

Silicon NPN RF Transistor

2SC3355

DESCRIPTION

·Low Noise and High Gain

NF = 1.1 dB TYP., $G_a = 8.0$ dB TYP.

@ $V_{CE} = 10$ V, $I_C = 7$ mA, $f = 1.0$ GHz

NF = 1.1 dB TYP., $G_a = 9.0$ dB TYP.

@ $V_{CE} = 10$ V, $I_C = 40$ mA, $f = 1.0$ GHz

·High Power Gain

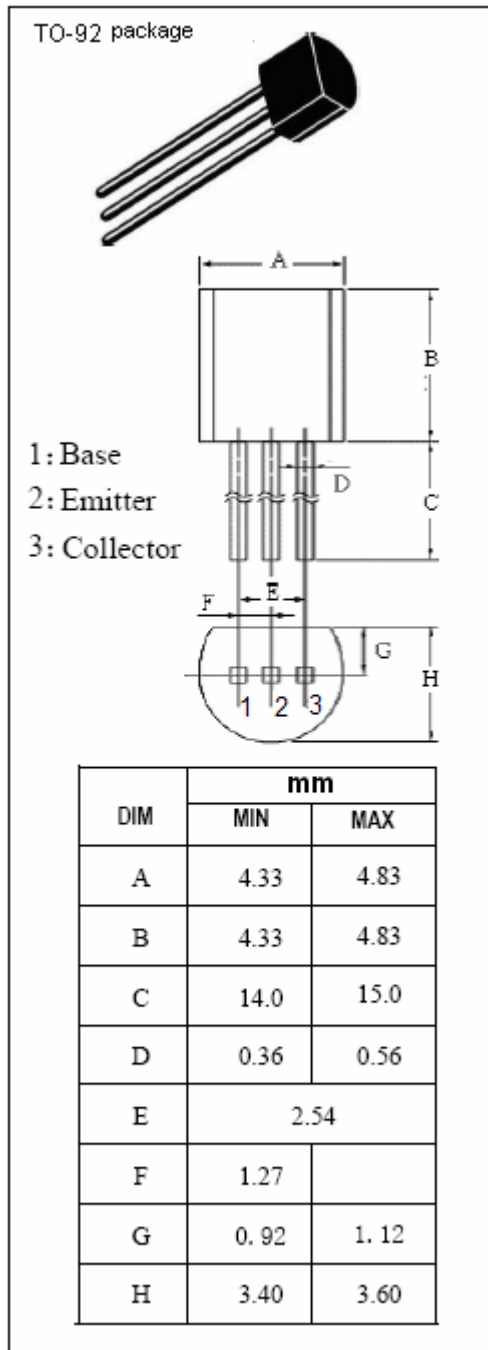
MAG = 11 dB TYP. @ $V_{CE} = 10$ V, $I_C = 20$ mA, $f = 1.0$ GHz

APPLICATIONS

·Designed for low noise amplifier at VHF, UHF and CATV band.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	12	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current-Continuous	0.1	A
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	0.6	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ$ unless otherwise specified

