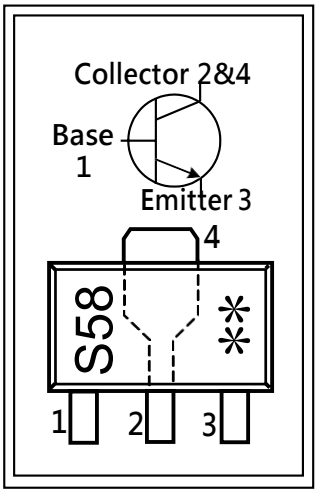
BFU580Q NPN TRANSISTOR

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}=15V;

Maximum collector current：I_{CM}=100mA;

Collector power dissipation：P_C=1000mW;

The characteristic frequency：f_T=8.5GHz；

Package：SOT89,Marking：S58。

2. Limiting values（Tamb=25℃）：

Parameter	Symbol	Numerical	Unit
collector-base voltage	V_{CBO}	25	V
collector-emitter voltage	V_{CEO}	15	V
emitter-base voltage	V_{EBO}	3.5	V
collector current	I_{CM}	100	mA
total power dissipation	P_T	1000	mW
junction temperature	T_J	-40～150	℃
storage temperature	T_{stg}	-65～+150	℃

3. Characteristics（Tamb=25℃）：

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
collector-base breakdown voltage	BV_{CBO}	open emitter	25			V
collector-emitter breakdown voltage	BV_{CEO}	open base	15			V
Emitter-base breakdown voltage	BV_{EBO}	open collector	3.5			V
collector current	I_C			100		mA
collector-base cut-off current	I_{CBO}	V_{CB}=6V,I_E=0	-	-	0.05	μA
DC current gain	h_{FE}	V_{CE}=8V,I_C=30mA,	80	120	160	
transition frequency	f_T	V_{CE}=8V,I_C=30mA, f=900MHz	8.0	8.5	-	GHz
feedback capacitance	Cre	I_C=i_C=0,V_{CB}=8V,f=1MHz	-	1.2	-	pF
collector capacitance	C_C	I_E=i_e=0,V_{CB}=8V,f=1MHz	-	1.8	-	pF
emitter capacitance	Ce	I_C=i_C=0,V_{EB}=0.5V,f=1MHz	-	3.0	-	pF
insertion power gain	$\lvert S_{21} \rvert^2$	I_C=30mA,V_{CE}=8V,f=433MHz	18.0	18.5	-	dB
		I_C=30mA,V_{CE}=8V,f=900MHz	13.5	14	-	
		I_C=30mA,V_{CE}=8V,f=1800MHz	8.0	8.5	-	
maximum unilateral	G_{UM}	I_C=30mA,V_{CE}=8V,f=433MHz	19.5	20	-	dB

power gain		I_C=30mA,V_{CE}=8,f=900MHz	13.5	14	-	
		I_C=30mA,V_{CE}=8V,f=1.8GHz	8.0	8.5	-	
output power at 1 dB gain compression	$P_{L(1dB)}$	f = 433 MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	16	-	dBm
		f = 900MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	15	-	
		f = 1800 MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	15	-	
output third-order intercept point	$IP3_o$	f_1 = 433 MHz; f_2 = 434 MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	25	-	dBm
		f_1 = 900 MHz; f_2 = 901 MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	25	-	
		f_1 =1800 MHz; f_2 = 1801 MHz; V_{CE} = 8 V; Z_S = Z_L = 50Ω ; I_C = 30 mA	-	24	-	

