isc Silicon NPN RF Transistor 2SC3582

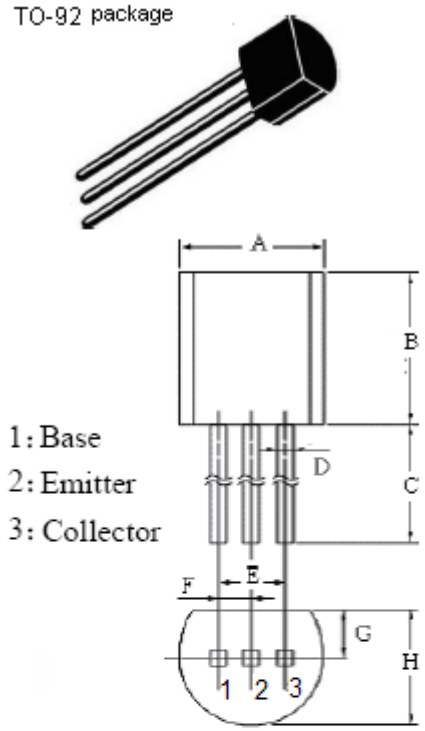
DESCRIPTION

- Low Noise Figure, High Gain, and High Current Capability Achieve a Very Wide Dynamic Range and Excellent Linearity.
- Low Noise and High Gain
  NF = 1.2 dB TYP. @f = 1.0 GHz
  Ga = 12 dB TYP. @f = 1.0 GHz

APPLICATIONS

- Designed for use in low-noise and small signal amplifiers from VHF ~ UHF band.

TO-92 package



DIM	mm	
	MIN	MAX
A	4.33	4.83
B	4.33	4.83
C	14.0	15.0
D	0.36	0.56
E	2.54	
F	1.27	
G	0. 92	1. 12
H	3.40	3.60

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	20	V
V_{CEO}	Collector-Emitter Voltage	10	V
V_{EBO}	Emitter-Base Voltage	1.5	V
I_C	Collector Current-Continuous	65	mA
P_C	Collector Power Dissipation @T_C=25℃	0.6	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	-65~150	℃

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ELECTRICAL CHARACTERISTICS

T_C=25℃ 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}= 8V	50		250	
f_T	Current-Gain—Bandwidth Product	I_C= 20mA ; V_{CE}= 8V		8		GHz
C_{re}	Feed-Back Capacitance	I_E= 0 ; V_{CB}= 10V;f= 1.0MHz		0.4	0.9	pF
$\|S_{21e}\|^2$	Insertion Power Gain	I_C= 20mA ; V_{CE}= 8V;f= 1.0GHz	9	11		dB
MAG	Maximum Available Gain	I_C= 20mA ; V_{CE}= 8V;f= 1.0GHz		13		dB
NF	Noise Figure	I_C= 7mA ; V_{CE}= 8V;f= 1.0GHz		1.2	2.5	dB

