

BFP196WXR NPN TRANSISTOR

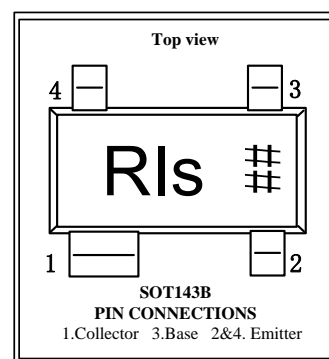
MICROWAVE LOW NOISE AMPLIFIER NPN SILICON EPITAXIAL TRANSISTOR

1. Product profile:

✚ The chip using silicon epitaxial process, high power gain amplifier, broadband and low noise, low leakage current, summary characteristics of capacitance, large dynamic range, linear current ideal;

✚ Mainly used in ultra high frequency microwave, high frequency broadband low noise amplifier, such as CATV video amplifier, wireless transceiver module, all kinds of long-distance remote control, security alarm, analog and digital cordless telephone and other products, suitable for medium power high frequency signal amplification;

- ✚ Collector Emitter Breakdown Voltage: $BV_{CEO}=12V$;
- ✚ Maximum collector current: $I_{CM}=150mA$;
- ✚ Collector power dissipation: $P_C=700mW$;
- ✚ The characteristic frequency: $f_T=9.0GHz$;
- ✚ Package: SOT343 (SC82) , Marking: RIs.



2.Limiting values ($T_{amb}=25^{\circ}C$) :

Parameter	Symbol	Numerical	Unit
collector-base voltage	V_{CBO}	20	V
collector-emitter voltage	V_{CEO}	12	V
emitter-base voltage	V_{EBO}	2.5	V
collector current	I_{CM}	150	mA
total power dissipation	P_T	700	mW
junction temperature	T_J	-40 ~ 150	$^{\circ}C$
storage temperature	T_{stg}	-65 ~ +150	$^{\circ}C$

3.Characteristics ($T_{amb}=25^{\circ}C$) :

