

BFG540; BFG540/X; BFG540/XR NPN TRANSISTOR MICROWAVE LOW NOISE AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR

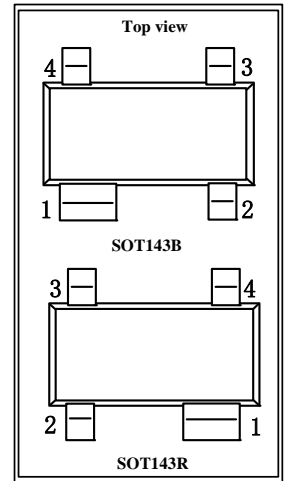
1. 简述:

本芯片采用硅外延工艺制造, 具有高功率增益、低噪声系数、较宽的转换频率、低漏电流、金材质引出结构, 具有较高的可靠性;

✚ 主要应用于超高频微波、VHF、UHF 和 CATV 高频宽带低噪声放大器中, 如卫星电视调谐器、CATV 放大器、模拟数字无绳电话、雷达探测器、射频模块和光纤传输中的中继放大器等产品;

✚ 集电极-发射极击穿电压: $BV_{CEO}=15V$, 最大集电极电流: $I_C=120mA$, 集电极耗散功率: $P_C=400mW$, 特征频率: $f_T=9GHz$;

✚ 采用 4 引脚 (宽集电极引脚与双发射极引脚) 的 SOT143B 和 SOT143R 表面贴塑封。



2. 封装形式和引脚定义:

型号(Model)	BFG540	BFG540/X	BFG540/XR
封装形式(Package)	SOT143B	SOT143B	SOT143R
本体激光标示 (Marking)	WMG	WMM	WMR
引脚(Pin)1	collector	collector	collector
引脚(Pin)2	base	emitter	emitter
引脚(Pin)3	emitter	base	base
引脚(Pin)4	emitter	emitter	emitter

3. 极限参数 ($T_{amb}=25^{\circ}C$):

参数名称	符号	额定值	单位
集电极-基极击穿电压	BV_{CBO}	20	V
集电极-发射极击穿电压	BV_{CEO}	15	V
发射极-基极击穿电压	BV_{EBO}	2.5	V
集电极电流	I_C	120	mA
耗散功率	P_T	400	mW
最高结温	T_J	150	$^{\circ}C$
储存温度	T_{stg}	-65 ~ +150	$^{\circ}C$

