

isc Silicon NPN RF Transistor

2SC3545

DESCRIPTION

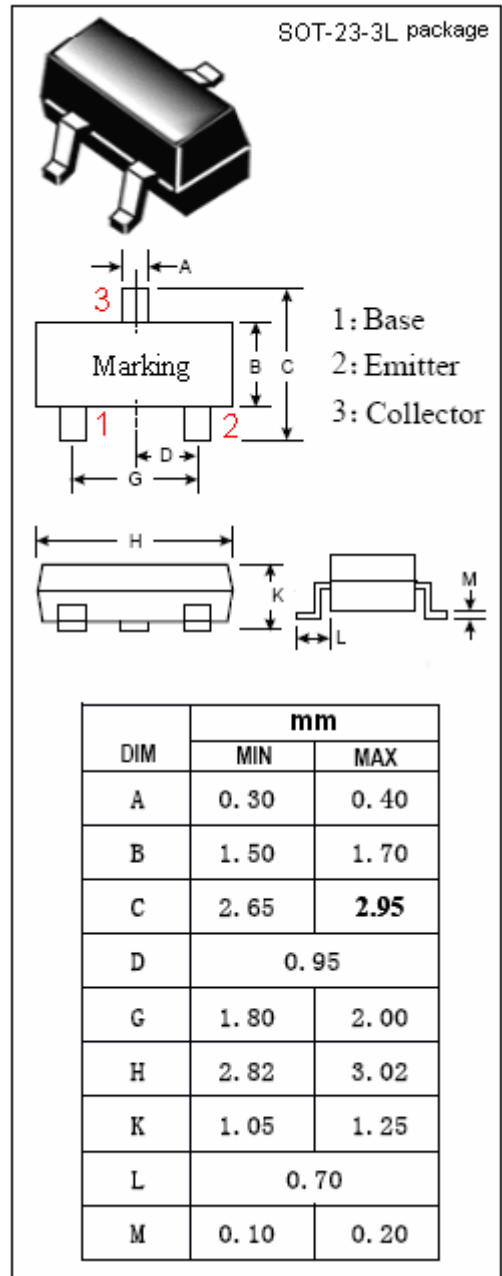
- Low Base Time Constant;
 $r_{bb'} \cdot C_C = 4 \text{ ps TYP.}$
- High Gain Bandwidth Product
 $f_T = 2 \text{ GHz TYP. @ } I_E = -5\text{mA, } V_{CE} = 10\text{V}$
- Low Feedback Capacitance;
 $C_{re} = 0.48 \text{ pF TYP.}$

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 @ $T_C=25^\circ\text{C}$	0.15	W
T_J	Junction Temperature	125	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~125	$^\circ\text{C}$