◆ **h_{FE} Classification**

Class	K
Marking	K
h_{FE}	50-250

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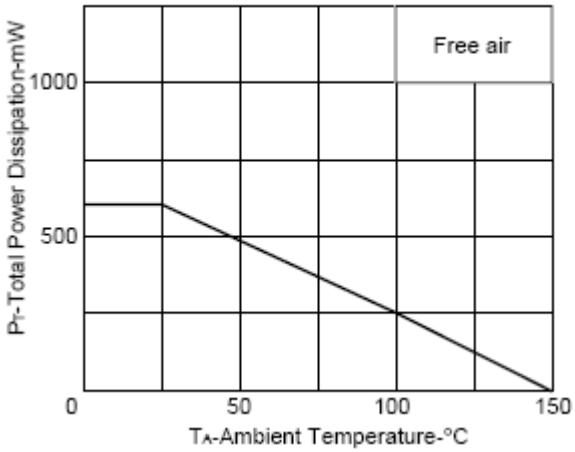
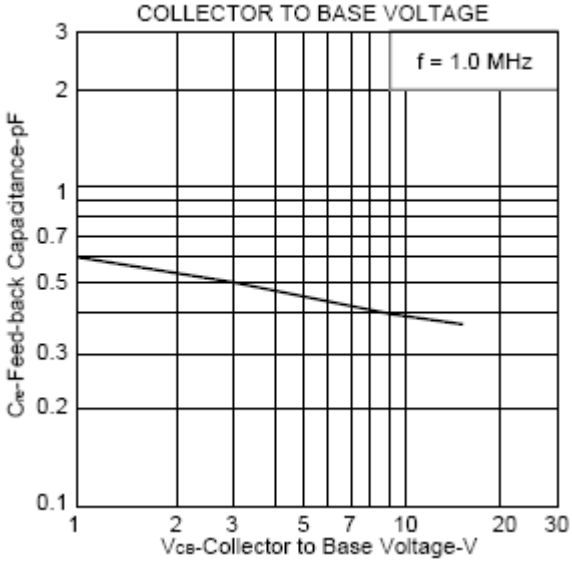
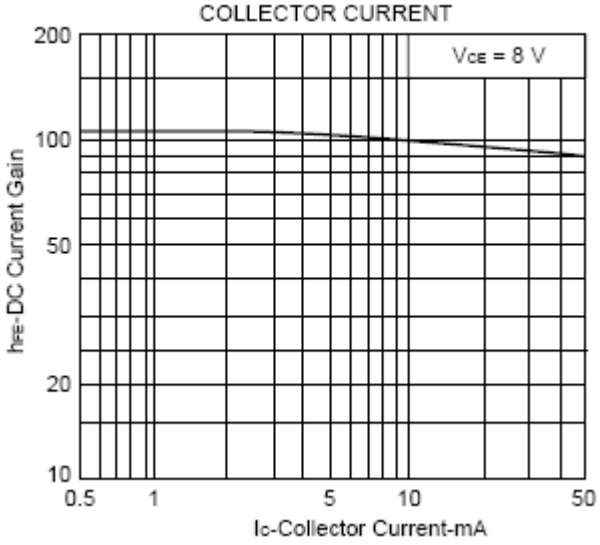
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



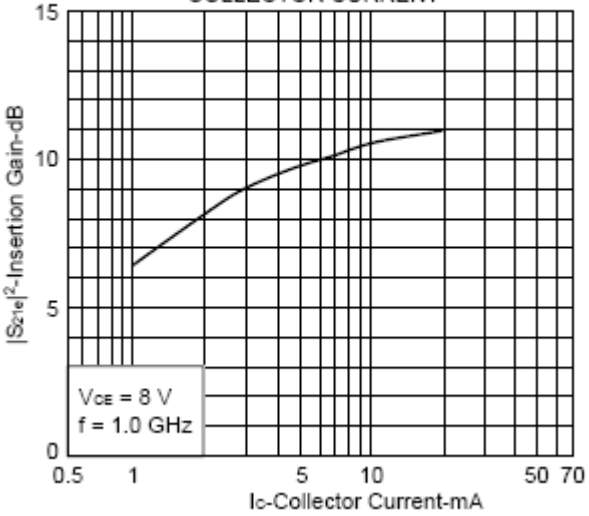
FEED-BACK CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE



