

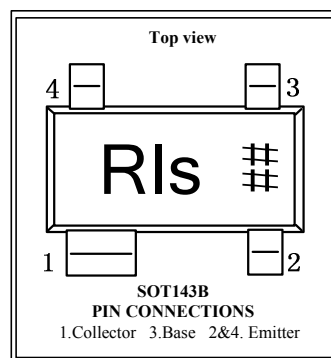
**BFP196 NPN TRANSISTOR****MICROWAVE LOW NOISE AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR****1. 简述:**

本芯片采用硅外延工艺制造, 具有高功率增益放大、宽带以及低噪声、低漏电流、小结电容特性, 较大的动态范围, 理想的电流线性;

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、雷达感应探测器、无线安防报警器、射频模块和光纤模块等产品;

集电极-发射极击穿电压: $BV_{CEO}=10V$, 集电极电流: $I_{CM}=100mA$, 耗散功率: $P_C=365mW$, 特征频率: $f_T=9.0GHz$;

封装形式(Package): SOT143B, 塑封本体印字(Marking): RIs-##;

**2. 极限参数 ($T_{amb}=25^{\circ}C$):**

参数名称	符号	额定值	单位
集电极-基极电压	V_{CBO}	20	V
集电极-发射极电压	V_{CEO}	12	V
发射极-基极电压	V_{EBO}	2.0	V
集电极电流	I_{CM}	100	mA
耗散功率	P_T	700	mW
芯片结温	T_J	150	$^{\circ}C$
储存温度	T_{stg}	-65~+150	$^{\circ}C$

3. 电参数及规格 ($T_{amb}=25^{\circ}C$):

参数名称	符号	测试条件	最小值	典型值	最大值	单位
集电极-基极击穿电压	BV_{CBO}		20	-	-	V
集电极-发射极击穿高压	BV_{CEO}		12	-	-	V
集电极-发射极击穿电压	BV_{CEO}		2.0	-	-	V
集电极截止电流	I_{CBO}	$V_{CB}=10V, I_E=0$	-	-	0.1	μA
直流电流放大系数	h_{FE}	$V_{CE}=6V, I_C=30mA$ $V_{CE}=6V, I_C=15mA$	50	100	250	
特征频率	f_T	$V_{CE}=8V, I_C=30mA$	8.5	9.0	-	GHz
反馈电容	C_{re}	$I_C=I_E=0, V_{CB}=6V, f=1MHz$	-	0.4	-	pF
集电极电容	C_C	$I_E=I_C=0, V_{CB}=8V, f=1MHz$	-	0.6	-	pF
发射极电容	C_e	$I_C=I_E=0, V_{EB}=0.5V, f=1MHz$	-	1.5	-	pF
插入功率增益	$ S_{21} ^2$	$I_C=30mA, V_{CE}=6V, f=1GHz$	17	18	-	dB
噪声系数	NF	$V_{CE}=6V, I_C=5mA, f=1GHz$ $V_{CE}=6V, I_C=5mA, f=2GHz$	-	1.3	-	dB
最大单边功率增益	G_{UM}	$I_C=30mA, V_{CE}=6V, f=1GHz$ $I_C=30mA, V_{CE}=6V, f=2GHz$	-	19	-	dB

说明: 1. $G_{UM} = 10 \log \frac{|S_{21}|^2}{(1 - S_{11})^2 (1 - S_{22})^2} dB$;

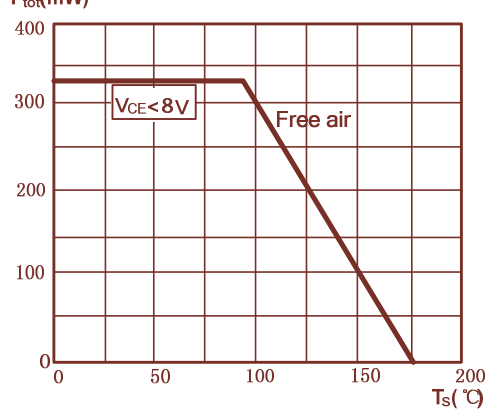
2. 使用时, 必须将发射极的 2 脚和 4 脚信号都做有效的引出, 才能得到较好的交流增益。



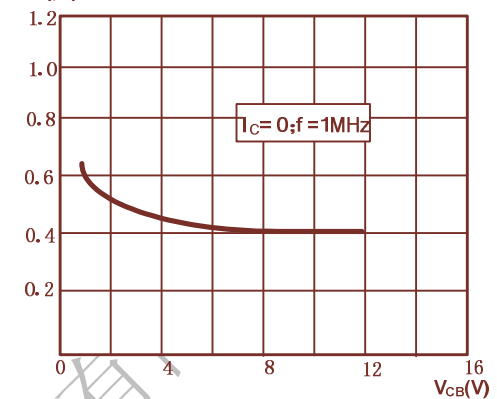
4. 典型特征曲线:

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

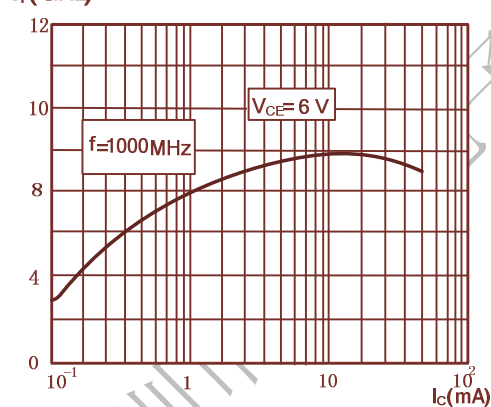
TOTAL POWER DISSIPATION
VS. AMBIENT TEMPERATURE



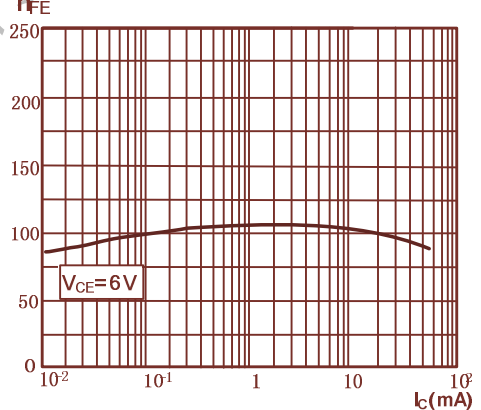
REVERSE TRANSFER
CAPACITANCE vs. COLLECTOR
TO BASE VOLTAGE



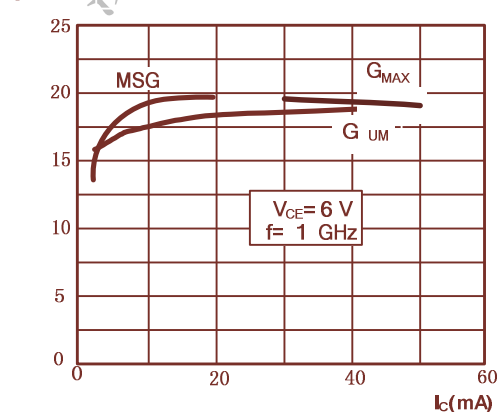
FREQUENCY vs. COLLECTOR
CURRENT



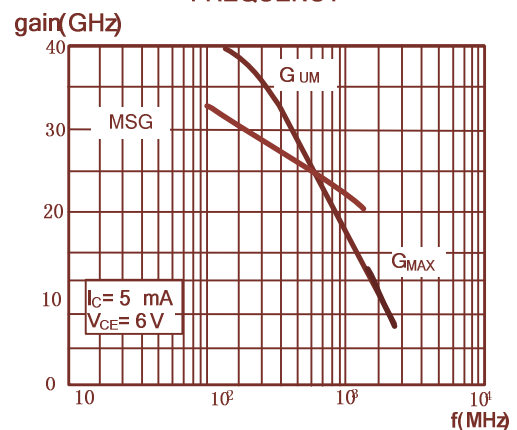
DC CURRENT vs. COLLECTOR
CURRENT



GAIN vs. FUNCTION of
COLLECTOR CURRENT

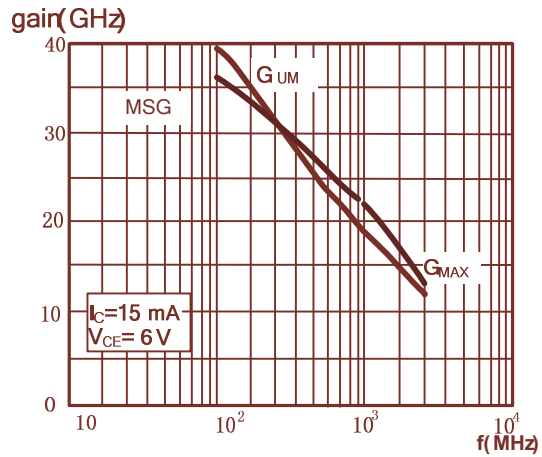


GAIN vs. FUNCTION of
FREQUENCY