isc Silicon NPN RF Transistor

2SC3545

ELECTRICAL CHARACTERISTICS

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

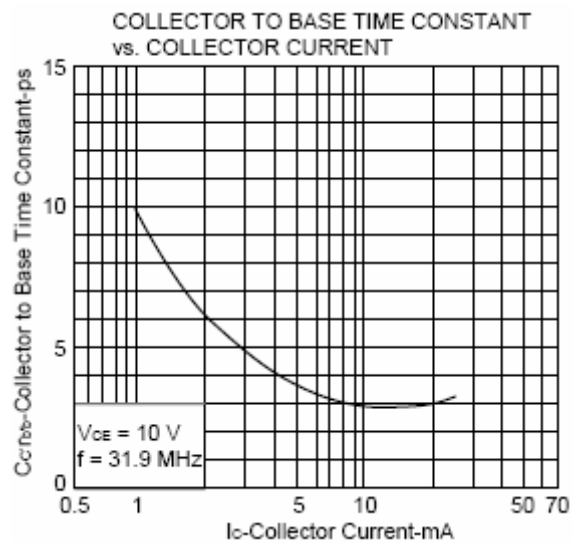
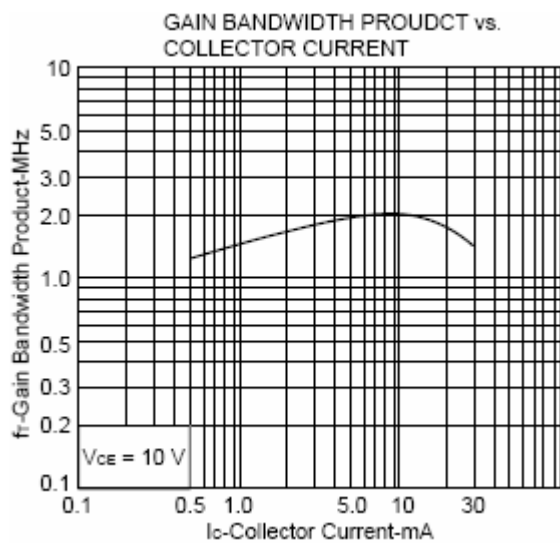
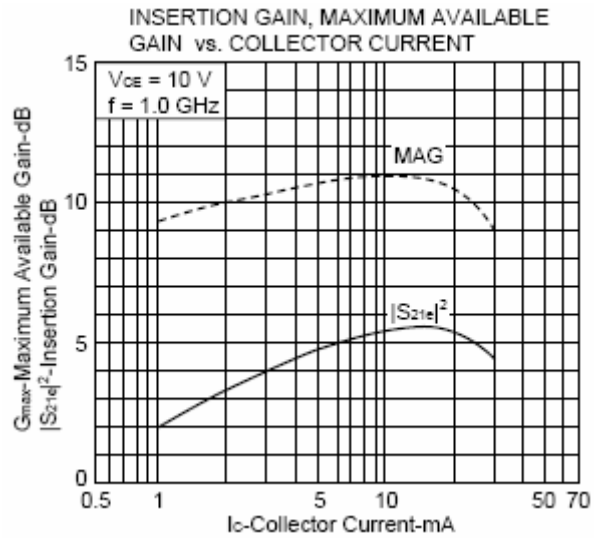
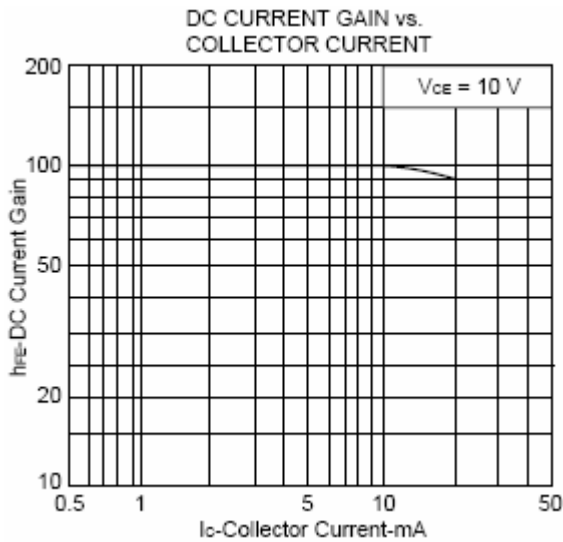
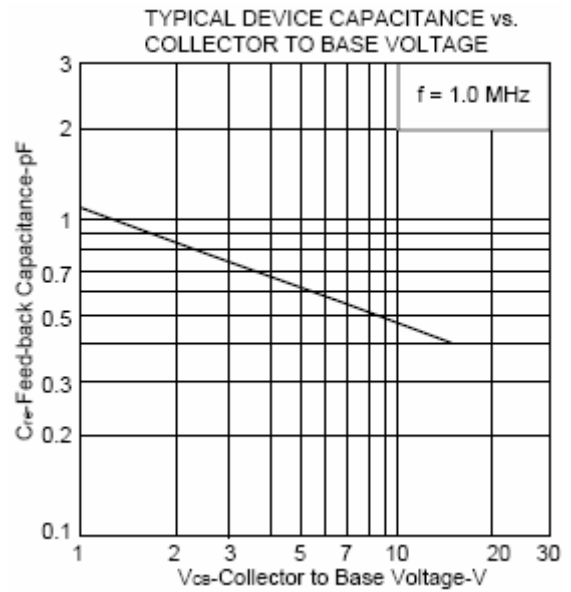
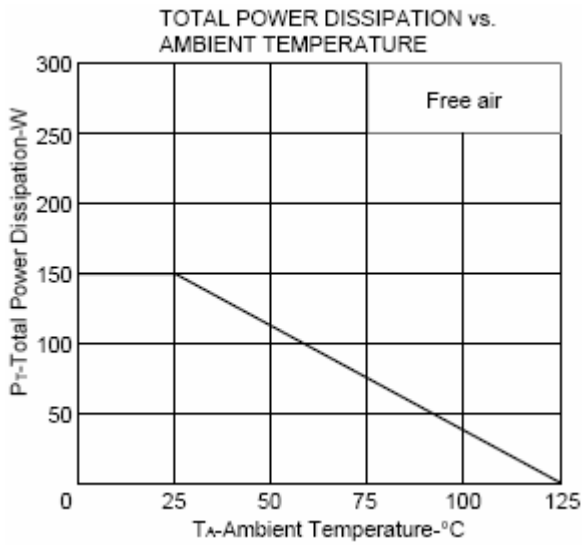
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}; I_B=1\text{mA}$			0.5	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=12\text{V}; I_E=0$			0.1	μA
h_{FE}	DC Current Gain	$I_C=5\text{mA}; V_{CE}=10\text{V}$	50		250	
f_T	Current-Gain—Bandwidth Product	$I_E=-5\text{mA}; V_{CE}=10\text{V}$	1.3	2.0		GHz
C_{re}	Feedback Capacitance	$I_E=0; V_{CB}=10\text{V}; f=1.0\text{MHz}$		0.48	1.0	pF
$r_{bb'} \cdot C_C$	Base Time Constant	$V_{CE}=10\text{V}, I_E=-5\text{mA}, f=31.9\text{MHz}$		4	10	ps