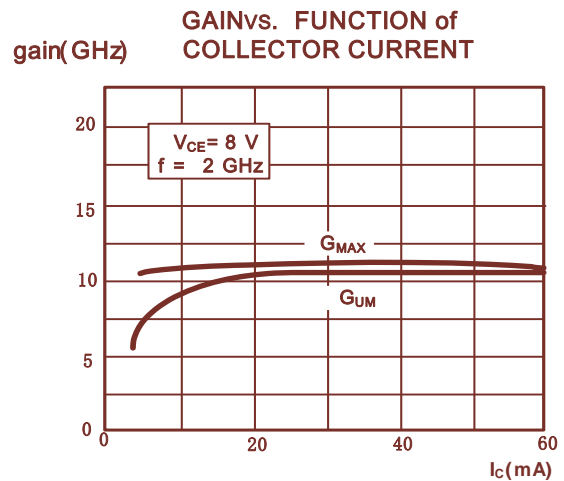
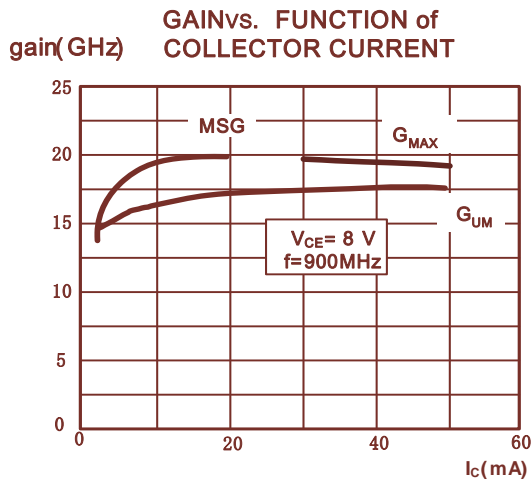
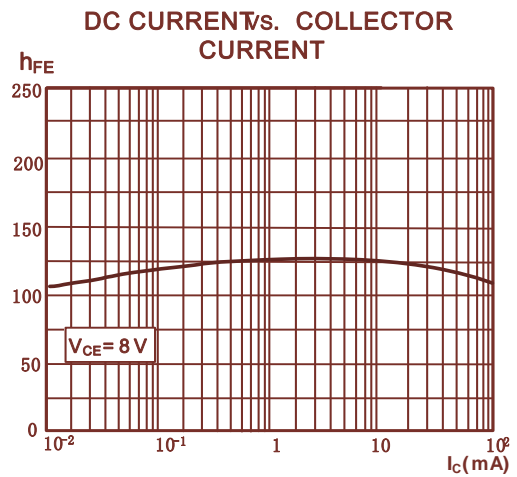
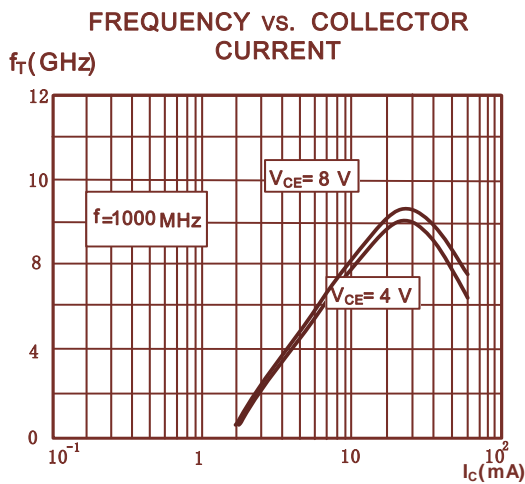
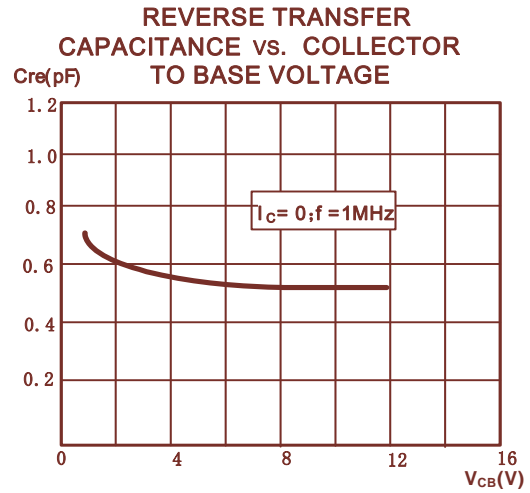
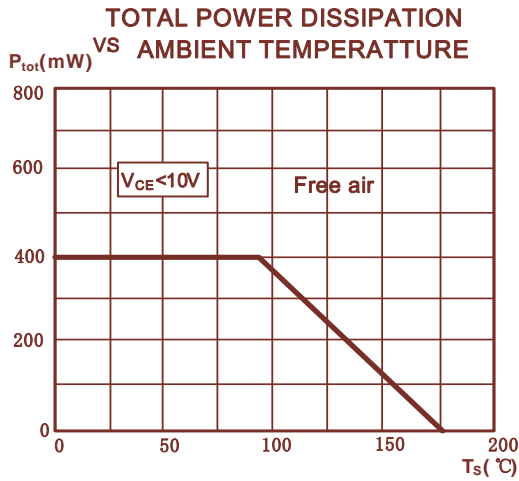
4. 电参数及规格 (T_{amb}=25°C) :