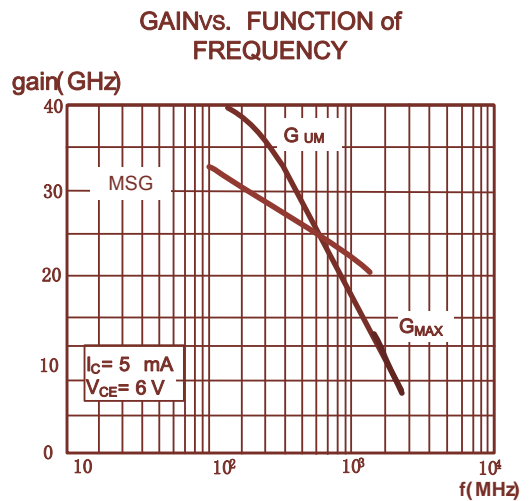
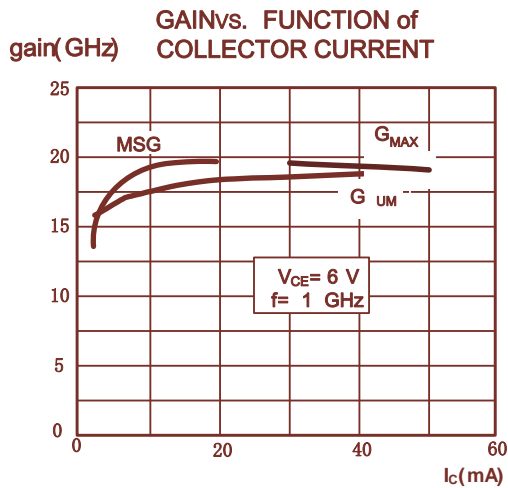
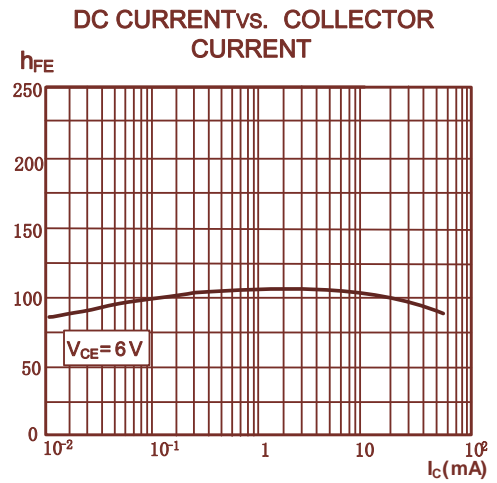
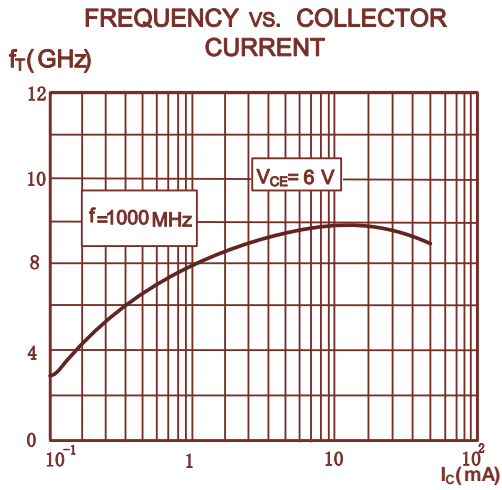
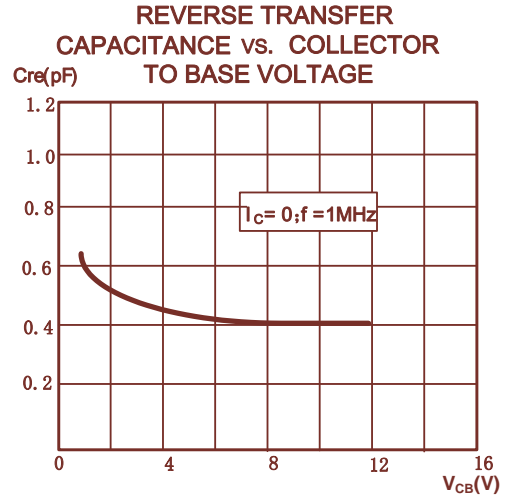
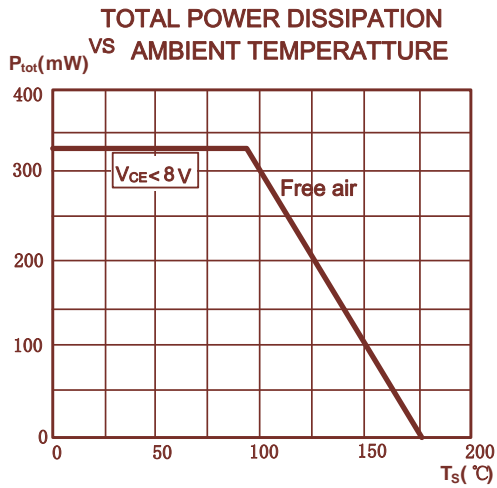
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
collector-base breakdown voltage	BV_{CBO}	open emitter		20		V
collector-emitter breakdown voltage	BV_{CEO}	open base		12		V
Emitter-base breakdown voltage	BV_{EBO}	open collector		2.5		V
collector current	I_C			150		mA
collector-base cut-off current	I_{CBO}	$V_{CB}=10V, I_E=0$	-	-	0.05	μA
DC current gain	h_{FE}	$V_{CE}=8V, I_C=50mA,$		60	95	130
transition frequency	f_T	$V_{CE}=8V, I_C=50mA, f=900MHz$	8.5	9.0	-	GHz
feedback capacitance	C_{ce}	$I_C=I_C=0, V_{CB}=10V, f=1MHz$	-	0.35	-	pF
collector capacitance	C_{cb}	$I_E=I_E=0, V_{CB}=10V, f=1MHz$	-	0.8	-	pF
emitter capacitance	C_{eb}	$I_C=I_C=0, V_{EB}=0.5V, f=1MHz$	-	3.6	-	pF
insertion power gain	$ S_{21} ^2$	$I_C=50mA, V_{CE}=8V, f=900MHz$	13.0	14.0	-	dB
		$I_C=50mA, V_{CE}=8V, f=1800MHz$	6.5	7.5	-	