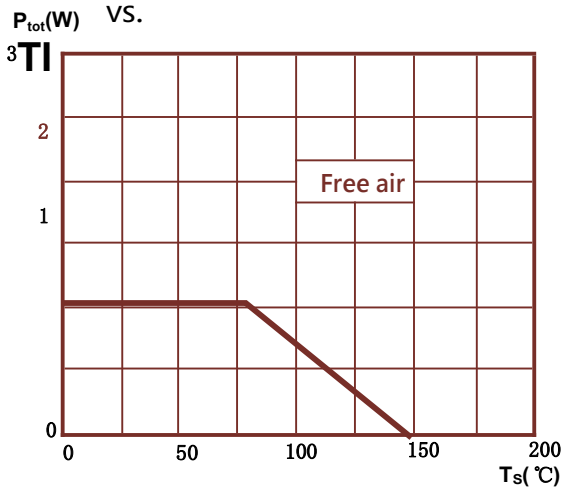
$$G_{UM} = 10\log\frac{|S_{21}|^2}{(1-S_{11})^2(1-S_{22})^2}\,dB$$

4.

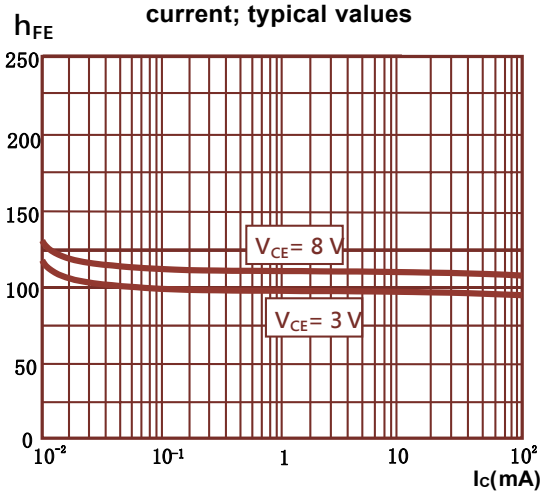
TYPICAL CHARACTERISTICS

(T_A=25℃,unless otherwise specified)

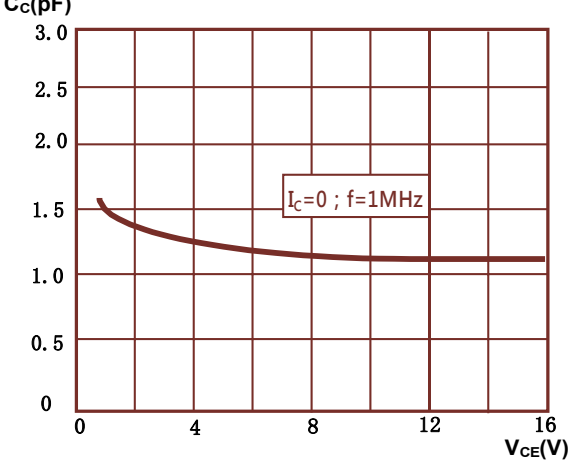
Power derating curve



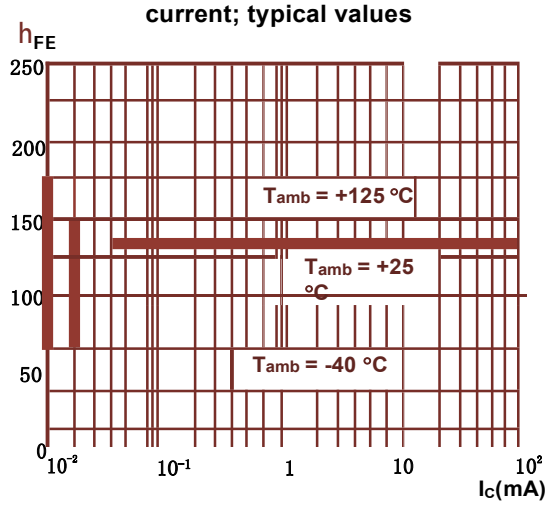
DC current gain as a function of collector current; typical values