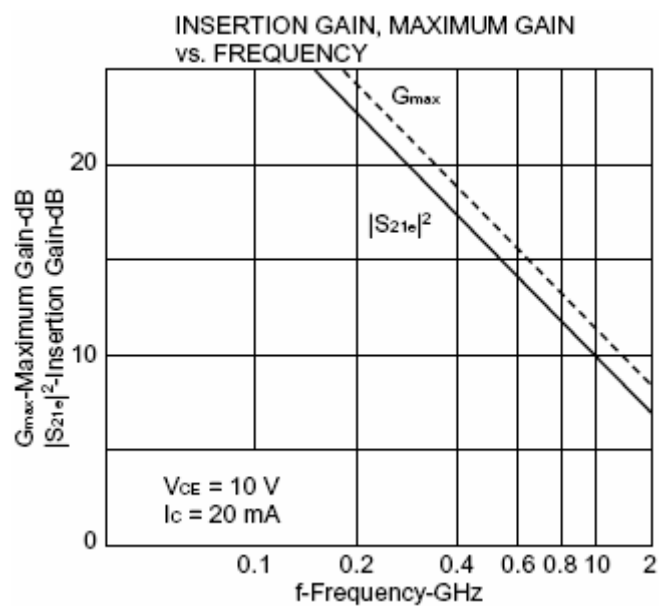
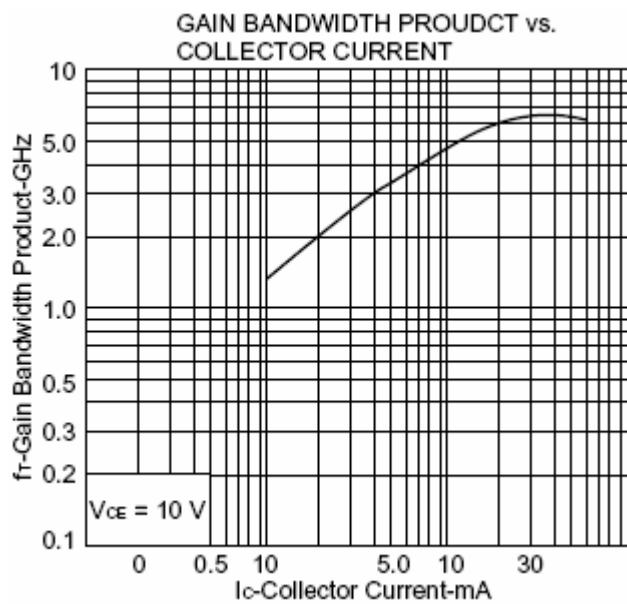
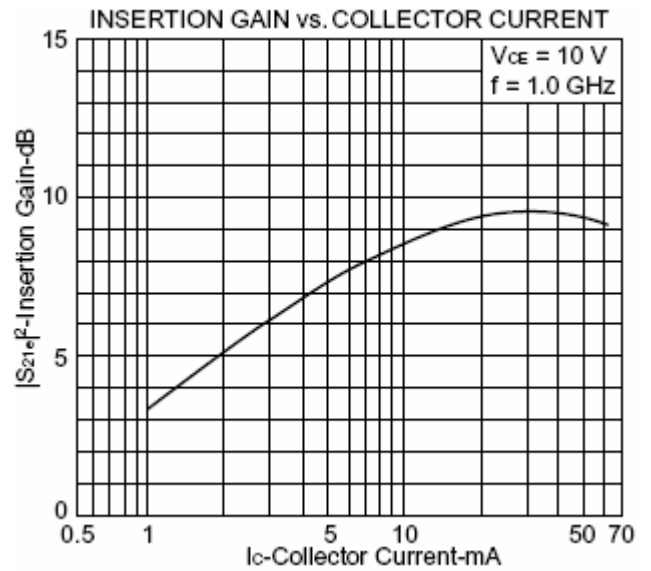
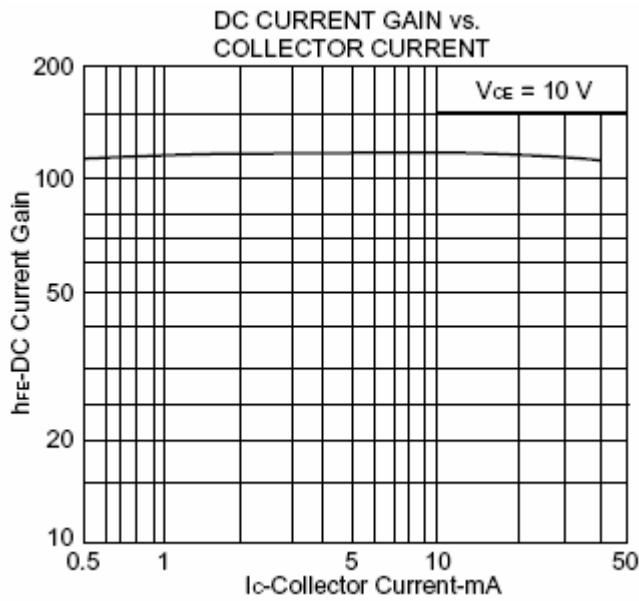
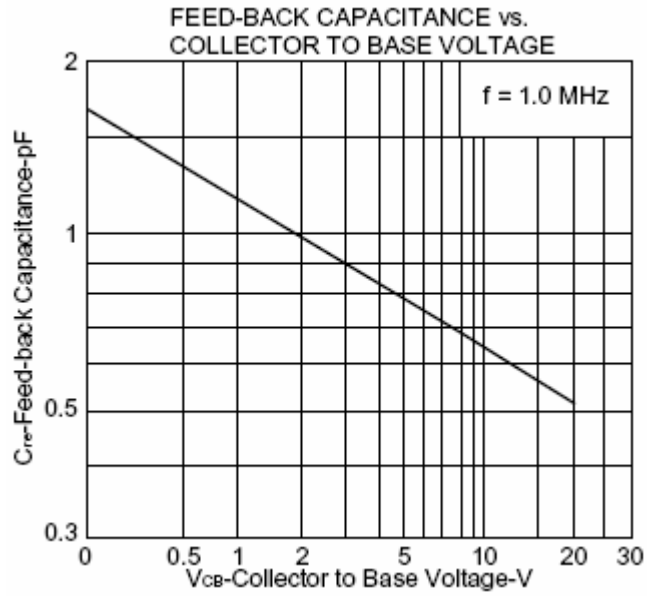
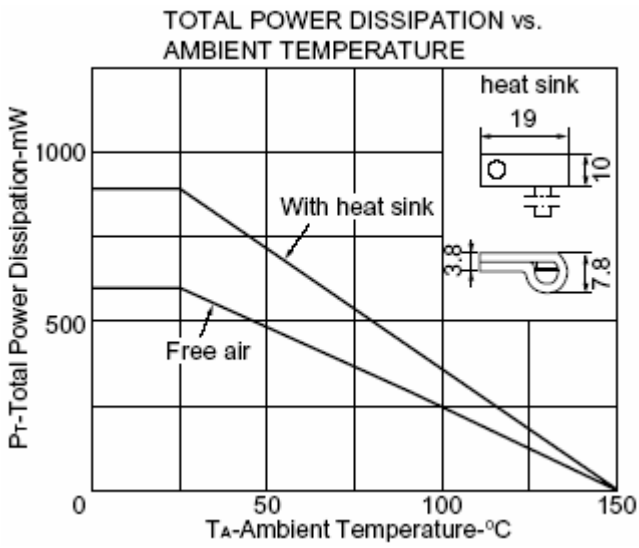
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
I_{CBO}	Collector Cutoff Current	$V_{CB}= 10V; I_E= 0$			1.0	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}= 1V; I_C= 0$			1.0	μA
h_{FE}	DC Current Gain	$I_C= 20mA; V_{CE}= 10V$	50		300	
f_T	Current-Gain—Bandwidth Product	$I_C= 20mA; V_{CE}= 10V$		6.5		GHz
C_{OB}	Output Capacitance	$I_E= 0; V_{CB}= 10V; f= 1.0MHz$		0.65	1.0	pF
$ S_{21e} ^2$	Insertion Power Gain	$I_C= 20mA; V_{CE}= 10V; f= 1.0GHz$		9.5		dB
NF	Noise Figure	$I_C= 7mA; V_{CE}= 10V; f= 1.0GHz$		1.1		dB
NF	Noise Figure	$I_C= 40mA; V_{CE}= 10V; f= 1.0GHz$		1.8	3.0	dB

