シリコンNPNエピタキシアルプレーナ形トランジスタ
SILICON NPN EPITAXIAL PLANAR TRANSISTOR

2SC1556

○ UHF帯中電力増幅用

○ UHF帯発振用

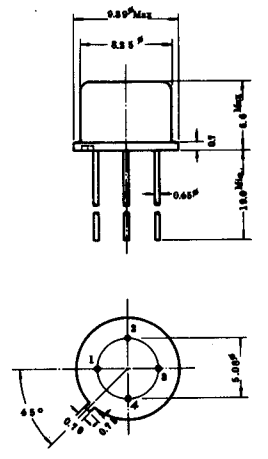
○ UHF Band Medium Power Amplifier Applications

○ UHF Band Oscillator Applications

- G_{pe} = 9 dB (f = 1 GHz)
- P_o = 22 dBm (f = 1 GHz)
- f_T = 3.5 GHz

通信工業用
INDUSTRIAL APPLICATIONS

Unit in mm



1. EMITTER
2. BASE
3. COLLECTOR
4. CASE

JEDEC	TO-39
EIAJ	TC-5, TB-5B
TOSHIBA	2-8D1A

最大定格 MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
コレクタ・ベース間電圧	V_{CBO}	30	V
コレクタ・エミッタ間電圧	V_{CEO}	15	V
エミッタ・ベース間電圧	V_{EBO}	3.0	V
コレクタ電流	I_C	120	mA
エミッタ電流	I_E	−120	mA
コレクタ損失 (Ta=25°C)	P_C	0.6	W
コレクタ損失 (Tc=25°C)	P_C	1.2	W
接合温度	T_j	175	°C
温度	T_{stg}	−65～175	°C

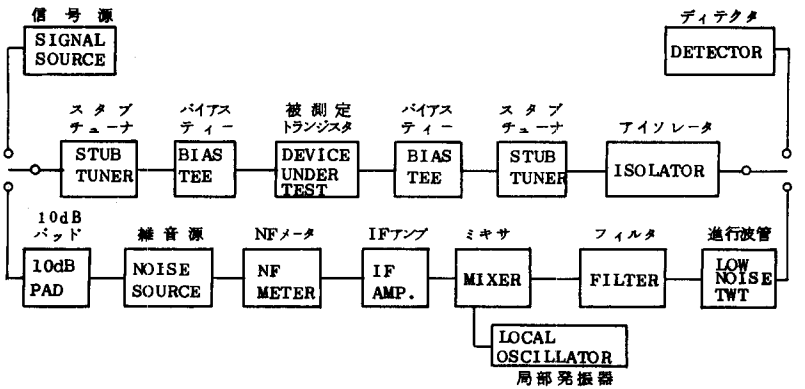
高周波特性　RF CHARACTERISTICS　(Ta = 25 ℃)

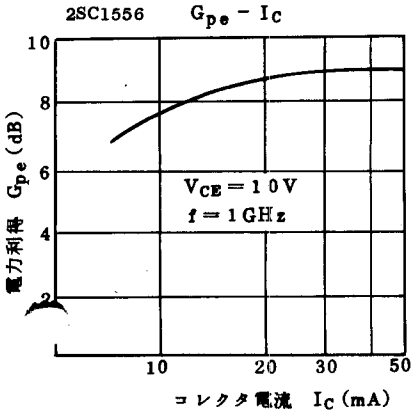
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
電力利得 Fig 1	G_{pe}	V_{CE}=10V, I_C=30mA, f=0.5GHz	13	14	—	dB
		V_{CE}=10V, I_C=30mA, f=1GHz	8	9	—	dB
挿入電力利得	$\|S_{21}\|^2$	V_{CE}=10V, I_C=30mA, f=0.5GHz	11	12	—	dB
		V_{CE}=10V, I_C=30mA, f=1GHz	6	7	—	dB
雑音指数 Fig 1	NF	V_{CE}=10V, I_C=10mA, f=0.5GHz	—	2	—	dB
		V_{CE}=10V, I_C=10mA, f=1GHz	—	3	—	d
トランジション周波数	f_T	V_{CE}=10V, I_C=30mA	—	3.5	—	GHz
最大発振周波数	f_{max}	V_{CE}=10V, I_C=30mA	—	4.0	—	GHz
飽和出力	P_O	V_{CE}=10V, I_C=50mA, f=1GHz Note 1	—	22	—	dBm