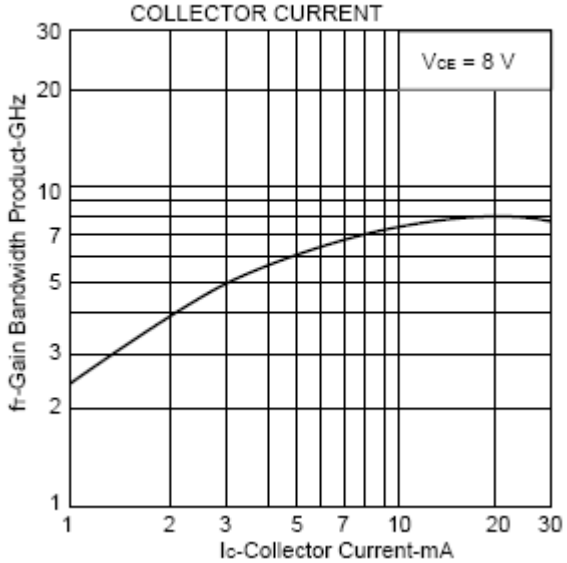
DC CURRENT GAIN vs.
COLLECTOR CURRENT



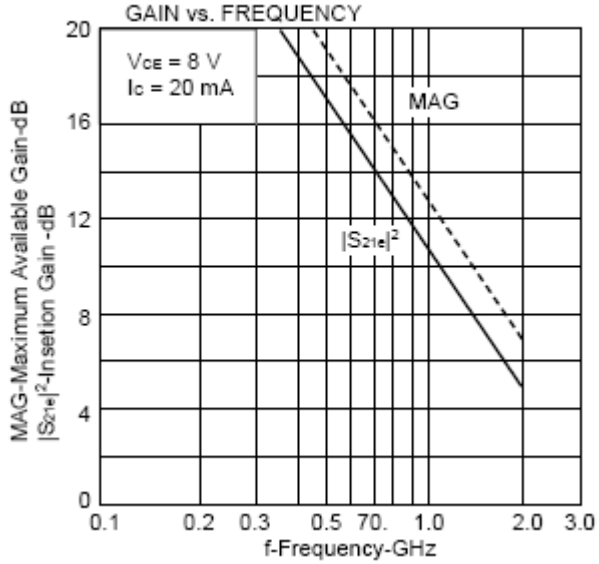
INSERTION GAIN vs.
COLLECTOR CURRENT



GAIN BANDWIDTH PRODUUT vs.
COLLECTOR CURRENT



INSERTION GAIN, MAXIMUM AVAILABLE
GAIN vs. FREQUENCY



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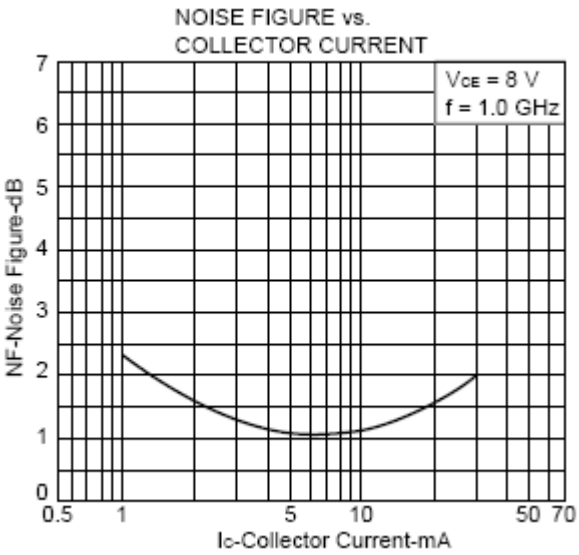

S-PARAMETER

V_{CE} = 8 V, I_C = 5 mA, Z_O = 50 Ω

f (MHz)	$\lvert S_{11} \rvert$	$\angle S_{11}$	$\lvert S_{21} \rvert$	$\angle S_{21}$	$\lvert S_{12} \rvert$	$\angle S_{12}$	$\lvert S_{22} \rvert$	$\angle S_{22}$
200	0.668	-45.8	11.385	128.9	0.049	83.5	0.833	-26.9
400	0.425	-61.5	7.014	103.7	0.063	76.3	0.681	-31.1
600	0.294	-73.2	5.189	88.6	0.088	68.5	0.620	-36.0
800	0.214	-79.4	3.967	75.4	0.103	64.5	0.580	-40.8
1000	0.167	-79.5	3.485	64.7	0.123	60.8	0.561	-46.3
1200	0.132	-79.8	2.831	57.0	0.147	55.9	0.549	-53.4
1400	0.098	-75.2	2.604	48.5	0.175	50.7	0.561	-60.3
1600	0.073	-72.0	2.182	39.1	0.192	47.9	0.573	-69.1
1800	0.071	-63.7	2.135	31.0	0.215	44.2	0.595	-71.8
2000	0.070	-60.6	1.879	21.6	0.221	38.0	0.617	-78.0