◆ h_{FE} Classification

Class	K
Marking	K
h_{FE}	50-300

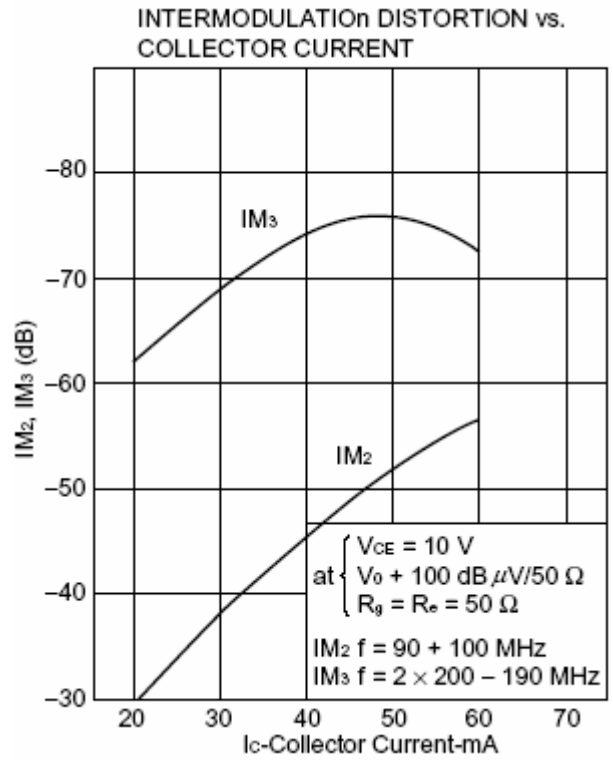
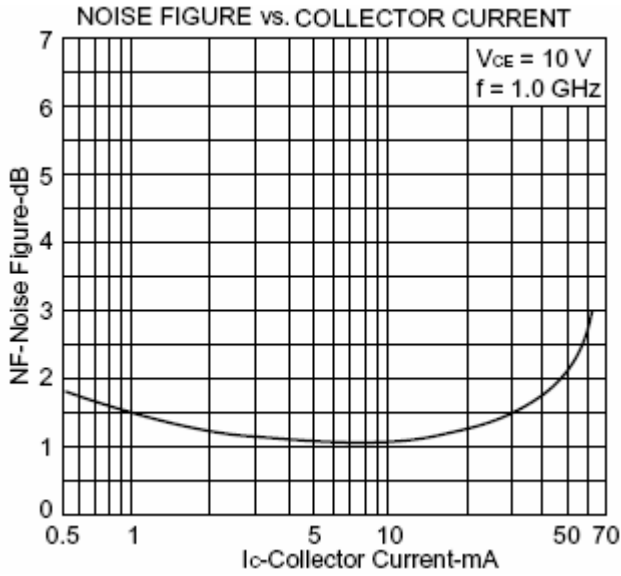
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S-PARAMETER

$V_{CE} = 10\text{ V}$, $I_c = 20\text{ mA}$, $Z_o = 50\ \Omega$

f (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.173	-80.3	13.652	103.4	0.041	73.8	0.453	-21.8
400	0.054	-77.0	7.217	85.1	0.066	71.2	0.427	-26.0
600	0.013	-57.9	4.936	74.0	0.113	69.3	0.428	-30.8
800	0.028	81.8	3.761	62.3	0.144	67.0	0.414	-37.2
1000	0.062	82.2	3.094	58.3	0.183	64.7	0.392	-43.2
1200	0.091	80.7	2.728	52.9	0.215	61.7	0.377	-51.4
1400	0.121	80.2	2.321	44.9	0.240	58.7	0.359	-58.3
1600	0.148	80.1	2.183	36.4	0.288	50.7	0.354	-67.2
1800	0.171	80.0	1.892	30.2	0.305	46.8	0.345	-80.0
2000	0.207	79.9	1.814	21.4	0.344	39.1	0.344	-90.4

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$V_{CE} = 10\text{ V}$, $I_c = 40\text{ mA}$, $Z_o = 50\Omega$