maximum unilateral power gain	G_{UM}	$I_C=50\text{mA}, V_{CE}=8\text{V}, f=900\text{MHz}$	16	17	-	dB
		$I_C=30\text{mA}, V_{CE}=8\text{V}, f=1.8\text{GHz}$	9.5	10	-	
output power at 1 dB gain compression	$P_{L(1\text{dB})}$	$f = 900 \text{ MHz}, V_{CE} = 8 \text{ V}, Z_S = Z_L = 50 \Omega, I_C = 50 \text{ mA}$	-	20	-	dBm
		$f = 1800 \text{ MHz}, V_{CE} = 8 \text{ V}, Z_S = Z_L = 50 \Omega, I_C = 50 \text{ mA}$	-	15	-	
The third order intercept point	ITO	$I_C=50\text{mA}, V_{CE}=8\text{V}, R_L=50\Omega, f_p=900\text{MHz}, f_q=902\text{MHz}$	-	33	-	dBm
output third-order intercept point	IP3o	$f_1 = 900\text{MHz}; f_2 = 434 \text{ MHz}; V_{CE} = 8 \text{ V}; Z_S = Z_L = 50 \Omega ; I_C = 50 \text{ mA}$ □	-	25	-	dBm

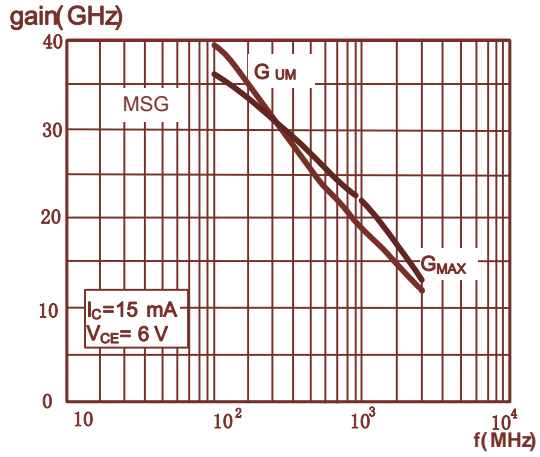
$$G_{UM} = 10 \log \frac{|S_{21}|^2}{(1 - S_{11})^2 (1 - S_{22})^2} \text{ dB}$$

4. TYPICAL CHARACTERISTICS:

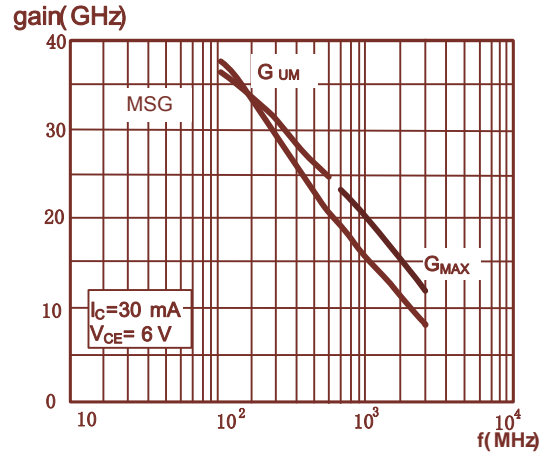
TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)



