

isc Silicon NPN RF Transistor

2SC3355

DESCRIPTION

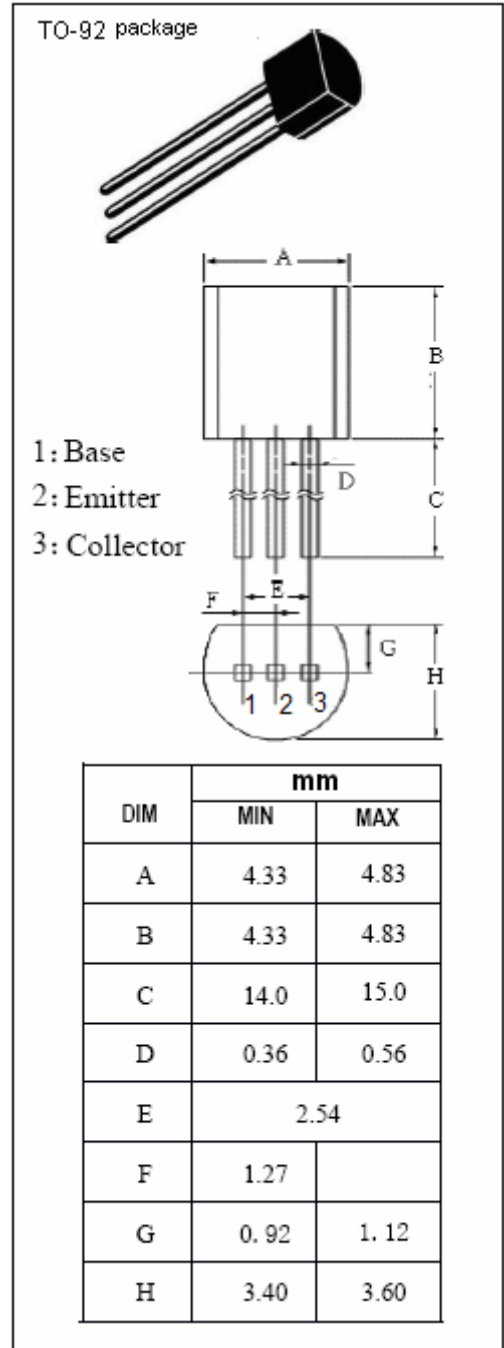
- Low Noise and High Gain  
 $NF = 1.1 \text{ dB TYP.}, G_a = 8.0 \text{ dB TYP.}$   
 $@V_{CE} = 10 \text{ V}, I_C = 7 \text{ mA}, f = 1.0 \text{ GHz}$   
 $NF = 1.1 \text{ dB TYP.}, G_a = 9.0 \text{ dB TYP.}$   
 $@V_{CE} = 10 \text{ V}, I_C = 40 \text{ mA}, f = 1.0 \text{ GHz}$
- High Power Gain  
 $MAG = 11 \text{ dB TYP. } @V_{CE} = 10 \text{ V}, I_C = 20 \text{ mA}, f = 1.0 \text{ GHz}$

