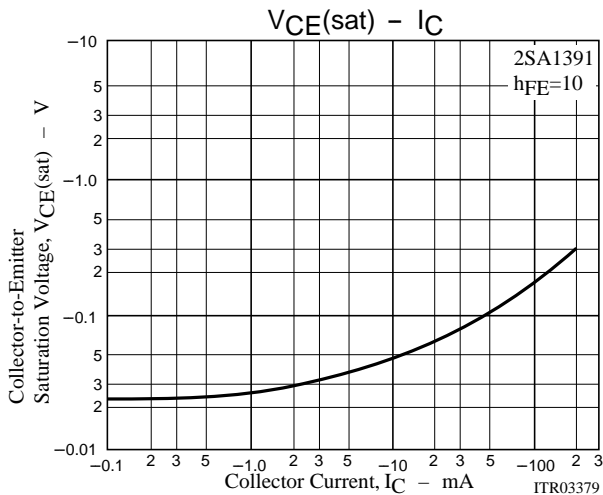
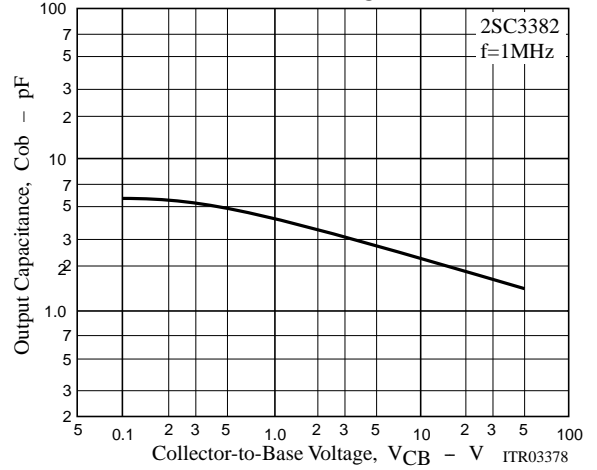
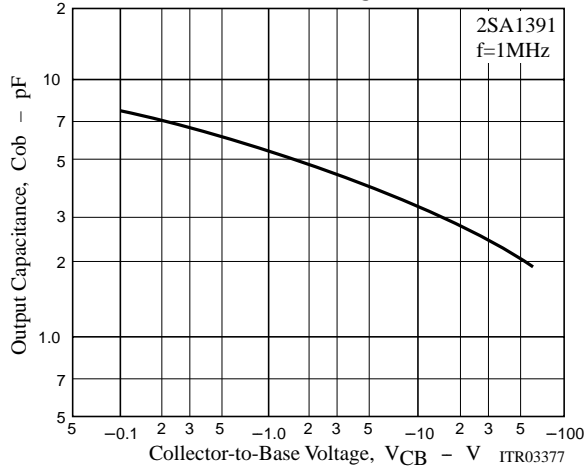
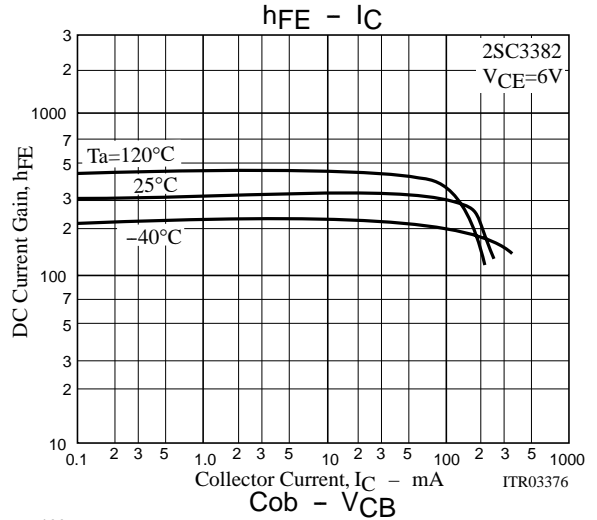
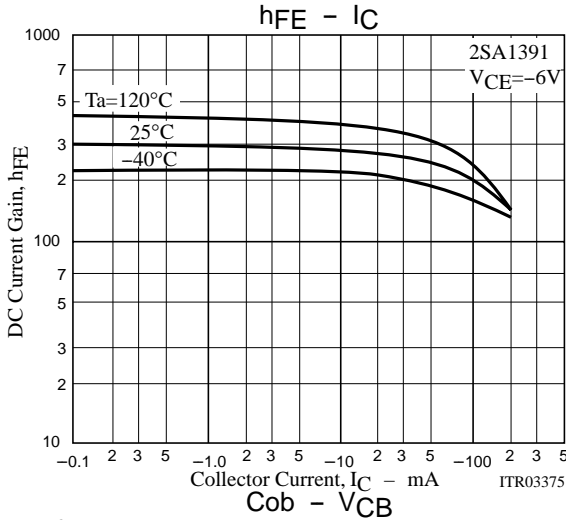
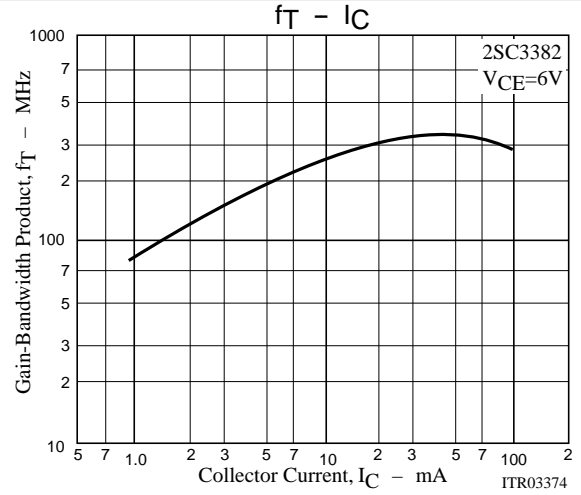
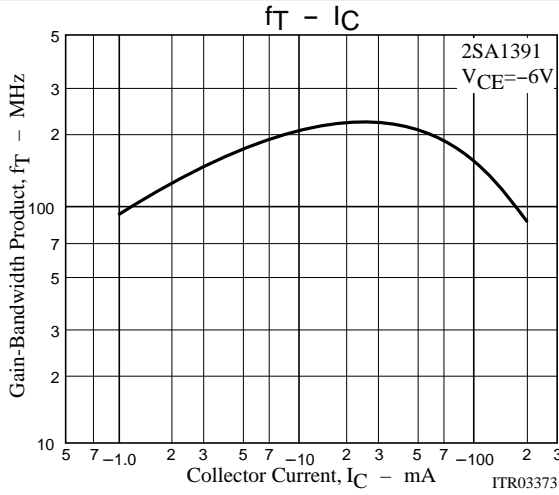
