

**2SC3778**

UHF Low-Noise Amplifier, Wide-Band Amplifier Applications

Applications

- UHF low-noise amplifiers, wide-band amplifiers.

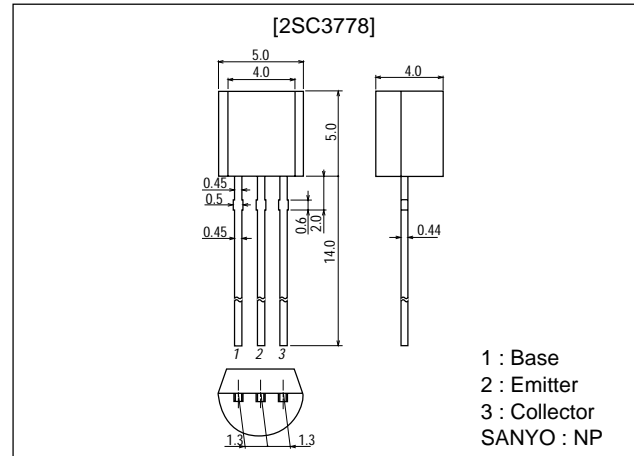
Features

- Small noise figure : NF=2.2dB typ (f=0.9GHz).
- High power gain : MAG=14dB typ (f=0.9GHz).
- High cutoff frequency : $f_T=5.0$ GHz typ.

Package Dimensions

unit:mm

2004B



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		20	V
Collector-to-Emitter Voltage	V_{CE0}		12	V
Emitter-to-Base Voltage	V_{EBO}		3	V
Collector Current	I_C		70	mA
Base Current	I_B		30	mA
Collector Dissipation	P_C		500	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}	$V_{CB}=12\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=2\text{V}, I_C=0$			10	μA
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=20\text{mA}$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=20\text{mA}$		5.0		GHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		0.8	1.1	pF
Reverse Transfer Capacitance	C_{re}	$V_{CB}=10\text{V}, f=1\text{MHz}$		0.5		pF

* : The 2SC3778 is classified by 20mA h_{FE} as follows :

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Rank	C	D	E
h_{FE}	40 to 80	60 to 120	100 to 200