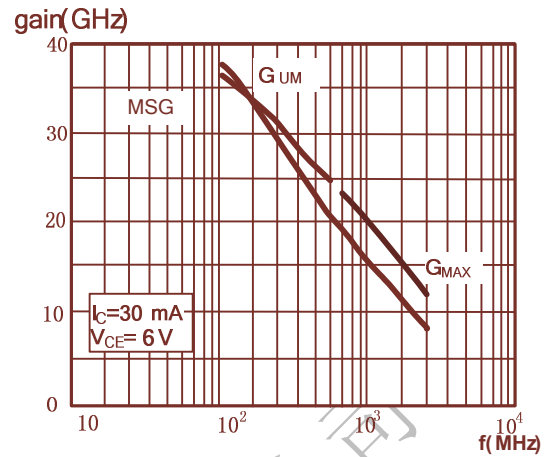




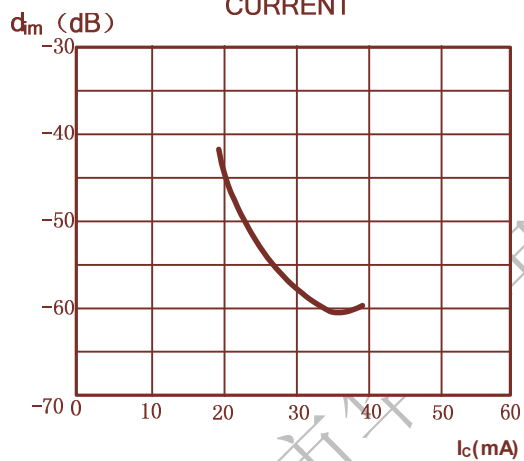
GAIN vs. FUNCTION of
FREQUENCY



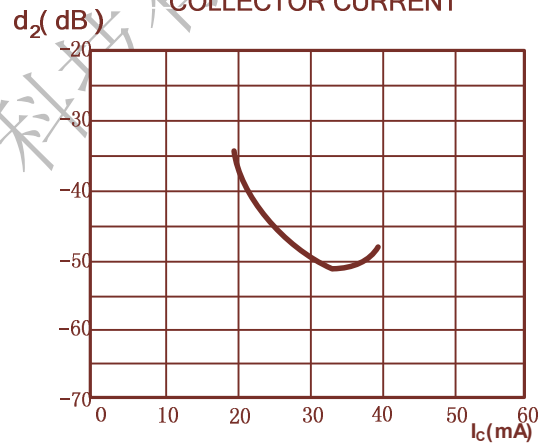
GAIN vs. FUNCTION of
FREQUENCY



INTERMODULATION DISTORTION
vs. FUNCTION of COLLECTOR
CURRENT

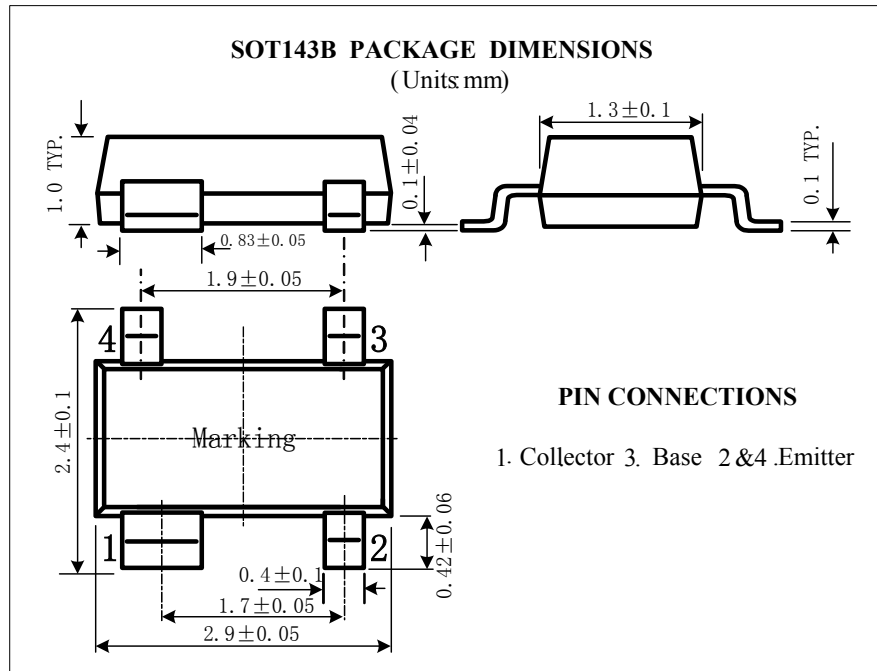


SECOND-ORDER INTERMODULATION
DISTORTION vs. FUNCTION of
COLLECTOR CURRENT





5. 封装尺寸示意图：



6. 包装信息：

PACKAGE INFORMATION

Device	Package	Shipping	Inner Box	Carton
BFP196R	SOT-143B	3000/Tape&Reel	10 Tape&Reel	4 Inner Box