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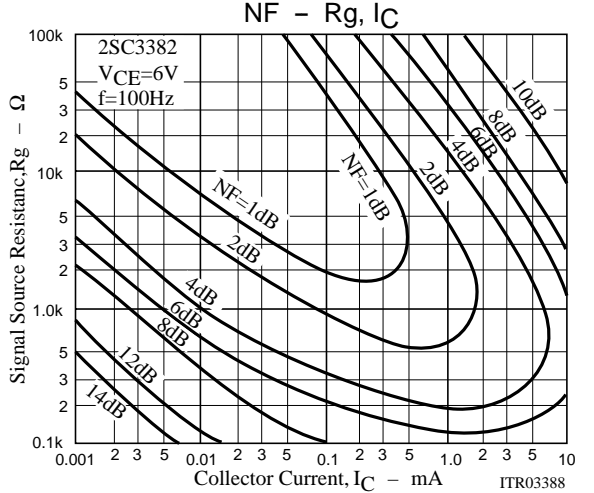
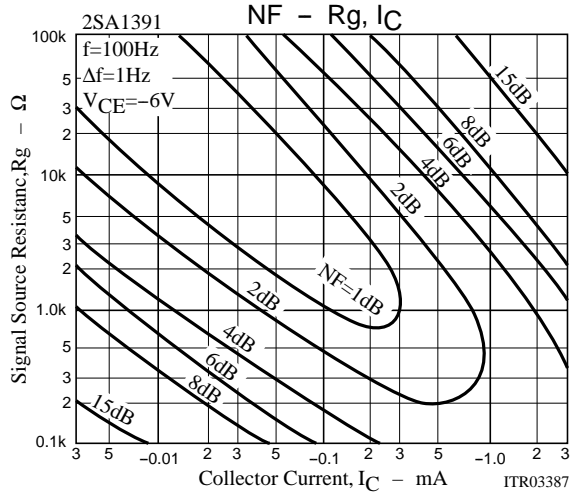
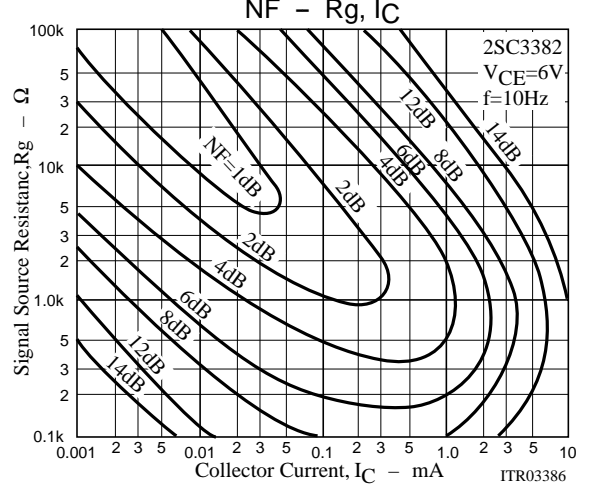
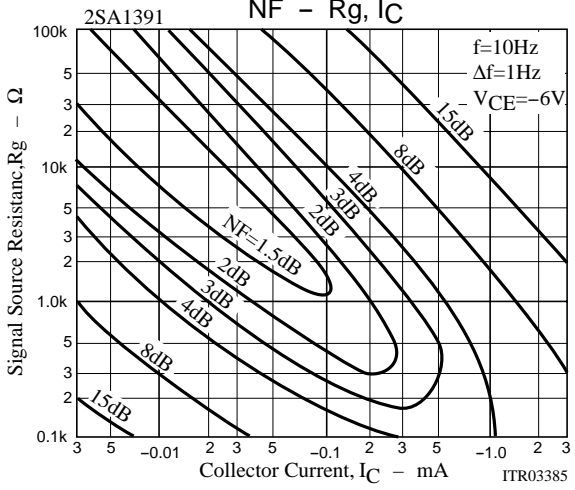
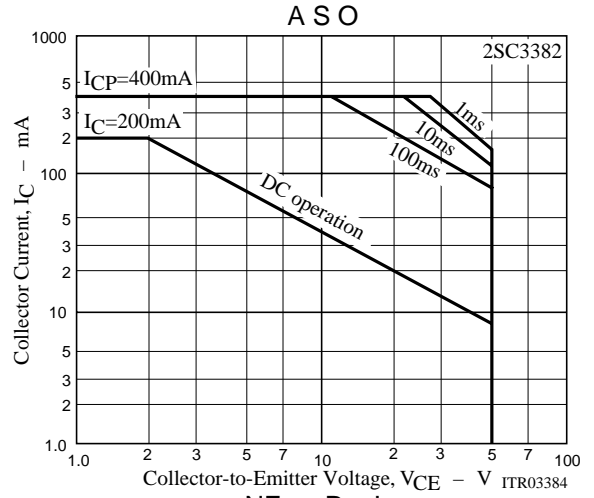
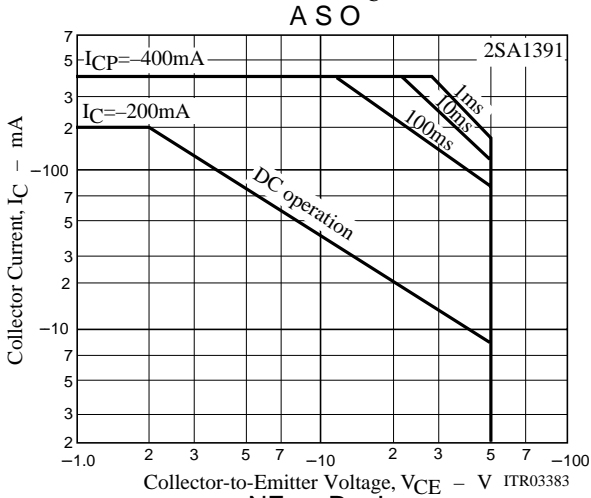
