EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	BFG540
Overseas Part Number	BFG540
Equivalent Part Number	BFG540

NPN Silicon Epitaxial Planar Transistor

High Frequency Low Noise Amplifier.

Features:

- NF=1.8dB TYP. @ f=0.9GHz, V_{CE}=10V, I_C=10mA
- High Gain
  $|S_{21e}|^2$ =13dB TYP. @ f=0.9GHz, V_{CE}=8V, I_C =40mA

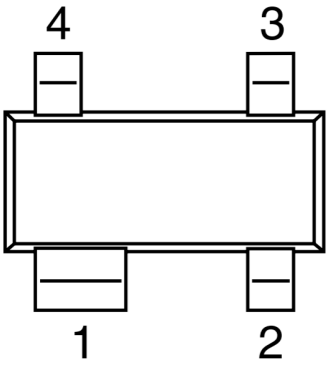
Description:

The BFG540 is a low supply voltage transistor designed for VHF, UHF low noise amplifier.

Marking: N37

PIN CONNECTIONS

1. collector 2.base 3&4.emitter



SOT143

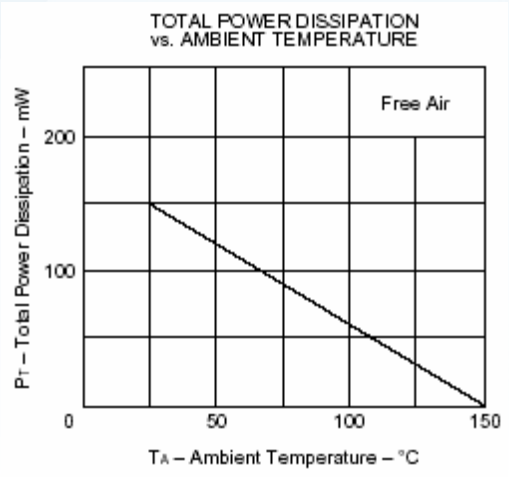
Absolute Maximum Ratings (T_a = 25 °C)

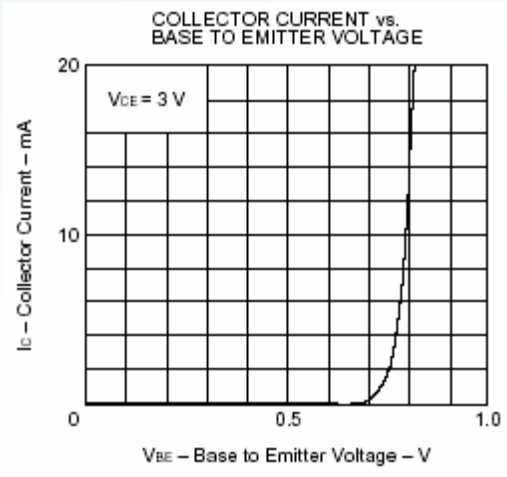
	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	20	V
Collector Emitter Voltage	V_{CEO}	12	V
Emitter Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	-65 to +150	°C

