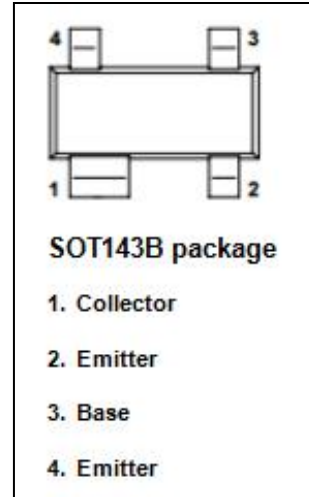


isc Silicon NPN RF Transistor
BFG540
DESCRIPTION

- Low Noise Figure
 $NF = 1.3 \text{ dB TYP. @ } V_{CE} = 8 \text{ V, } I_C = 10 \text{ mA, } f = 900 \text{ MHz}$
- High Gain
 $|S_{21}|^2 = 16 \text{ dB TYP. @ } V_{CE} = 8 \text{ V, } I_C = 40 \text{ mA, } f = 900 \text{ MHz}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation


APPLICATIONS

- Designed for use in low noise ,high-gain amplifiers and linear broadband amplifiers.

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	15	V
V_{EBO}	Emitter-Base Voltage	2.5	V
I_C	Collector Current-Continuous	120	mA
P_C	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	0.5	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

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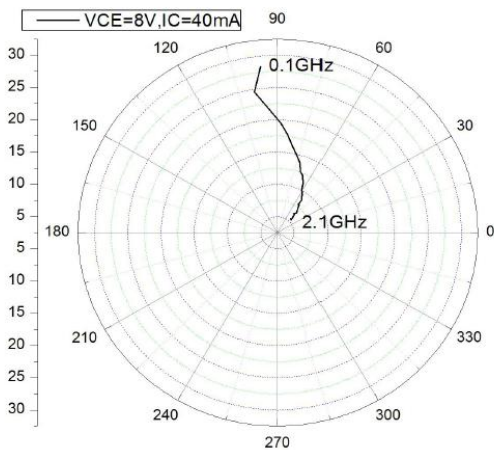
ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

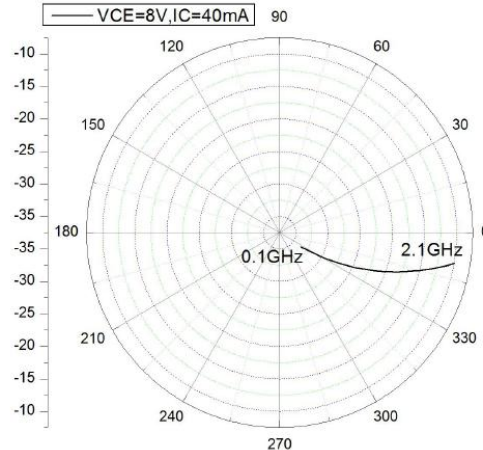
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C = 1mA ; I _B = 0	12			V
I _{CBO}	Collector Cutoff Current	V _{CB} = 8V; I _E = 0			0.05	μ A
h _{FE}	DC Current Gain	I _C =40mA ; V _{CE} = 8V	60		250	
f _T	Current-Gain—Bandwidth Product	I _C = 40mA ; V _{CE} = 8V; f= 1MHz		9		GHz
C _{re}	Feedback Capacitance	I _E = 0 ; V _{CB} = 8V; f= 1MHz		0.5		pF
C _e	Emitter capacitance	I _C =i _C =0,V _{EB} =0.5V,f=1MHz		2.0		pF
C _C	Collector capacitance	I _E =i _e =0,V _{CB} =8V,f=1MHz		0.9		pF
S ₂₁ ²	Insertion Power Gain	I _C = 40mA ; V _{CE} = 8V; f= 900MHz	15	16		dB
NF	Noise Figure	I _C = 10mA ; V _{CE} = 8V; f= 900MHz		1.3	1.8	dB
		I _C = 40mA ; V _{CE} = 8V; f= 900MHz		1.9	2.4	
		I _C = 10mA ; V _{CE} = 8V; f= 2GHz		2.1		