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

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

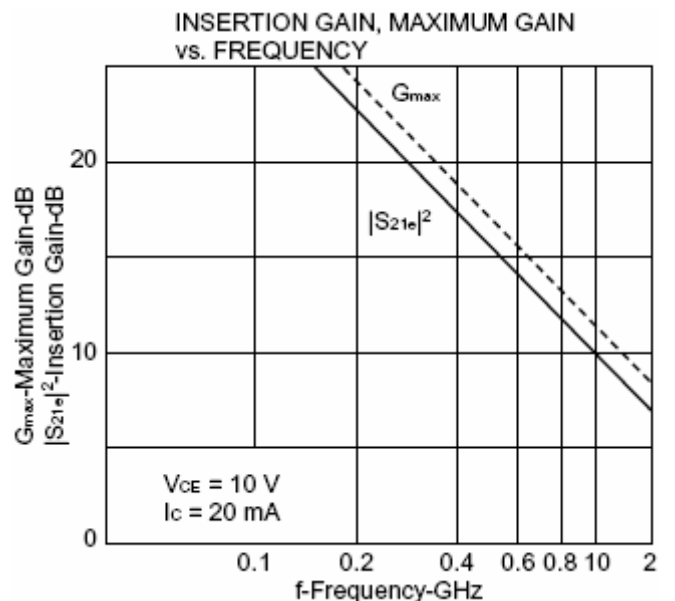
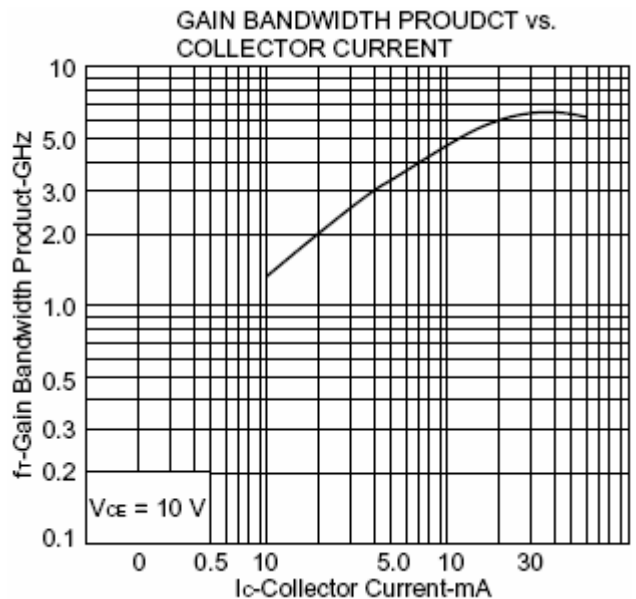
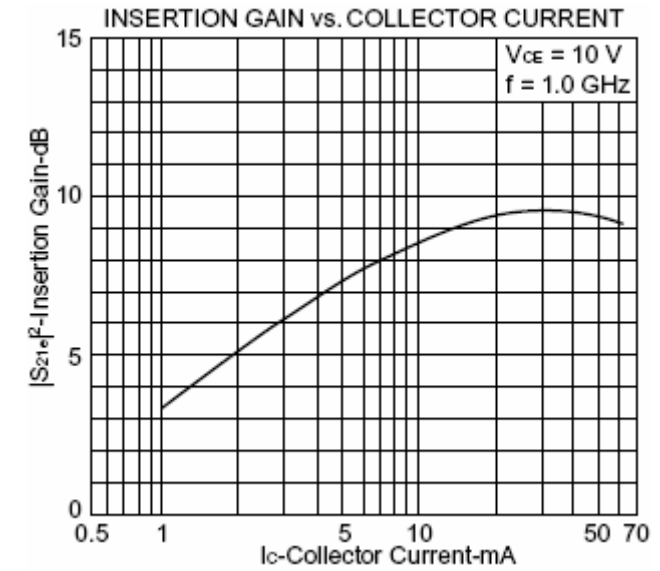
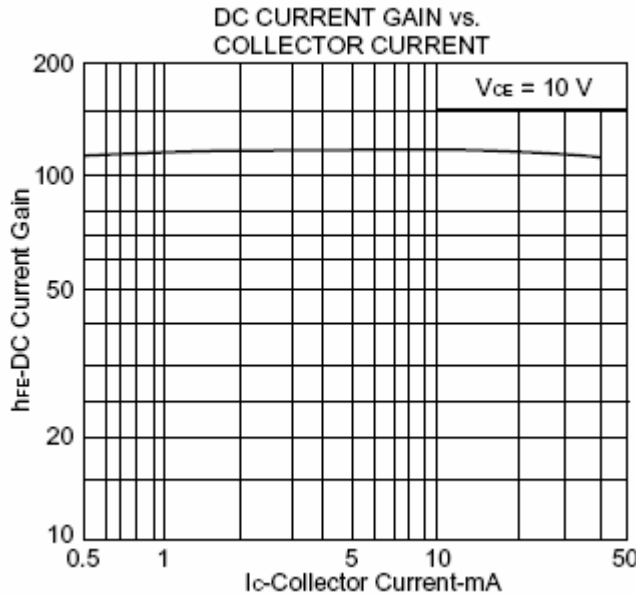
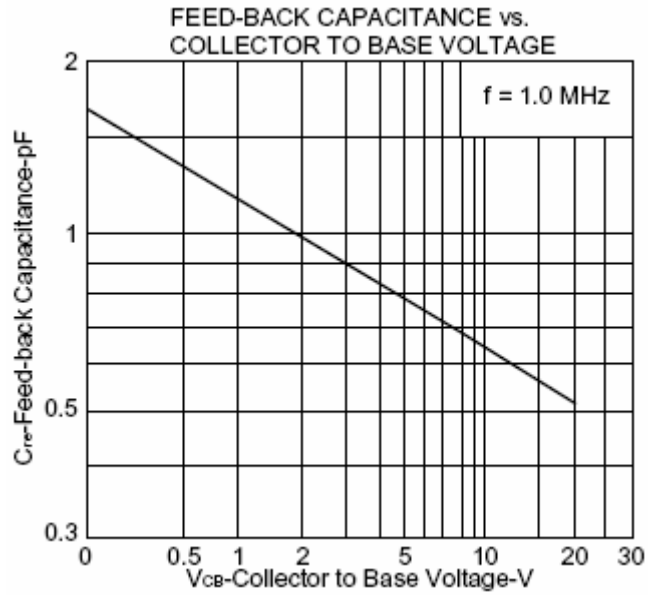
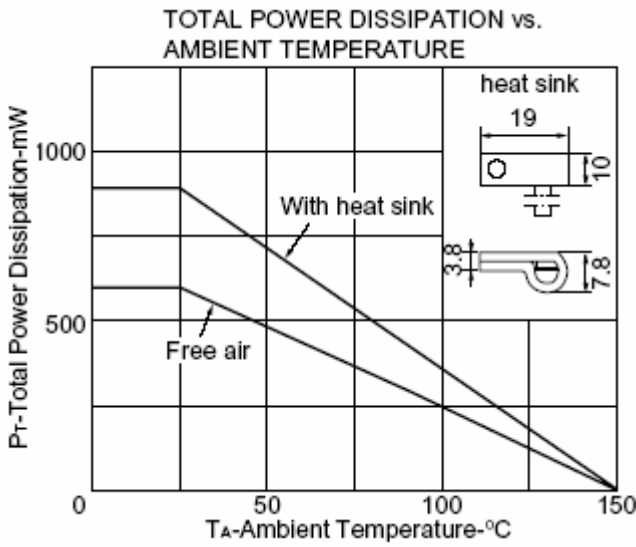
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=10\text{V}; I_E=0$			1.0	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=1\text{V}; I_C=0$			1.0	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$I_C=20\text{mA}; V_{CE}=10\text{V}$	50		300	
$f_T$	Current-Gain—Bandwidth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

