

SANYO**HF Amp Applications****Use**

- Ideally suited for use in FM RF amplifiers, mixers, oscillators, converters, IF amplifiers.

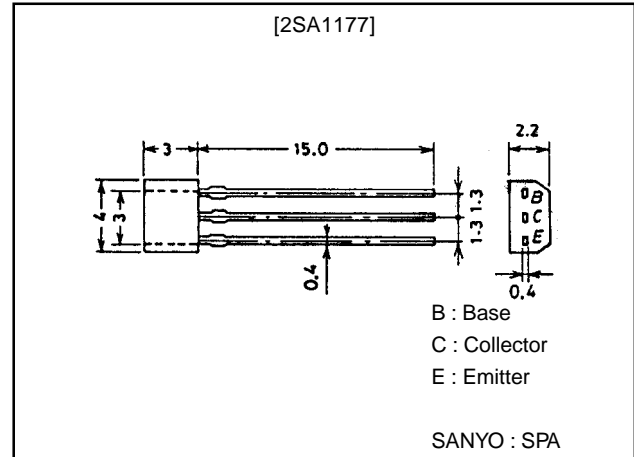
Features

- High f_T (230MHz typ.) and small C_{re} (1.1 pF typ.).
- Small NF (2.5dB typ.).

Package Dimensions

unit:mm

2033

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

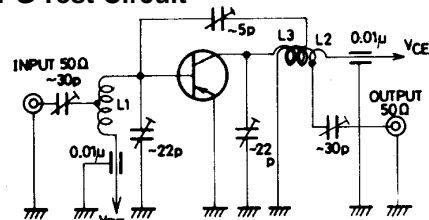
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		-30	V
Collector-to-Emitter Voltage	V_{CEO}		-20	V
Emitter-to-Base Voltage	V_{EBO}		-5	V
Collector Current	I_C		-30	mA
Collector Dissipation	P_C		150	mW
Junction Temperature	T_J		125	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-10\text{V}, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$			-0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$	60*		320*	
Gain-Bandwidth Product	f_T	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$	150	230		MHz
Feedback Capacitance	C_{re}	$V_{CB}=-6\text{V}, f=1\text{MHz}$		1.1	1.7	pF
Base-to-Collector Time Constant	τ_{bb}, τ_c	$V_{CB}=-6\text{V}, I_C=-1\text{mA}, f=31.9\text{MHz}$		11	20	ps
Noise Figure	NF	$V_{CE}=-6\text{V}, I_C=-1\text{mA}, f=100\text{MHz}$		2.5		dB
Power Gain	PG	$V_{CE}=-6\text{V}, I_C=-1\text{mA}, f=100\text{MHz}$		22		dB

* : 2SA1177 is classified as follows according to h_{FE} at 1mA.