◆ h_{FE} Classifications

Class	M/P	L/Q	K/R
Marking	T42	T43	T44
h_{FE}	50-100	70-140	120-250

isc Silicon NPN RF Transistor

2SC3545



isc Silicon NPN RF Transistor

2SC3545

S-PARAMETER

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

Freque.	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.472	-80.6	7.581	114.1	0.037	60.2	0.780	-8.2
400	0.310	-117.3	4.029	92.9	0.055	55.5	0.723	-15.1
600	0.261	-139.9	2.926	81.7	0.077	60.2	0.721	-18.8
800	0.262	-160.4	2.118	70.2	0.098	62.8	0.698	-22.6
1000	0.270	-176.6	1.860	62.8	0.108	64.6	0.691	-25.1
1200	0.288	172.3	1.504	54.4	0.125	65.7	0.688	-30.7
1400	0.323	162.4	1.413	47.9	0.148	66.4	0.664	-35.1
1600	0.356	151.0	1.201	40.9	0.160	68.0	0.658	-39.3

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

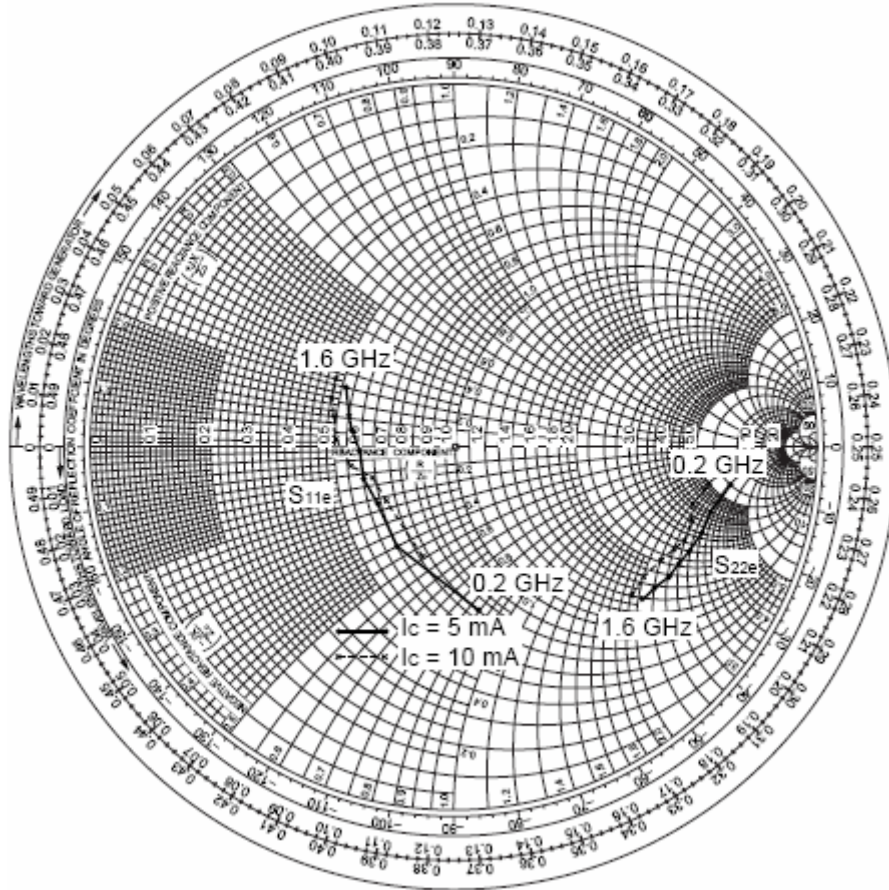
Freque.	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.	MAG.	ANG.
200	0.323	-101.4	8.735	104.9	0.037	49.5	0.711	-8.5
400	0.246	-136.2	4.383	87.4	0.052	65.2	0.693	-13.8
600	0.247	-158.8	3.120	78.0	0.074	67.3	0.696	-16.8
800	0.273	-173.7	2.259	67.2	0.086	68.2	0.679	-20.0
1000	0.299	172.6	1.968	60.1	0.102	69.4	0.671	-23.8
1200	0.314	162.7	1.589	52.5	0.126	70.1	0.663	-26.6
1400	0.353	154.5	1.483	46.3	0.146	70.4	0.648	-33.7
1600	0.380	144.7	1.257	39.5	0.166	70.3	0.648	-38.5

isc Silicon NPN RF Transistor

2SC3545

S-PARAMETER

S_{11e}, S_{22e}-FREQUENCY CONDITION V_{CE} = 10 V, 200 MHz Step



S_{21e}-FREQUENCY CONDITION V_{CE} = 10 V, 200 MHz Step

S_{12e}-FREQUENCY CONDITION V_{CE} = 10 V, 200 MHz Step

