

ISC Silicon NPN RF Transistor

2SC3544

DESCRIPTION

- Low Base Time Constant;
 $r_{bb'} \cdot C_C = 5 \text{ ps TYP.}$
- High Gain Bandwidth Product
 $f_T = 2 \text{ GHz TYP. @ } I_E = 5 \text{ mA, } V_{CE} = 10 \text{ V}$
- Low Feedback Capacitance;
 $C_{re} = 0.55 \text{ pF TYP.}$

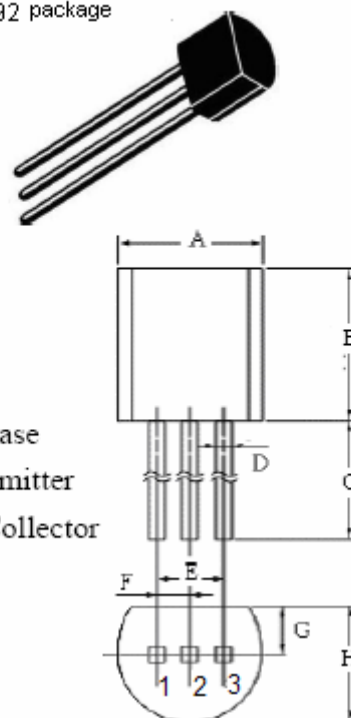
APPLICATIONS

- Designed for use as UHF oscillator and mixer in a tuner of a TV receiver.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	3	V
I_C	Collector Current-Continuous	50	mA
P_C	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	0.25	W
T_J	Junction Temperature	125	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~125	$^\circ\text{C}$

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

isc Silicon NPN RF Transistor**2SC3544****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$ unless otherwise specified

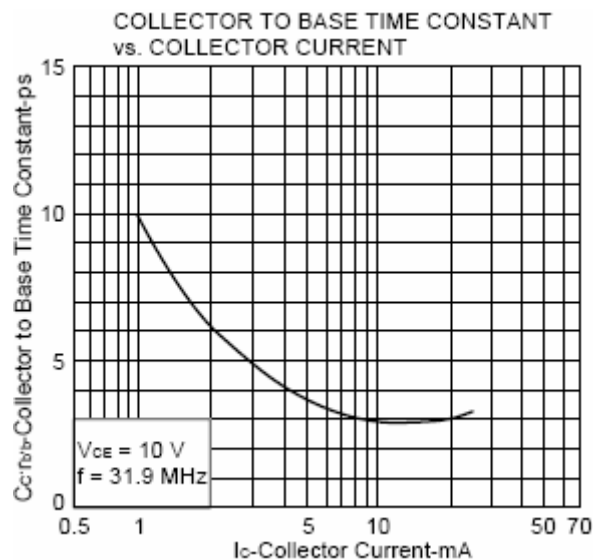
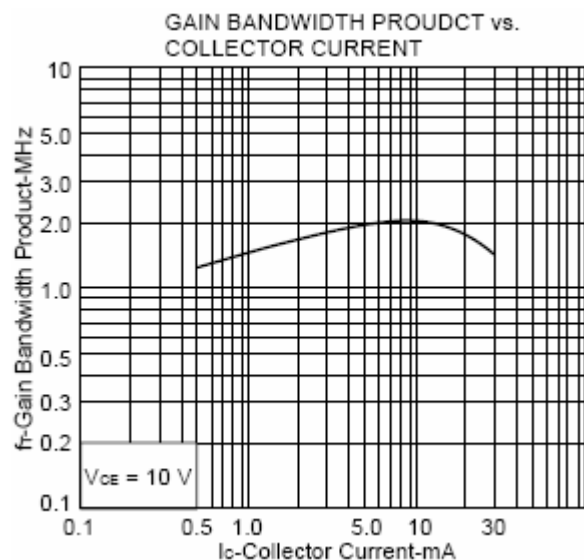
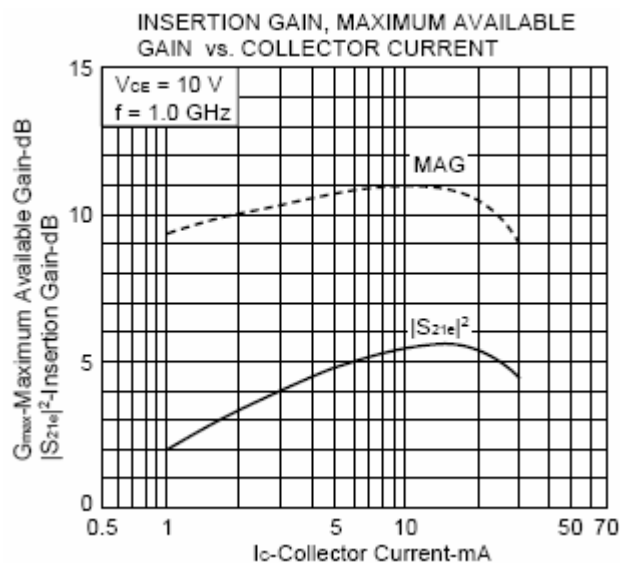
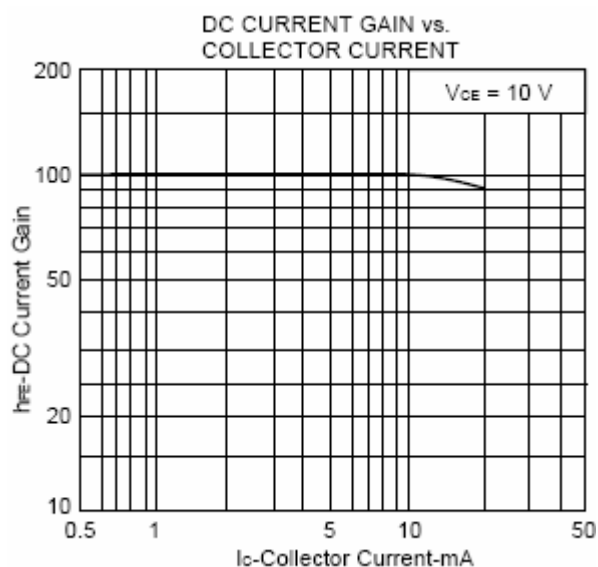
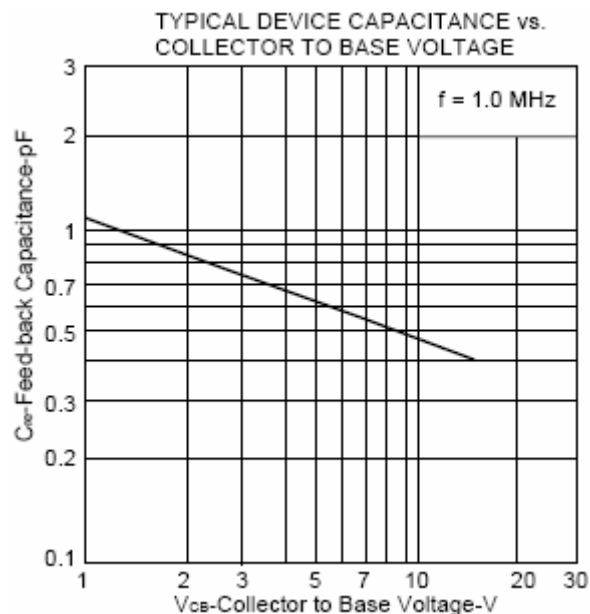
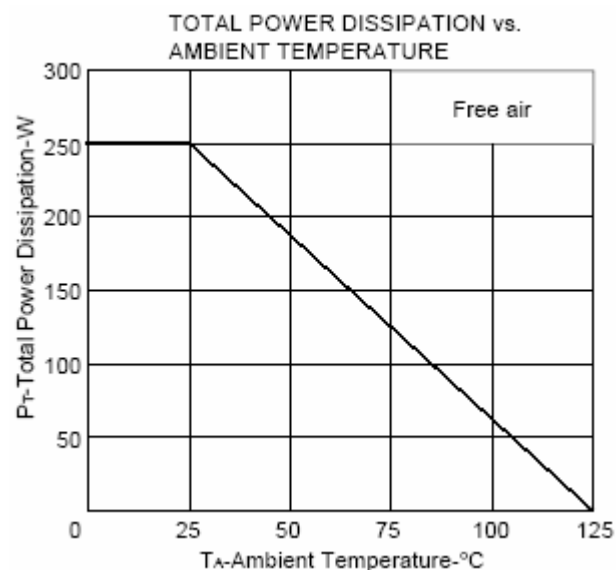
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}$; $I_B=1\text{mA}$			0.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=12\text{V}$; $I_E=0$			0.1	μA
h_{FE}	DC Current Gain	$I_C=5\text{mA}$; $V_{CE}=10\text{V}$	50		250	
f_T	Current-Gain—Bandwidth Product	$I_E=-5\text{mA}$; $V_{CE}=10\text{V}$	1.3	2.0		GHz
C_{re}	Feedback Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f=1.0\text{MHz}$		0.55	1.0	pF
$r_{bb'} \cdot C_C$	Base Time Constant	$V_{CE}=10\text{V}$, $I_E=-5\text{mA}$, $f=31.9\text{MHz}$		5	15	ps