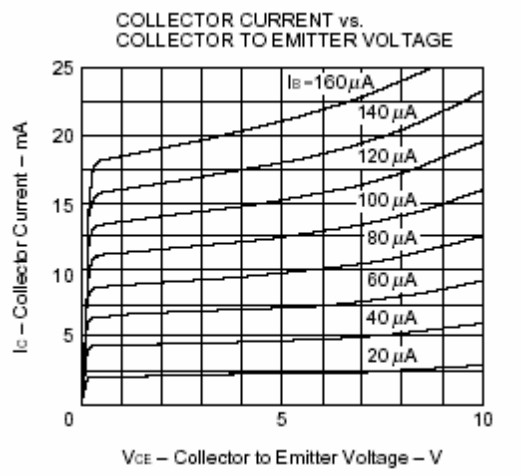
Characteristics at T_{amb}=25 °C

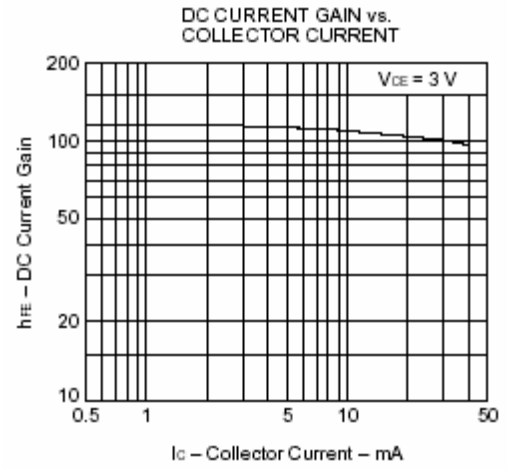
	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE}=5V, I_C=15mA	h_{FE}	100	-	250	-
Collector Cutoff Current at V_{CB}=10V	I_{CBO}	-	-	1.0	µA
Emitter Cutoff Current at V_{EB}=1V	I_{EBO}	-	-	1.0	µA
Gain Bandwidth Product at V_{CE}=8V, I_C=40mA	f_T	-	9	-	GHz
Feed back Capacitance [1)] at V_{CE}=8V, f=1MHz	C_{re}	-	0.65	1.5	pF
Insertion Power Gain at V_{CE}=8V, I_C=40mA, f=0.9GHz	$\lvert S_{21e}\rvert^2$	7	13	-	dB
Noise Figure at V_{CE}=10V, I_C=10mA, f=0.9GHz	NF	-	1.8	2.5	dB

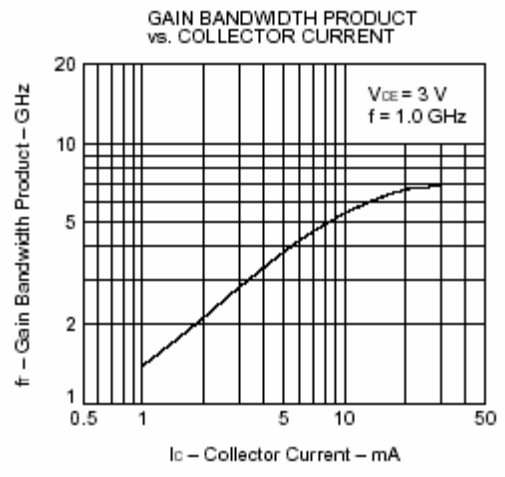
[1)] Measured with 3 terminal bridge, Emitter and case should be grounded.

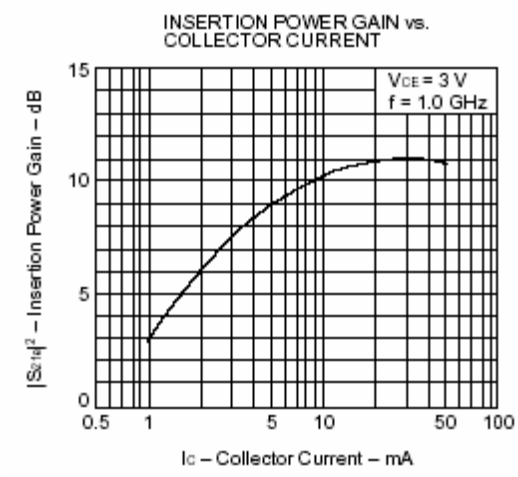

TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE
Free Air
PT – Total Power Dissipation – mW
200
100
0
50
100
150
TA – Ambient Temperature – °C

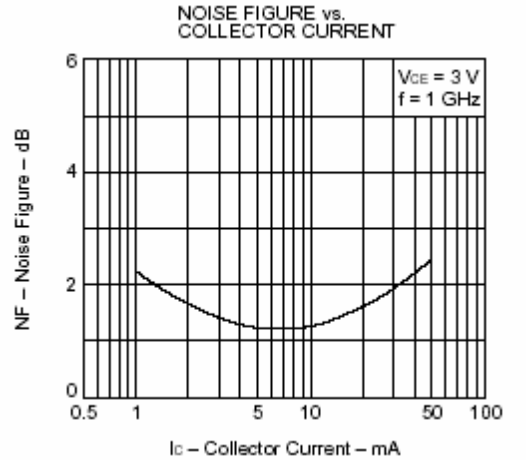

COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE
VCE = 3 V
IC – Collector Current – mA
20
10
0
0.5
1.0
VBE – Base to Emitter Voltage – V