60	D	120	100	E	200	160	F	320
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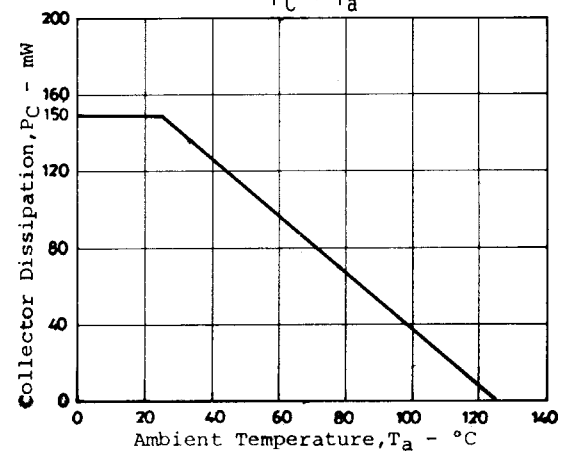
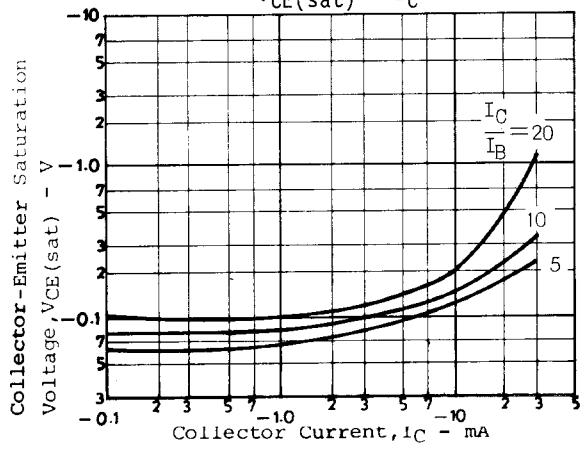
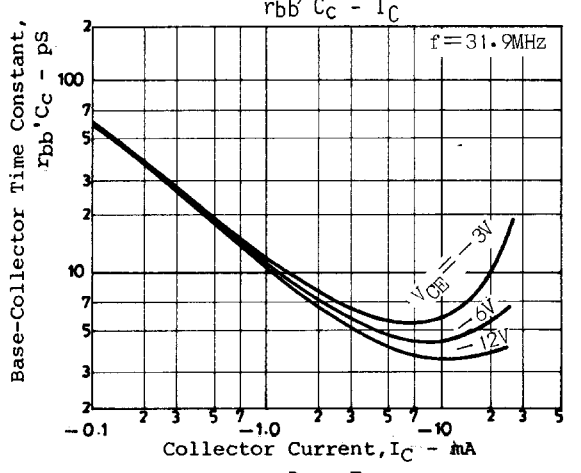
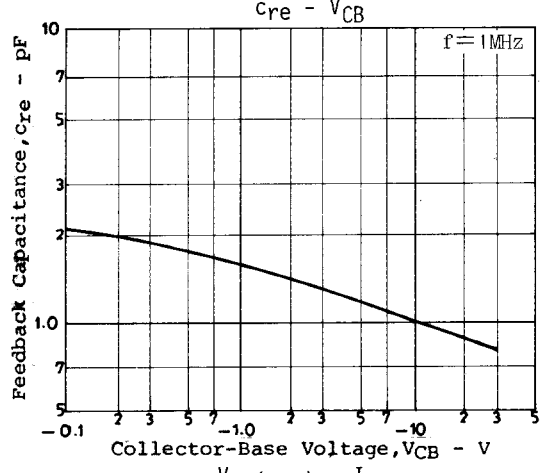
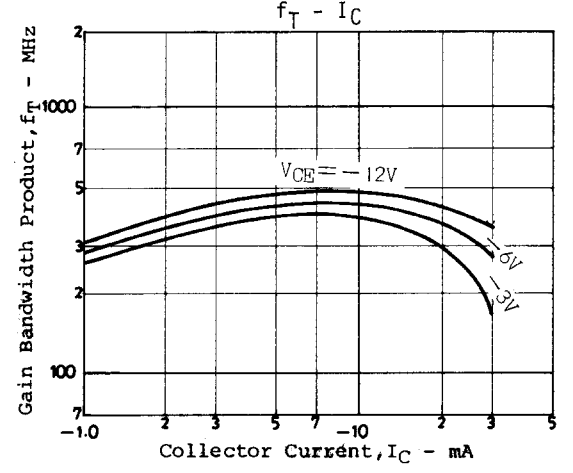
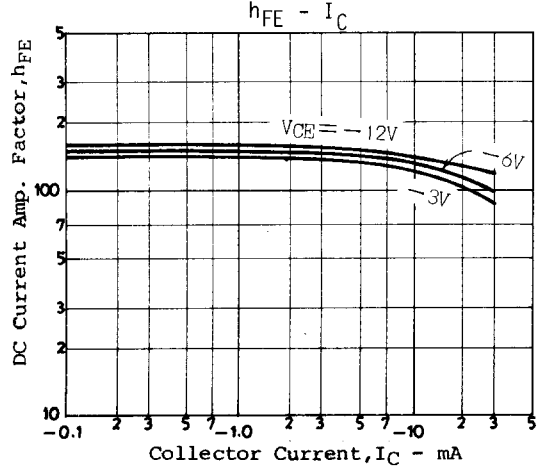
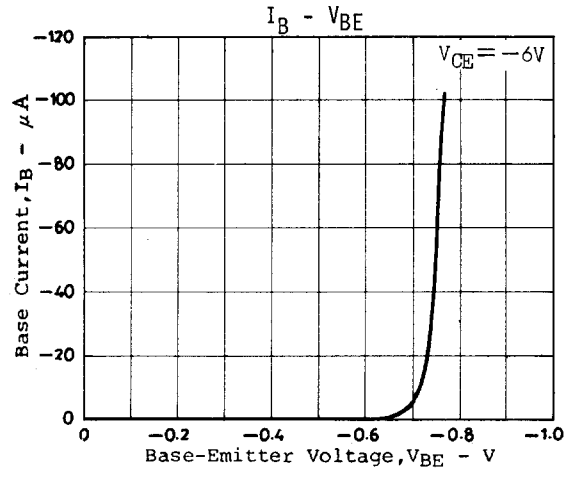
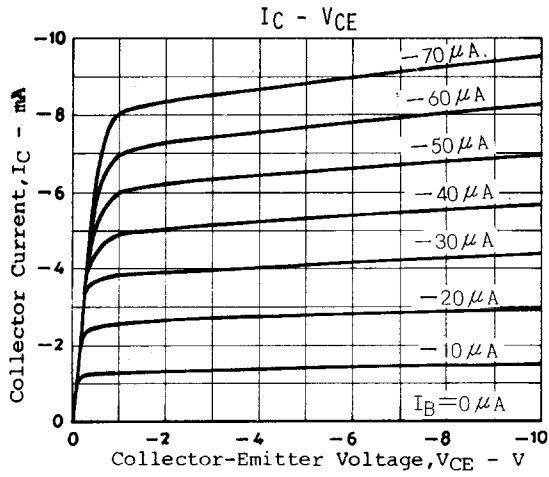
NF, PG Test CircuitL1 : 1mm ϕ plated wire 10mm ϕ 5T, tapped at 2T from V_{BE} side.L2 : 1mm ϕ plated wire 10mm ϕ 7T, tapped at 1T from V_{CE} side.L3 : 1mm ϕ enameled wire 10mm ϕ 3T.