◆  $h_{FE}$  Classification

Class	K
Marking	K
$h_{FE}$	50-300

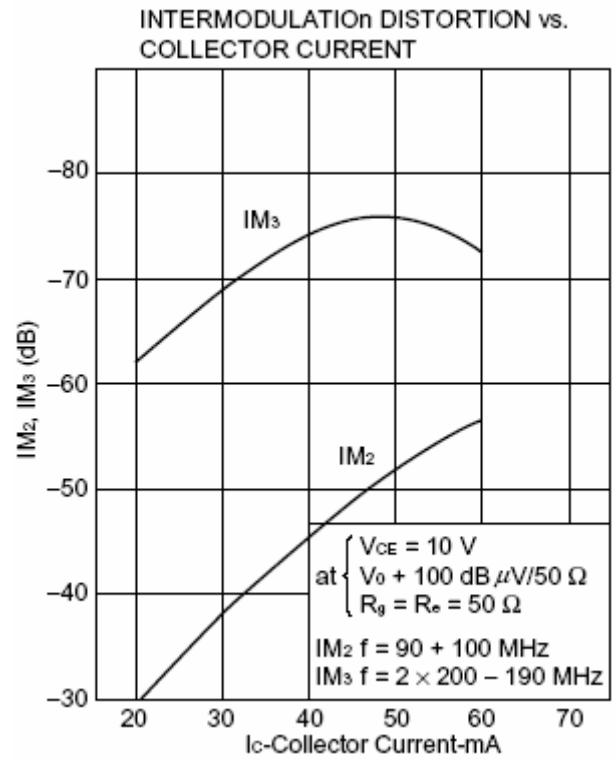
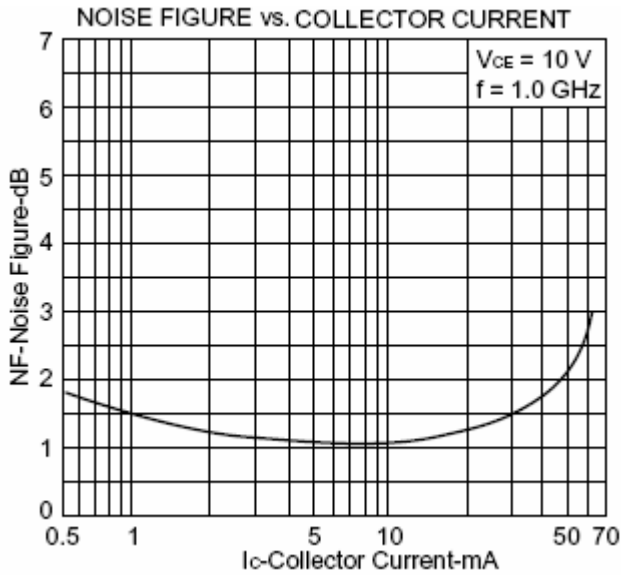
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S-PARAMETER