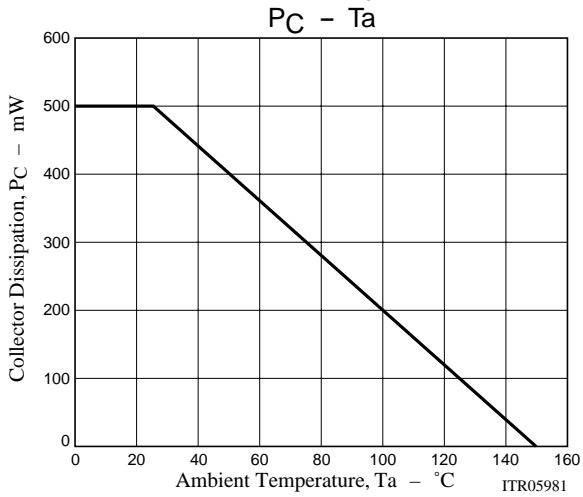
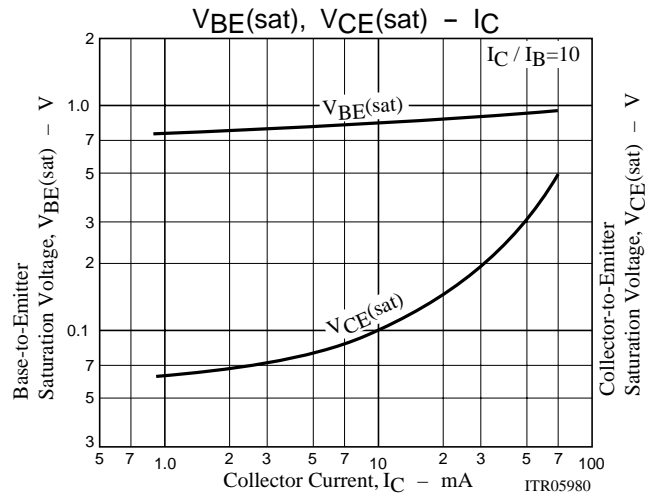
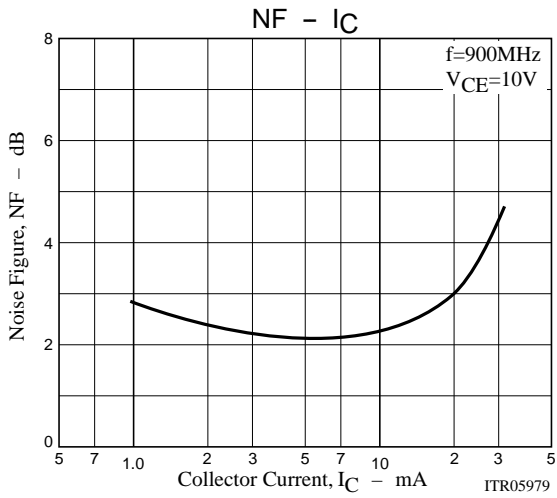
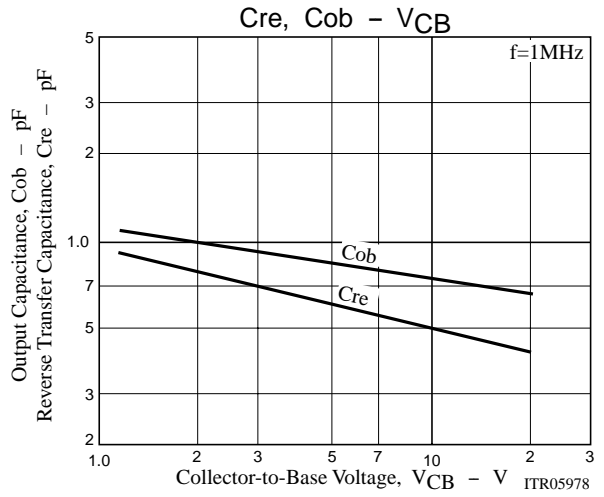
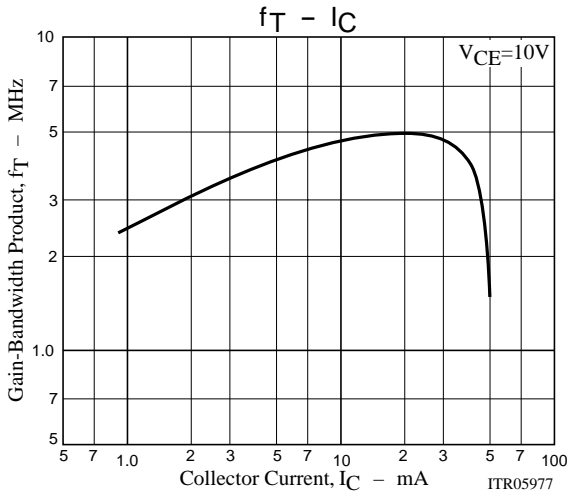
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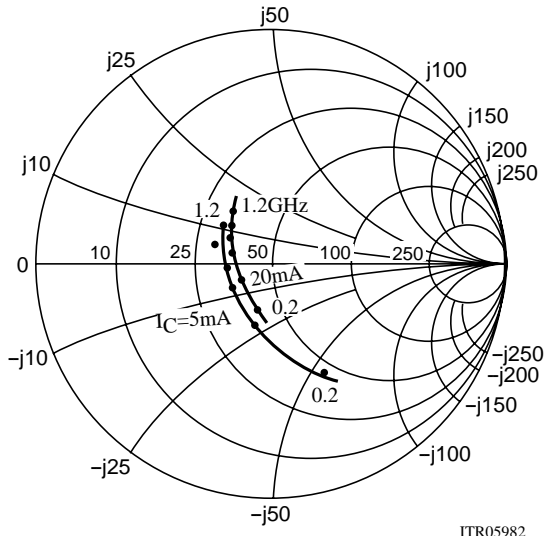
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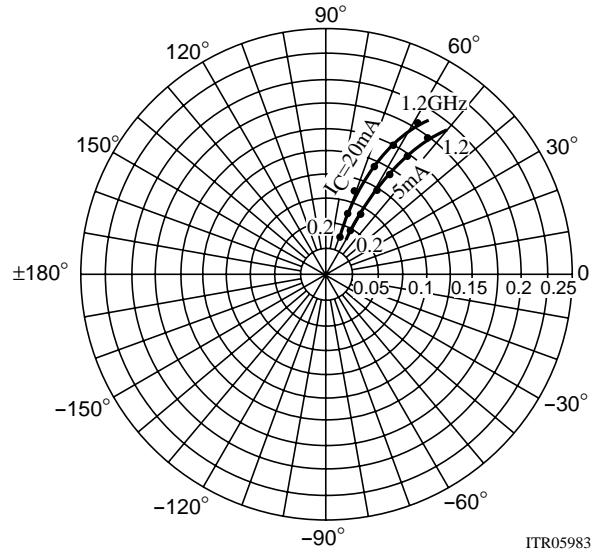
S parameter