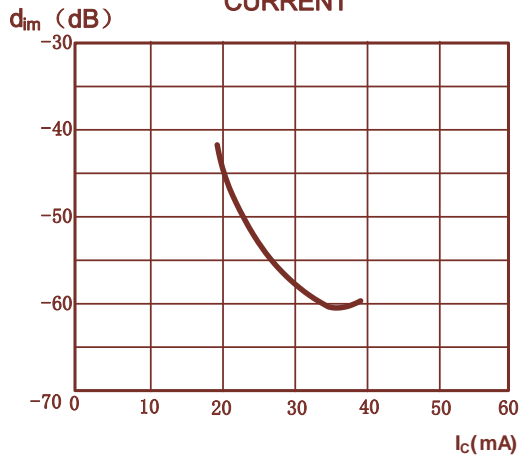
GAIN vs. FUNCTION of FREQUENCY



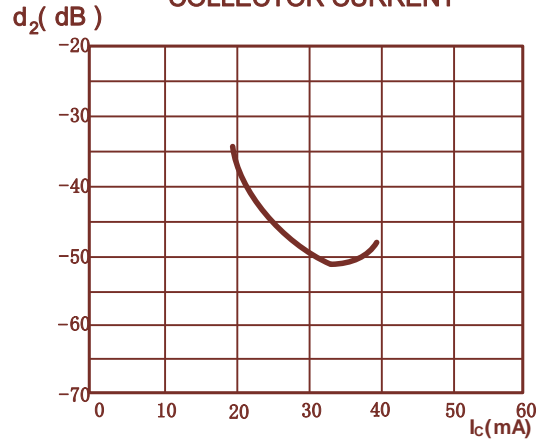
GAIN vs. FUNCTION of FREQUENCY



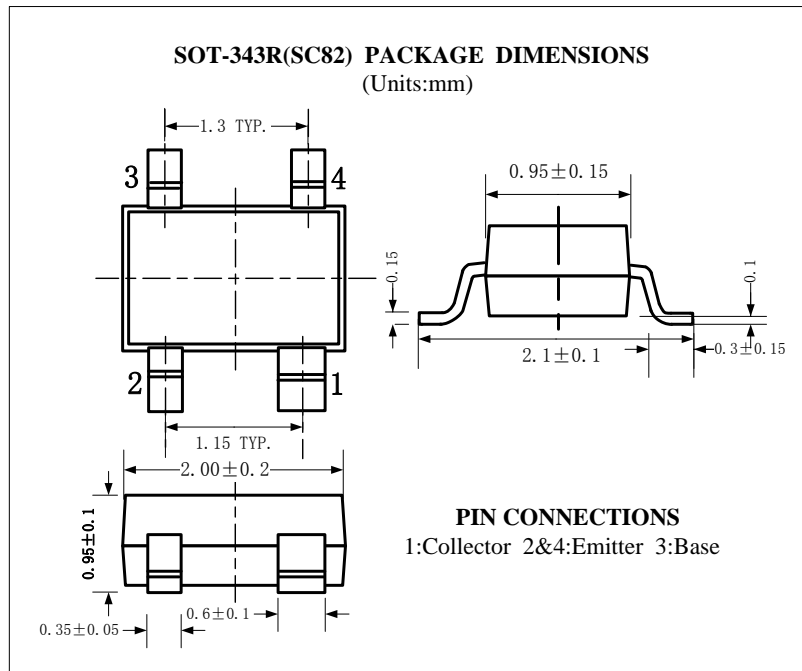
INTERMODULATION DISTORTION vs. FUNCTION of COLLECTOR CURRENT



SECOND ORDER INTERMODULATION DISTORTION vs. FUNCTION of COLLECTOR CURRENT



5. PACKAGE DIMENSIONS:



6. PACKAGE INFORMATION:

PACKAGE INFORMATION

Device	Package	Shipping	Inner Box	Carton
BFP196WXR	SOT-343R	3000/Tape&Reel	5 Tape&Reel	12 Inner Box