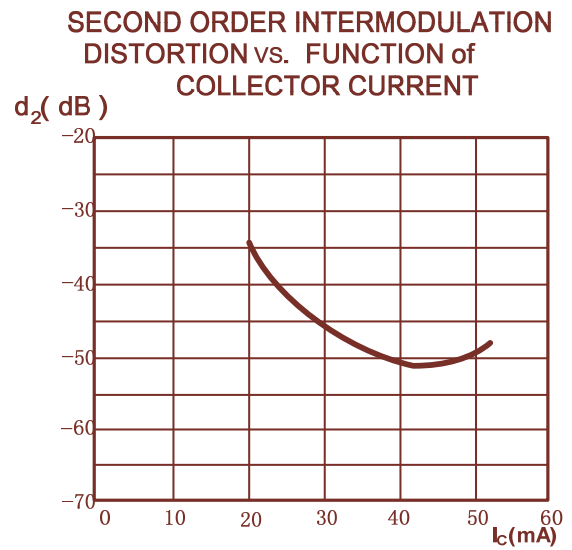
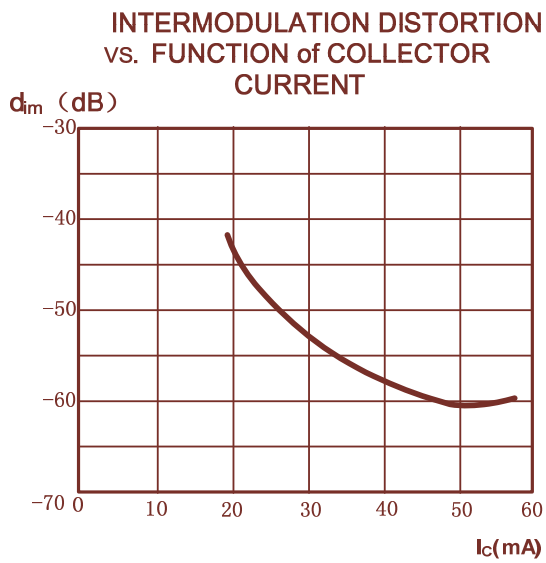
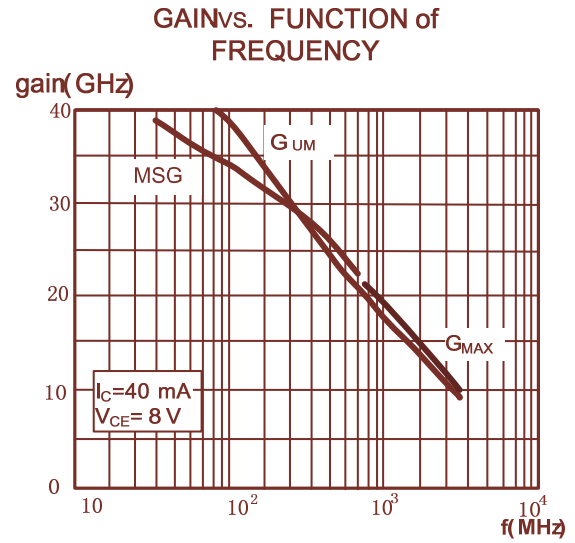
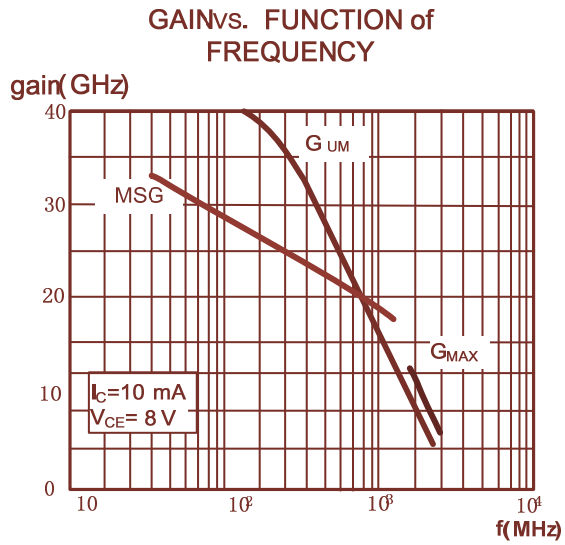
参数名称	符号	测试条件	最小值	典型值	最大值	单位
集电极截止电流	I _{CBO}	V _{CB} =6V, I _E =0	-	-	0.05	μA
直流电流放大系数	h _{FE}	V _{CE} =8V, I _C =40mA	60	120	250	
特征频率	f _T	I _C =40mA, V _{CE} =8V, f=1MHz, T _{amb} =25°C	-	9	-	GHz
反馈电容	C _{re}	I _C =I _C =0, V _{CB} =8V, f=1MHz	-	0.5	-	pF
集电极电容	C _C	I _E =I _E =0, V _{CB} =8V, f=1MHz	-	0.9	-	pF
发射极电容	C _e	I _C =I _C =0, V _{EB} =0.5V, f=1MHz	-	2.0	-	pF
插入功率增益	S ₂₁ ²	I _C =40mA, V _{CE} =8V, f=900MHz, T _{amb} =25°C	15	16	-	dB
噪声系数	NF	V _{CE} =8V, I _C =10mA, f=900MHz, T _{amb} =25°C	-	1.3	1.8	dB
		V _{CE} =8V, I _C =40mA, f=900MHz, T _{amb} =25°C	-	1.9	2.4	dB
		V _{CE} =8V, I _C =10mA, f=2GHz, T _{amb} =25°C	-	2.1	-	dB
最大单边功率增益	G _{UM} *	I _C =40mA, V _{CE} =8V, f=900MHz, T _{amb} =25°C	-	18	-	dB
		I _C =40mA, V _{CE} =8V, f=2GHz, T _{amb} =25°C	-	11	-	dB
第三阶截取点	ITO	I _C =40mA, V _{CE} =8V, R _L =50Ω, f _p =900MHz, f _q =902MHz, T _{amb} =25°C	-	34	-	dBm
输出电压	V _O	V _O =275mV, I _C =40mA, V _{CE} =8V, Z _S =Z _L =75Ω, f _p =795.25MHz, f _q =803.25MHz, f _r =803.25MHz, T _{amb} =25°C dim=-60dB	-	500	-	mV
输出功率在 1dB 的增益压缩	PL1	I _C =40mA, V _{CE} =8V, R _L =50Ω, f=900MHz, T _{amb} =25°C	-	21	-	dBm
二阶互调失真	d ₂	V _O =275mV, I _C =40mA, V _{CE} =8V, f _p =250MHz, f _q =560MHz, T _{amb} =25°C	-	-50	-	dB

$$* G_{UM} = 10 \log \frac{|S_{21}|^2}{(1 - S_{11})^2 (1 - S_{22})^2} \text{ dB}$$