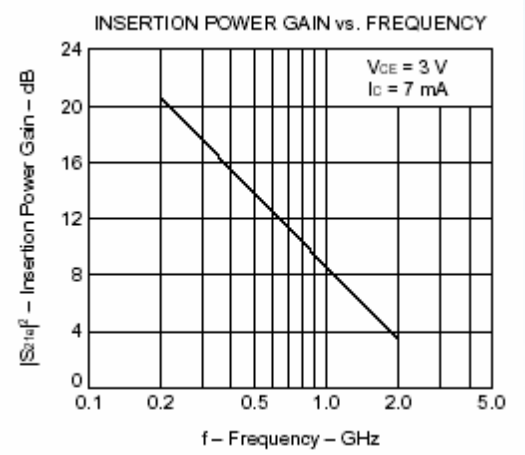

COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE
IB=160μA
140 μA
120 μA
100 μA
80 μA
60 μA
40 μA
20 μA
IC – Collector Current – mA
25
20
15
10
5
0
5
10
VCE – Collector to Emitter Voltage – V

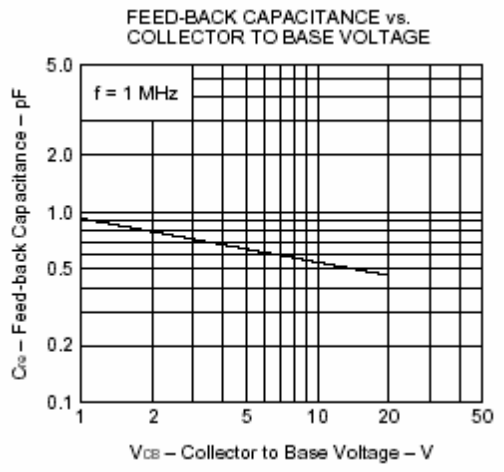

DC CURRENT GAIN vs.
COLLECTOR CURRENT
VCE = 3 V
hFE – DC Current Gain
200
100
50
20
10
0.5
1
5
10
50
IC – Collector Current – mA


GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT
VCE = 3 V
f = 1.0 GHz
fT – Gain Bandwidth Product – GHz
20
10
5
2
1
0.5
1
5
10
50
IC – Collector Current – mA


INSERTION POWER GAIN vs.
COLLECTOR CURRENT
VCE = 3 V
f = 1.0 GHz
|S21|2 – Insertion Power Gain – dB
15
10
5
0
0.5
1
5
10
50
100
IC – Collector Current – mA


NOISE FIGURE vs.
COLLECTOR CURRENT
VCE = 3 V
f = 1 GHz
NF – Noise Figure – dB
0
2
4
6
0.5
1
5
10
50
100
IC – Collector Current – mA


INSERTION POWER GAIN vs. FREQUENCY
VCE = 3 V
IC = 7 mA
|S21e|2 – Insertion Power Gain – dB
0
4
8
12
16
20
24
0.1
0.2
0.5
1.0
2.0
5.0
f – Frequency – GHz


FEED-BACK CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE
f = 1 MHz
Cre – Feed-back Capacitance – pF
0.1
0.2
0.5
1.0
2.0
5.0
1
2
5
10
20
50
VCB – Collector to Base Voltage – V

Package Outline

Plastic surface mounted package

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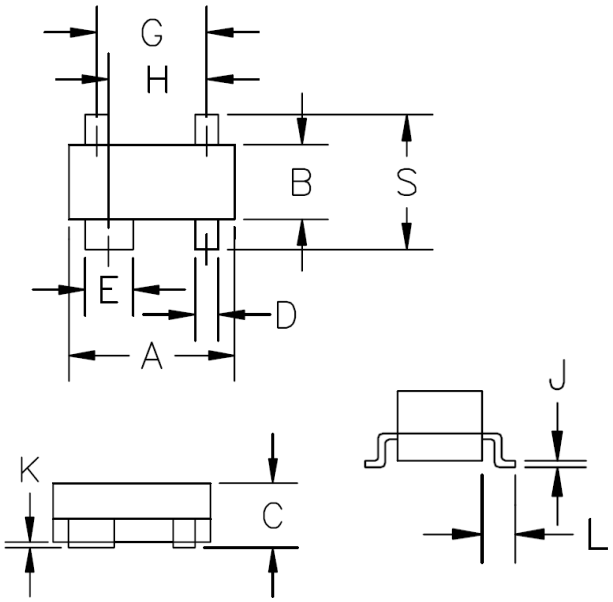

DIMENSIONS					
DIMᴺ	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	–
B	.047	.055	1.20	1.40	–
C	.031	.047	.80	1.20	–
D	.014	.018	.37	.510	–
E	.030	.035	.76	.940	–
G	.076 BSC		1.92 BSC		–
H	.068 BSC		1.72 BSC		–
J	.003	.005	.085	.180	–
K	.002	.005	.013	0.10	–
L	.010	.022	–	.55	REF
S	.082	.104	2.10	2.64	–

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