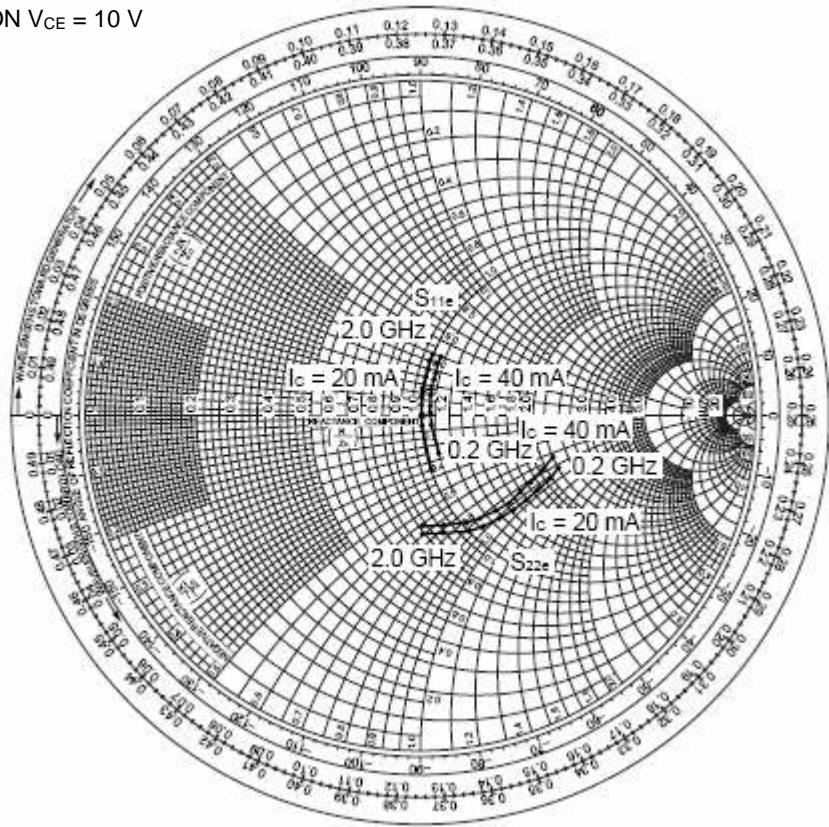
f (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.011	-60.1	13.76	105.4	0.040	-73.3	0.421	-17.5
400	0.028	-42.9	7.338	82.9	0.069	66.7	0.416	-22.8
600	0.027	25.1	4.996	72.7	0.114	69.4	0.414	-28.7
800	0.043	65.7	3.801	61.9	0.144	67.8	0.406	-35.7
1000	0.074	75.1	3.134	57.6	0.183	63.4	0.386	-41.8
1200	0.098	75.6	2.759	52.4	0.221	62.1	0.373	-49.8
1400	0.120	74.1	2.351	44.4	0.247	55.7	0.356	-56.3
1600	0.146	75.8	2.203	36.0	0.291	49.6	0.347	-66.6
1800	0.171	77.2	1.910	29.9	0.299	46.0	0.342	-78.8
2000	0.205	78.0	1.825	21.3	0.344	39.4	0.335	-89.6

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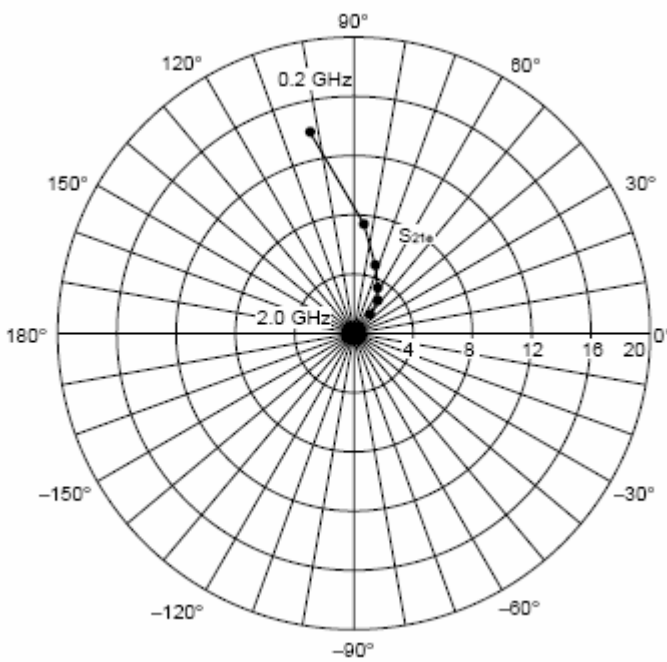
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S-PARAMETER

S_{11e} , S_{22e} -FREQUENCY CONDITION $V_{CE} = 10\text{ V}$



S_{21e} -FREQUENCY CONDITION $V_{CE} = 10\text{ V}$
 $I_c = 40\text{ mA}$



S_{12e} -FREQUENCY CONDITION $V_{CE} = 10\text{ V}$
 $I_c = 40\text{ mA}$