Unit (Capacitance : F)

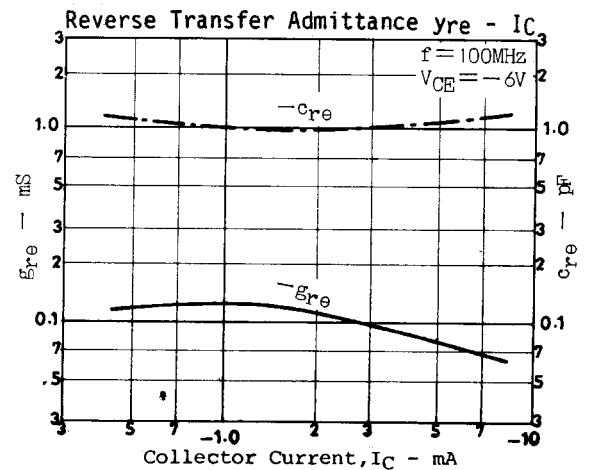
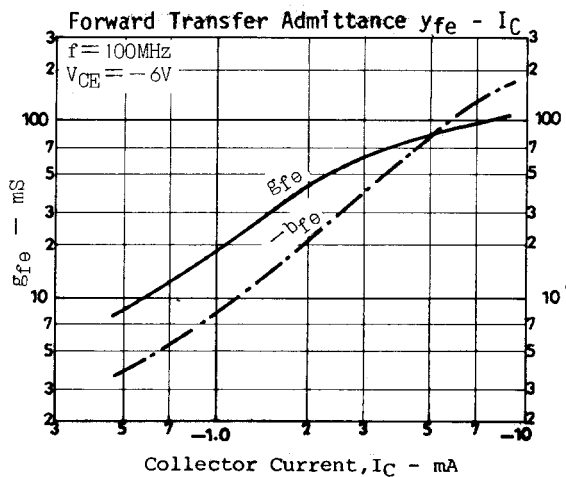
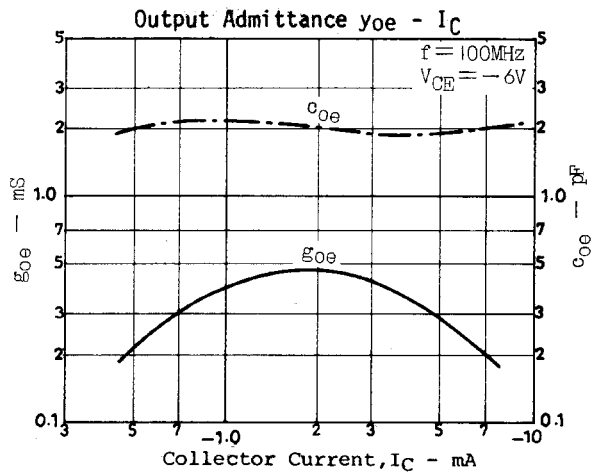
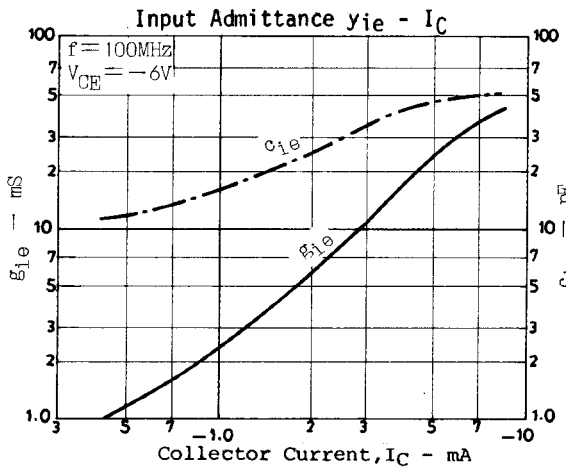
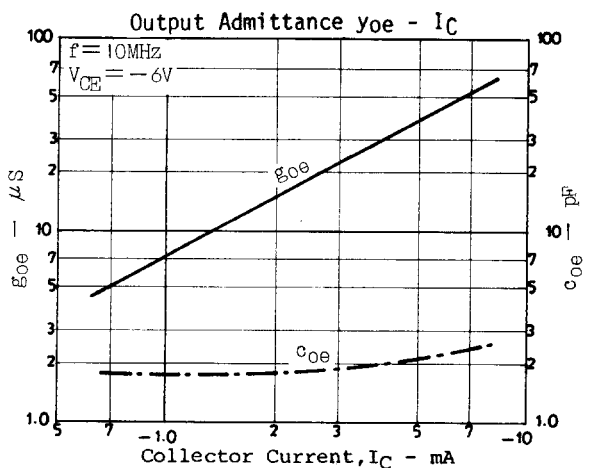