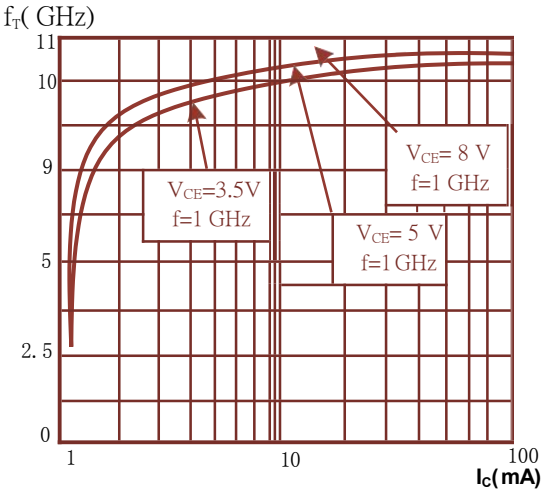
Collector capacitance as a function of collector-base voltage; typical values



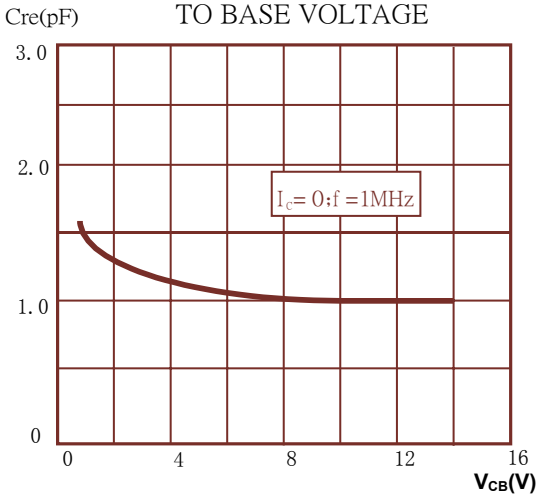
DC current gain as a function of collector current; typical values



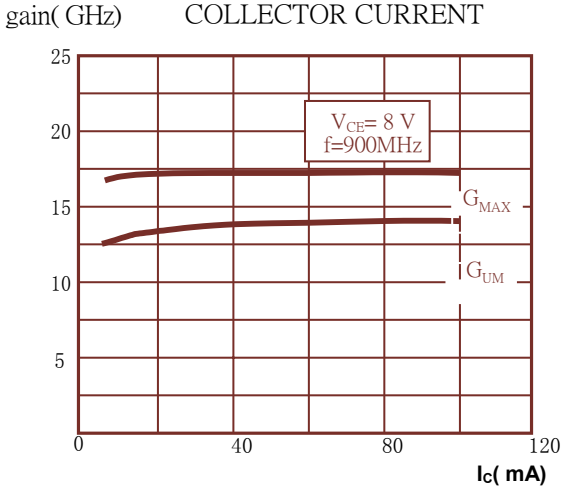
Frequency collector vs.current



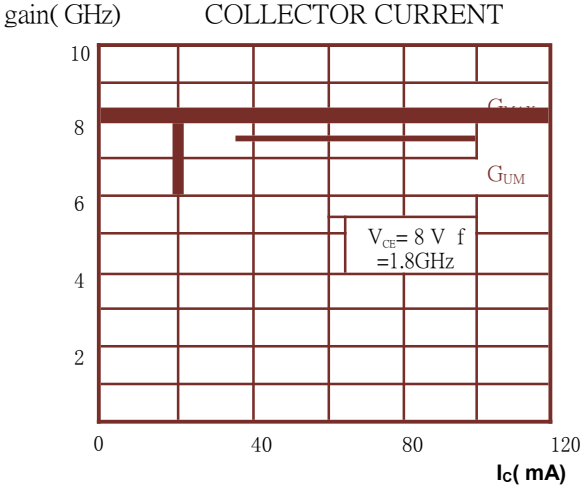
REVERSE TRANSFER CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