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

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

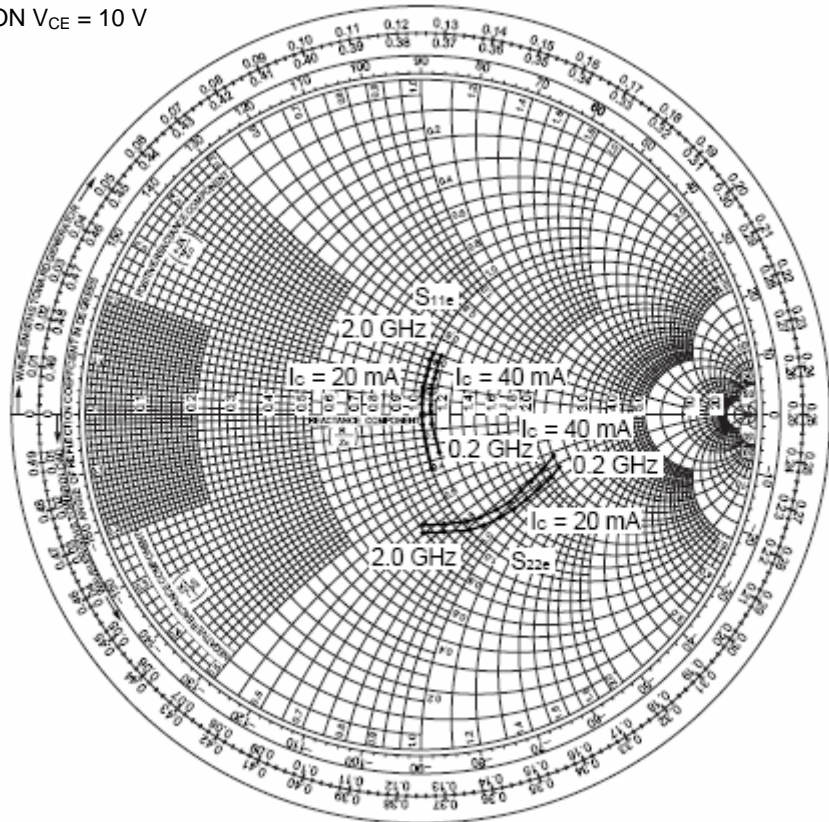
f (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.011	-60.1	13.76	105.4	0.040	-73.3	0.421	-17.5
400	0.028	-42.9	7.338	82.9	0.069	66.7	0.416	-22.8
600	0.027	25.1	4.996	72.7	0.114	69.4	0.414	-28.7
800	0.043	65.7	3.801	61.9	0.144	67.8	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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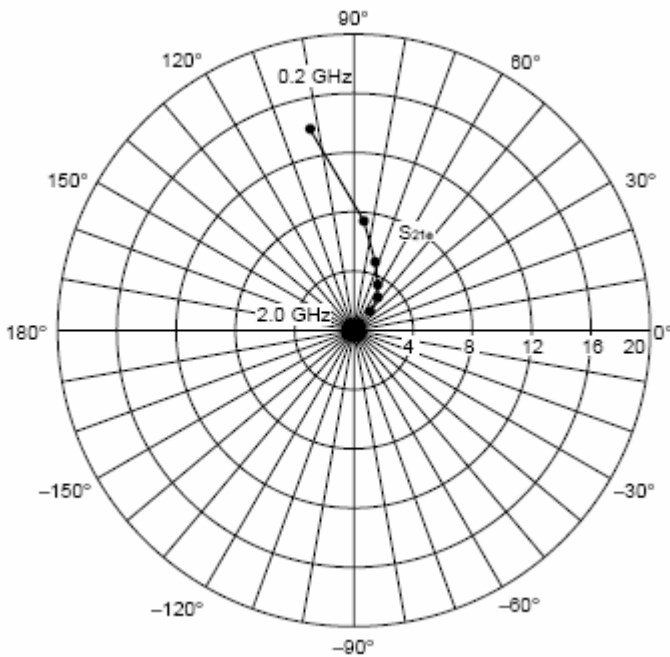
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S-PARAMETER

$S_{11e}$ ,  $S_{22e}$ -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  $V_{CE} = 10\text{ V}$   
 $I_c = 40\text{ mA}$