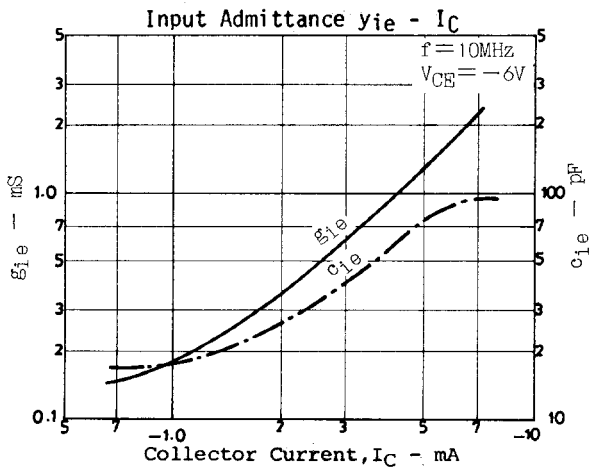
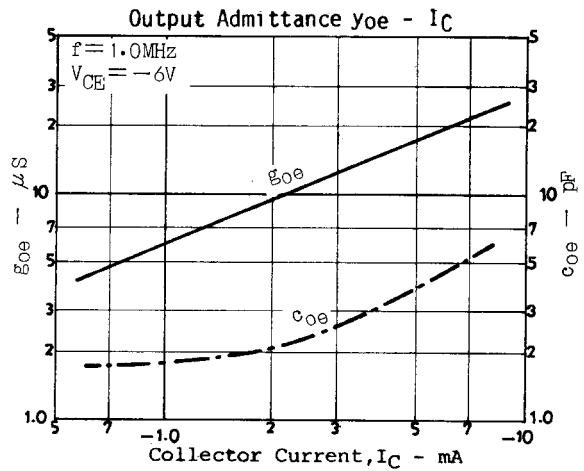
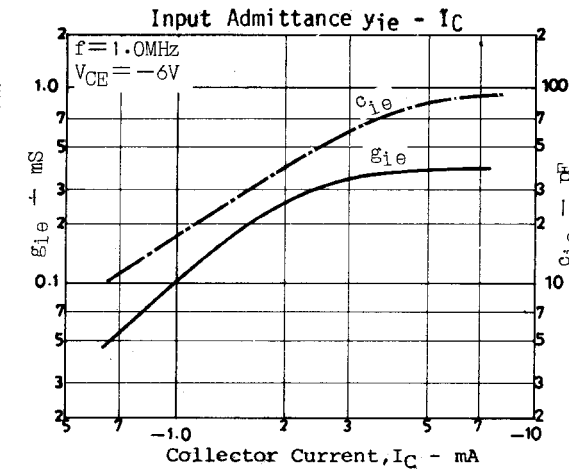
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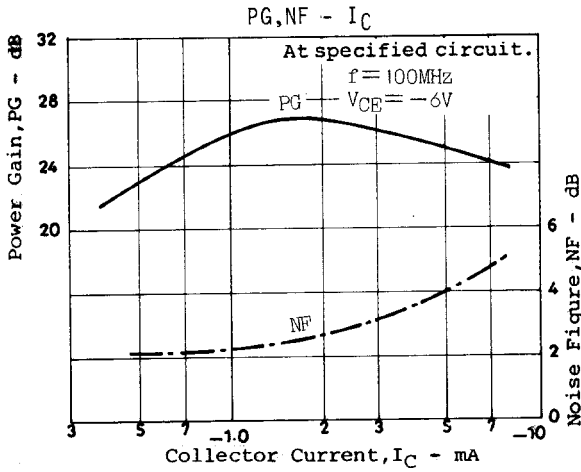
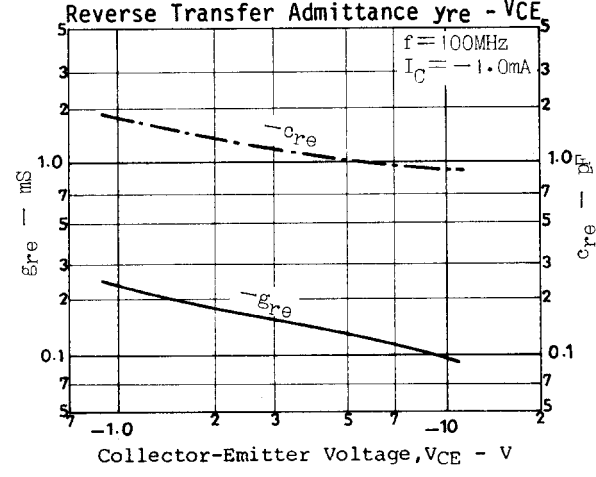