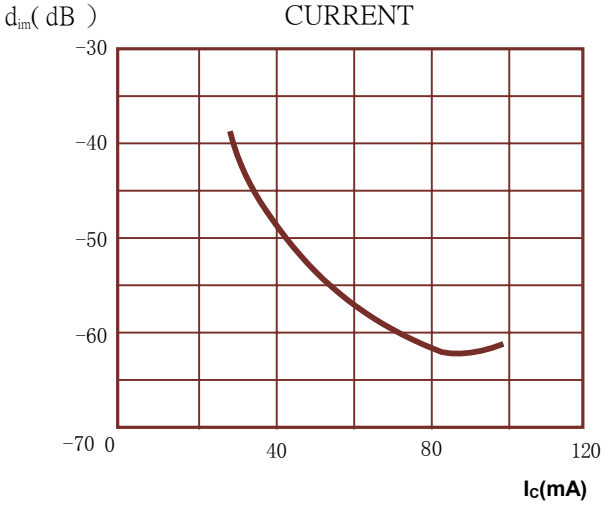
GAIN vs. FUNCTION of COLLECTOR CURRENT



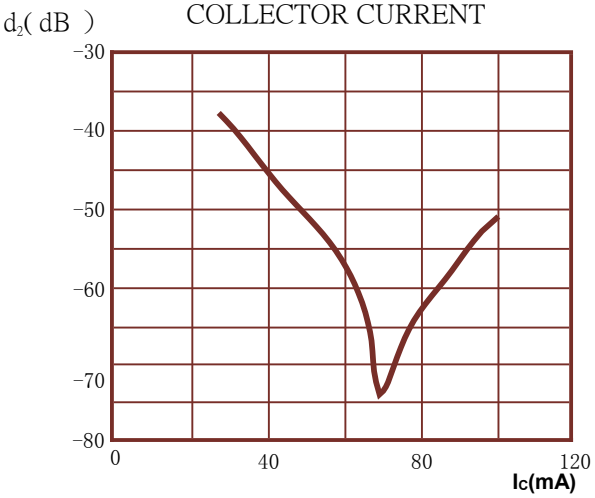
GAIN vs. FUNCTION of COLLECTOR CURRENT



INTERMODULATION DISTORTION VS.FUNCTION of COLLECTOR CURRENT



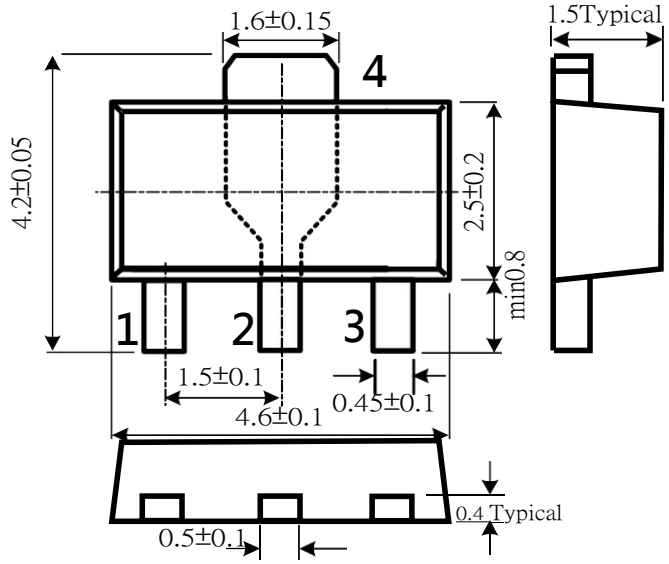
SECOND ORDER INTERMODULATION DISTORTION VS.FUNCTION of COLLECTOR CURRENT



5. PACKAGE DIMENSIONS：

SOT89 PACKAGE DIMENSIONS

(Units:mm)



PIN CONNECTIONS

1. Base 2&4. Collector 3.Emitter

6. PACKAGE INFORMATION：

Package	Shipping	Inner Box	Carton
SOT89	1000pcs/Tape&Reel	5 Tape&Reel	12Inner Box