◆ **h_{FE} Classifications**

Marking	M	L	K
h_{FE}	50-100	70-140	120-250

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S-PARAMETER

 $V_{CE} = 10\text{ V}$, $I_C = 5\text{ mA}$, $Z_0 = 50\ \Omega$

Freque.	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.423	-78.0	7.244	107.7	0.047	64.7	0.780	-21.6
400	0.244	-107.9	3.756	84.2	0.062	58.8	0.744	-24.2
600	0.196	-131.7	2.686	69.2	0.088	58.0	0.721	-31.5
800	0.187	-154.3	2.037	55.8	0.099	56.7	0.718	-40.0
1000	0.175	-171.7	1.784	44.9	0.124	58.2	0.726	-49.6
1200	0.171	166.5	1.428	36.1	0.149	58.0	0.756	-58.9
1400	0.174	147.7	1.308	26.2	0.179	57.2	0.774	-67.2
1600	0.204	129.8	1.105	15.6	0.203	56.7	0.742	-75.7

 $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$, $Z_0 = 50\ \Omega$

Freque.	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.281	-100.6	8.206	98.9	0.060	74.9	0.712	-21.5
400	0.220	-128.0	4.067	79.0	0.650	65.6	0.712	-22.6
600	0.218	-151.2	2.892	65.6	0.088	62.0	0.708	-29.8
800	0.181	-172.8	2.175	53.4	0.101	62.2	0.694	-38.6
1000	0.182	169.5	1.882	43.0	0.131	61.6	0.711	-48.0
1200	0.190	150.8	1.503	34.6	0.154	61.9	0.732	-58.1
1400	0.202	133.4	1.370	24.4	0.187	62.3	0.761	-66.6
1600	0.241	120.0	1.150	14.7	0.208	62.1	0.735	-74.9