SMITH CHART

S_{21e} -FREQUENCY

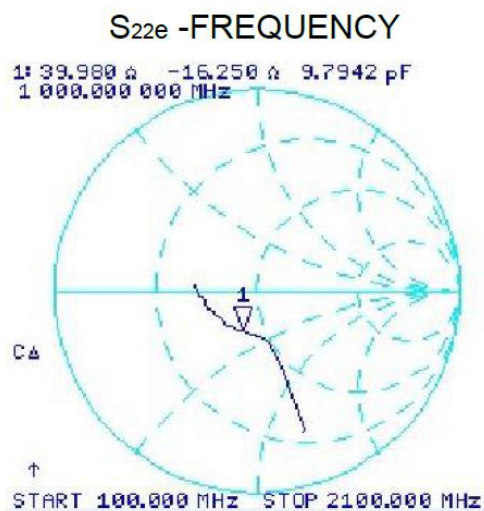
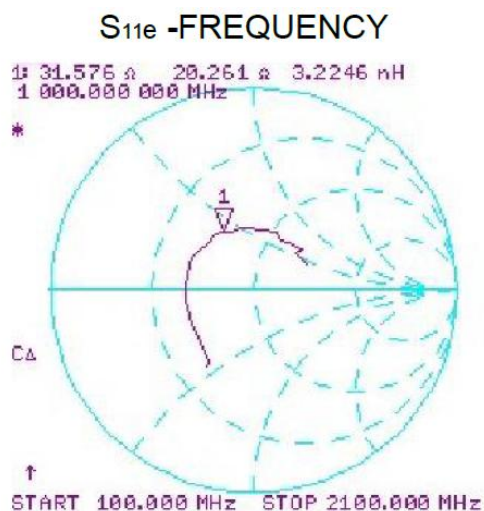


S_{12e} -FREQUENCY



isc Silicon NPN RF Transistor

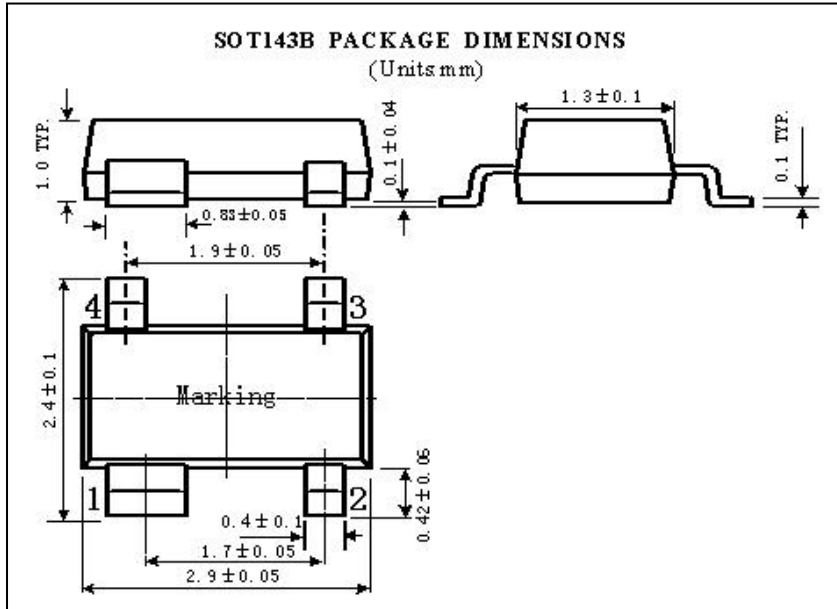
BFG540



S-PARAMETER ($V_{CE}=8V, I_C=40mA, Z_0=50\Omega$)

Test Freq GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.1	-7.3192	-122.58	28.376	95.666	-33.578	54.787	-2.7928	-71.779
0.2	-9.0497	-150.84	24.616	99.044	-29.543	60.627	-8.0434	-73.496
0.3	-9.2391	-170.74	21.623	93.697	-26.819	66.519	-10.409	-75.052
0.4	-9.4175	175.51	19.476	88.131	-24.623	67.338	-11.727	-77.428
0.5	-9.5558	164.28	17.761	84.337	-22.919	67.898	-12.39	-80.7
0.6	-9.2921	153.34	15.98	80.066	-21.644	66.842	-13.068	-88.845
0.7	-9.5793	145.77	14.962	76.634	-20.255	67.154	-13.192	-90.795
0.8	-9.8435	134.93	13.807	72.397	-19.623	69.447	-13.395	-99.403
0.9	-9.476	126.95	12.618	69.873	-18.334	68.618	-13.413	-105.83
-1	9.7838	118.32	12.129	66.835	-17.392	67.68	-13.535	-110.67
1.1	-10.098	110.44	11.014	62.924	-17.146	70.856	-13.42	-116.97
1.2	-9.9244	102.19	10.075	60.971	-15.619	71.044	-13.58	-123.46
1.3	-10.172	92.984	9.7583	59.16	-15.075	67.867	-13.034	-131.63
1.4	-10.384	86.412	8.7578	53.952	-14.827	67.061	-13.024	-135.21
1.5	-10.363	80.112	7.8628	54.301	-13.375	70.405	-12.877	-144
1.6	-10.188	67.772	7.9526	53.124	-12.678	62.713	-12.513	-152.35
1.7	-10.787	65.952	6.6816	46.527	-12.77	63.035	-12.436	-154.41
1.8	-10.672	55.081	6.2967	50.322	-11.54	65.962	-11.746	-159.99
1.9	-10.05	41.09	6.3449	48.001	-10.691	54.485	-11.392	-175.54
-2	11.145	42.789	5.2956	43.146	-11.03	56.479	-10.824	-175.12
2.1	-10.672	27.102	5.4404	47.979	-9.9308	53.47	-10.199	176.21

PACKAGE SIZE DRAWING

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