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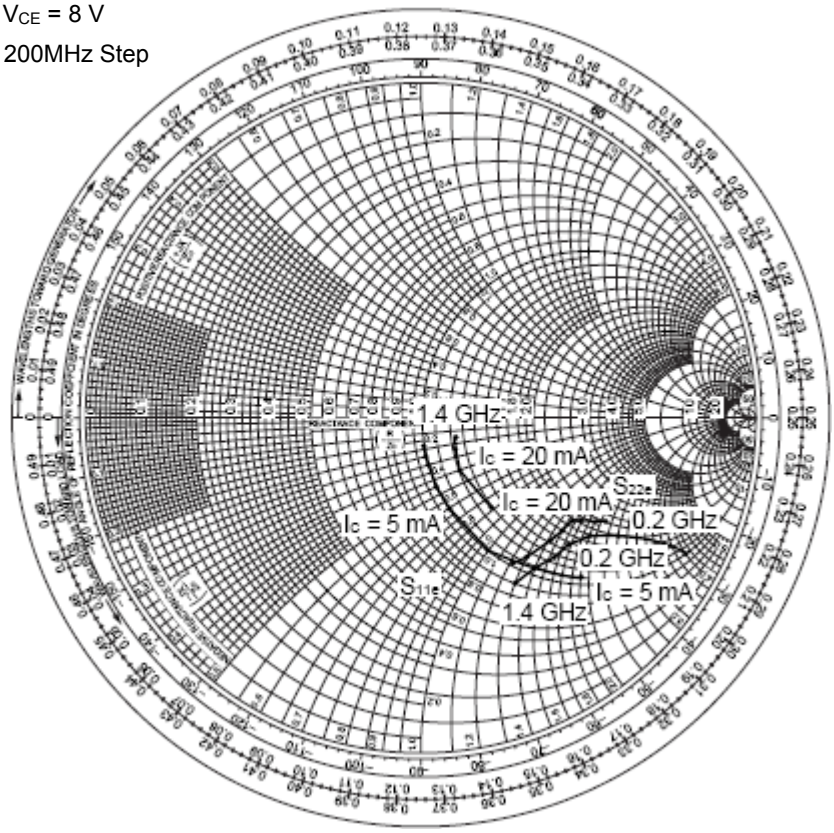
V_{CE} = 8 V, I_C = 20 mA, Z_O = 50 Ω

f (MHz)	$\|S_{11}\|$	$\angle S_{11}$	$\|S_{21}\|$	$\angle S_{21}$	$\|S_{12}\|$	$\angle S_{12}$	$\|S_{22}\|$	$\angle S_{22}$
200	0.333	-51.4	17.197	107.7	0.053	97.5	0.638	-29.7
400	0.195	-49.2	8.729	89.7	0.064	90.1	0.585	-31.8
600	0.158	-44.3	6.149	78.8	0.078	80.3	0.573	-35.0
800	0.156	-41.0	4.603	68.7	0.111	70.0	0.549	-38.2
1000	0.146	-35.8	3.997	60.4	0.136	64.2	0.537	-42.4
1200	0.143	-30.7	3.205	54.1	0.168	58.1	0.524	-57.1
1400	0.134	-25.8	2.939	46.7	0.185	53.2	0.524	-55.4
1600	0.132	-22.3	2.463	38.1	0.218	47.3	0.524	-62.0
1800	0.131	-20.0	2.396	30.7	0.234	41.3	0.557	-68.5
2000	0.130	-17.8	2.107	22.1	0.238	36.5	0.579	-74.8

S-PARAMETER

S_{11e}, S_{22e}-FREQUENCY CONDITION V_{CE} = 8 V
200MHz Step



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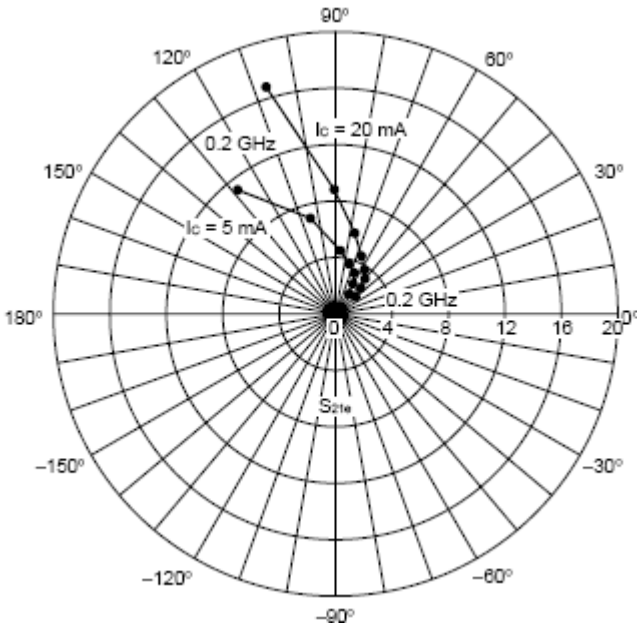
S_{21e}-FREQUENCY CONDITION V_{CE} = 8 V



S_{12e}-FREQUENCY CONDITION V_{CE} = 8 V