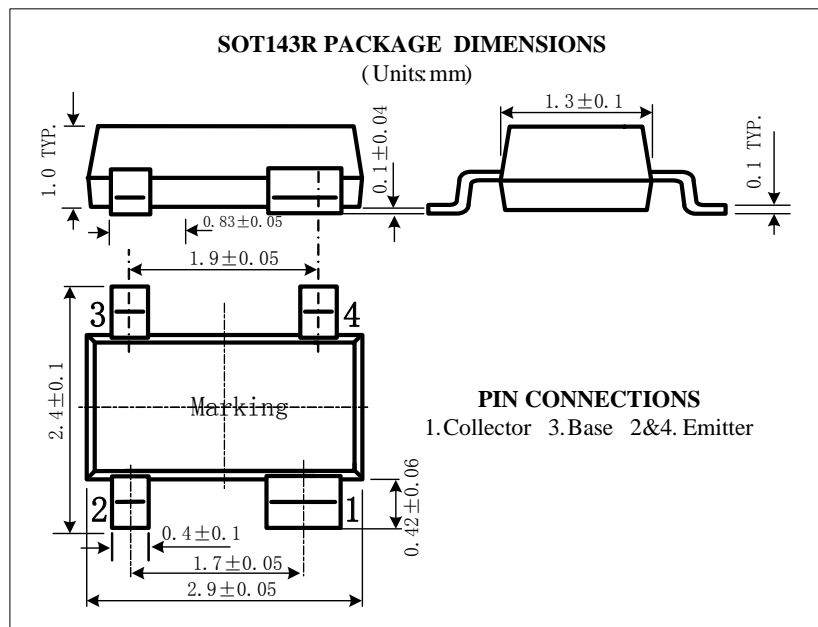
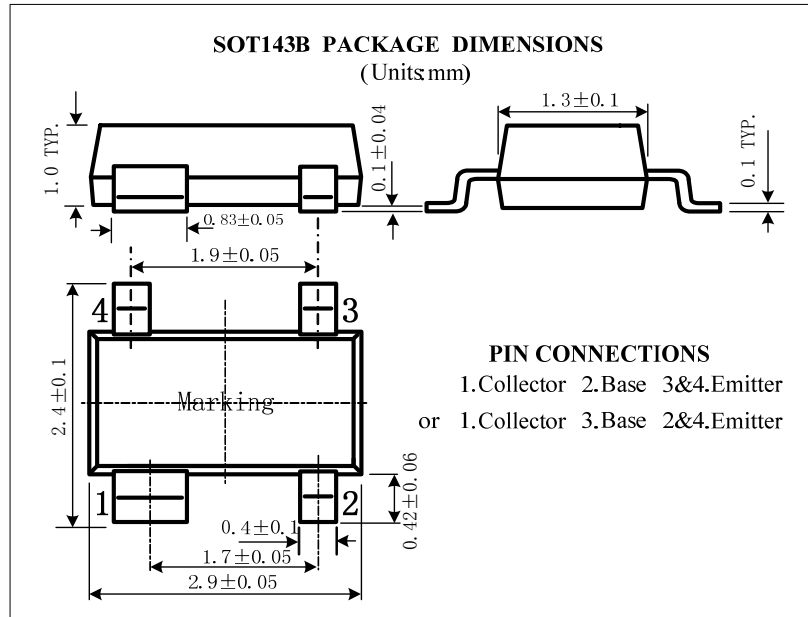
5. 典型特征曲线:

TYPICAL CHARACTERISTICS
($T_A=25^\circ\text{C}$, unless otherwise specified)





6. 封装尺寸示意图:



7. 包装信息:

PACKAGE INFORMATION

封装形式 Package	数量/盘 Shipping	盘/中盒 Inner Box	中盒/箱 Carton
SOT143B	3000pcs/Tape&Reel	15Tape&Reel	4 Inner Box
SOT143R	3000pcs/Tape&Reel	15Tape&Reel	4 Inner Box