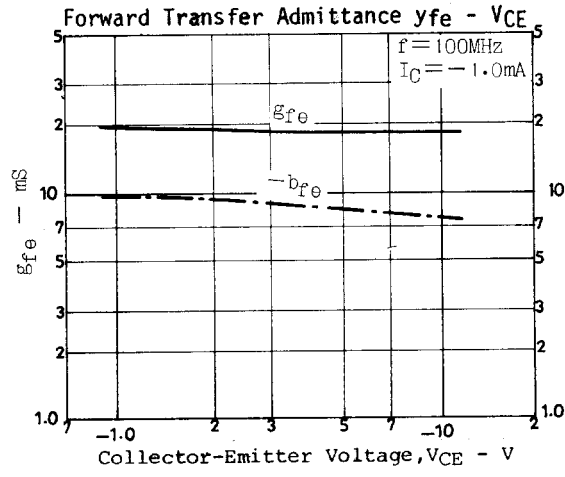
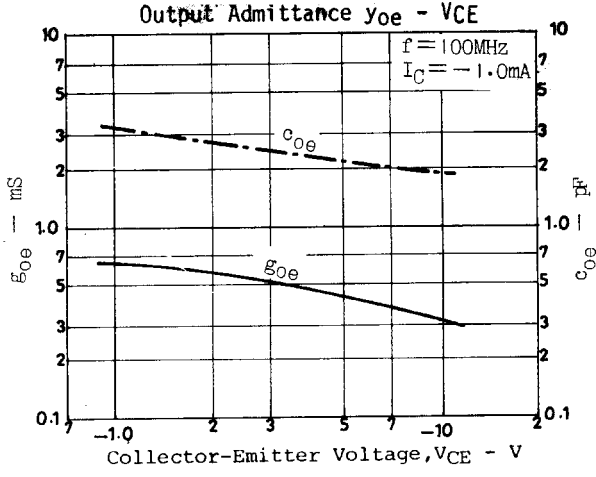
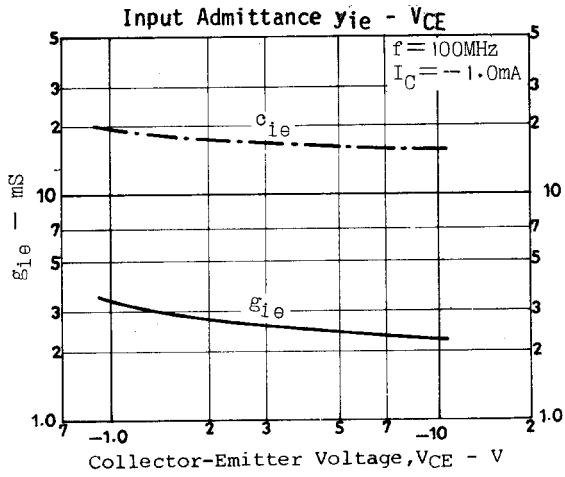
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2SA1177



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