S11e : $V_{CE}=10V$
 $f=200MHz$ step



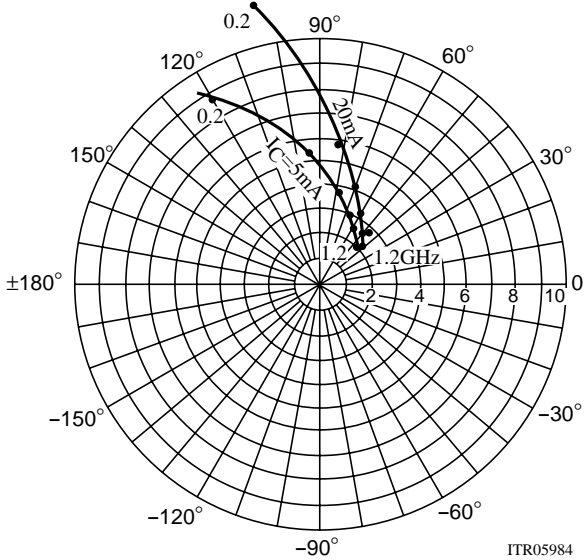
ITR05982

S12e : $V_{CE}=10V$
 $f=200MHz$ step



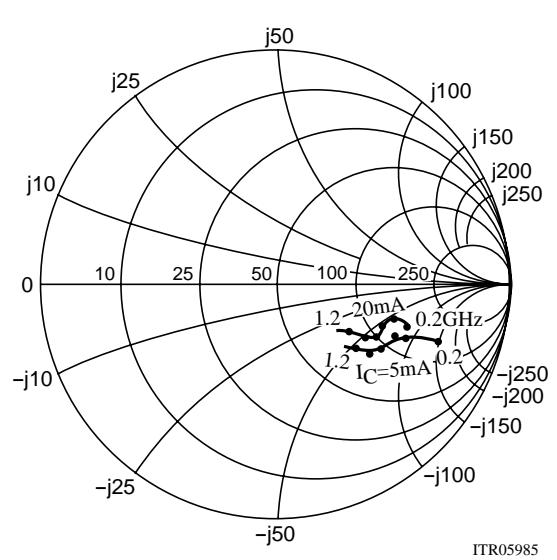
ITR05983

S21e : $V_{CE}=10V$
 $f=200MHz$ step



ITR05984

S22e : $V_{CE}=10V$
 $f=200MHz$ step



ITR05985

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