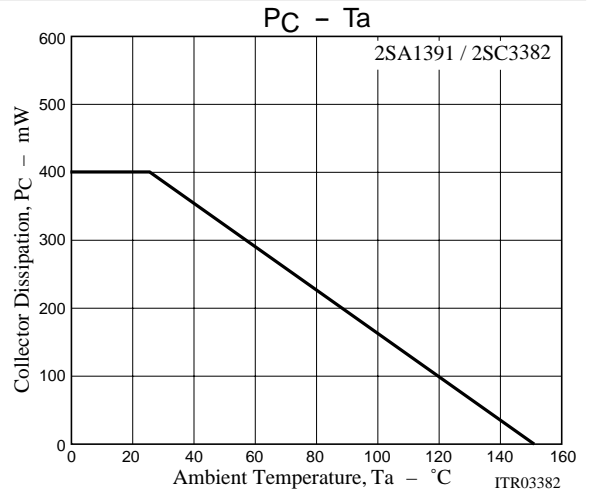
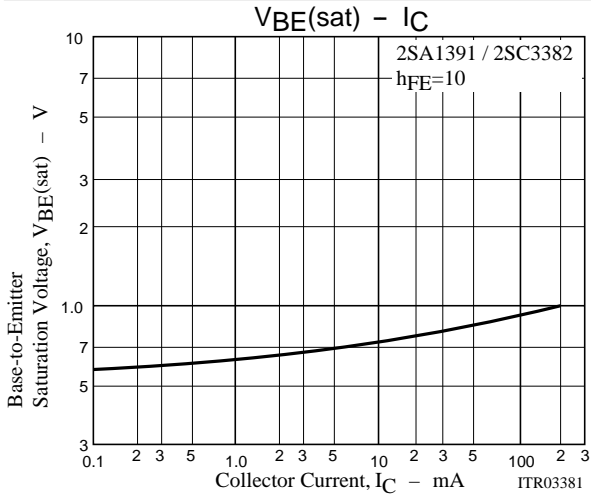
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)100\text{mA}$, $I_B=(-)10\text{mA}$			(-)0.3	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)100\text{mA}$, $I_B=(-)10\text{mA}$			(-)1.0	V
Output Capacitance	C_{ob}	$V_{CB}=(-)6\text{V}$,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



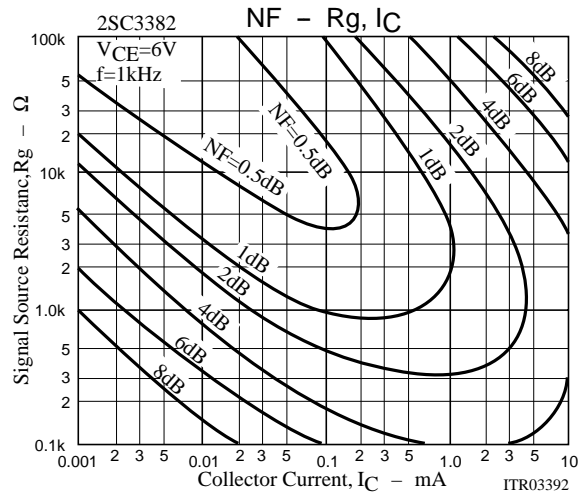
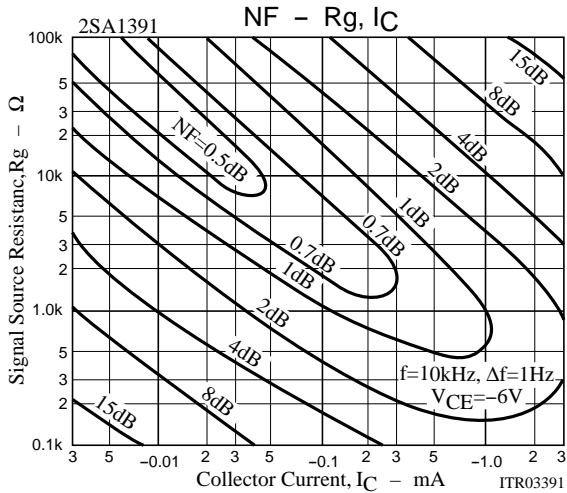
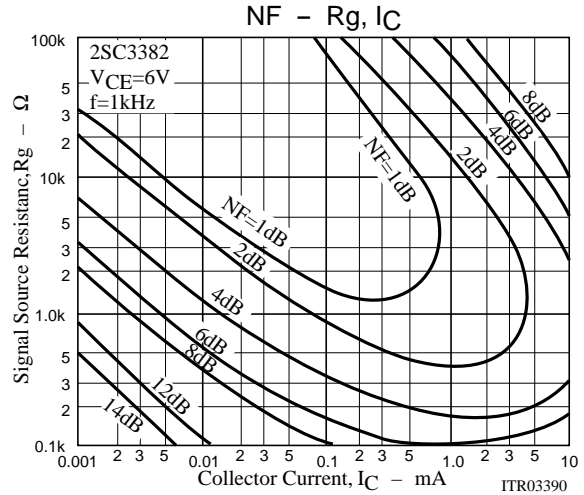
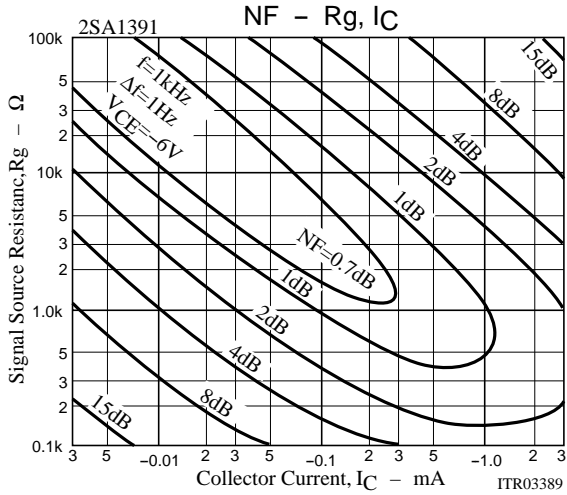
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