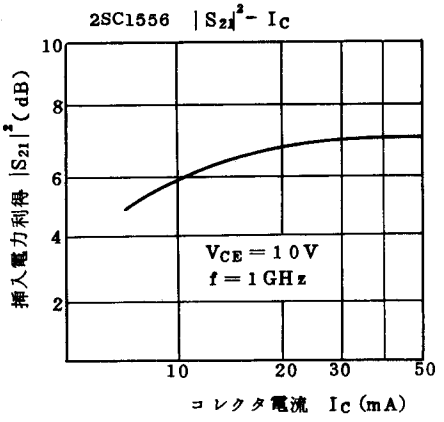
電気的特性　ELECTRICAL CHARACTERISTICS　(Ta = 25 ℃)

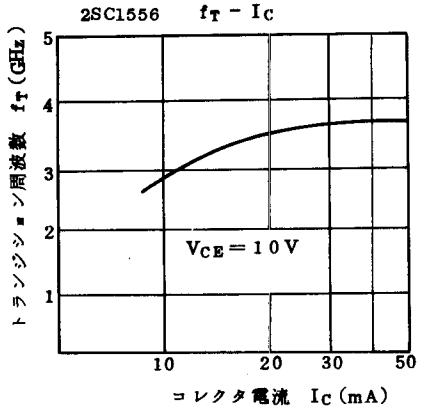
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
コレクタしゃ断電流	I_{CBO}	V_{CB}=10V, I_E=0mA	—	—	1.0	μA
エミッタしゃ断電流	I_{EBO}	V_{EB}=2.0V, I_C=0mA	—	—	10	μA
直流電流増幅率	h_{FE}	V_{CE}=5V, I_C=50mA	—	100	—	
コレクタ出力容量	C_{ob}	V_{CB}=10V, I_E=0mA	—	2.0	2.3	pF
帰還容量	C_{re}	V_{CB}=10V, I_E=0mA (Note 2)	—	1.0	—	pF

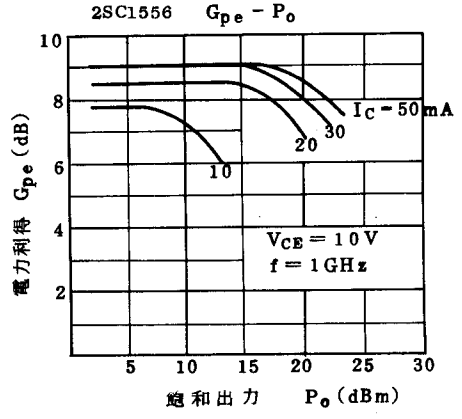
Fig 1　雑音指数および電力利得測定ブロックダイアグラム
NOISE FIGURE AND POWER GAIN TEST SET BLOCK DIAGRAM











Note 1. 電力利得が1dB低下する点での出力
Output power at 1dB gain compression point.

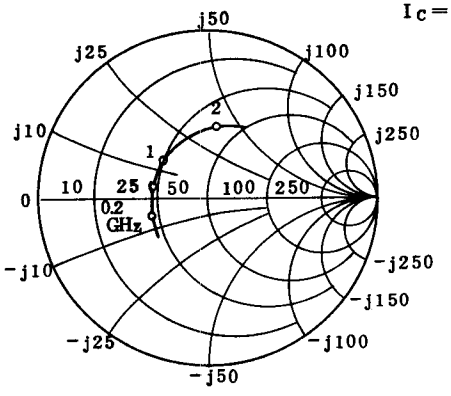
Note 2. C_{re}はBoonton Electronics Corp.製 75D Direct Capacitance Bridgeによって三端子法で測定
C_{re} is measured by 3 terminal method with Boonton Electronics Corporations 75D direct capacitance bridge.

2SC1556のエミッタ接地，小信号Sパラメータ

COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC1556

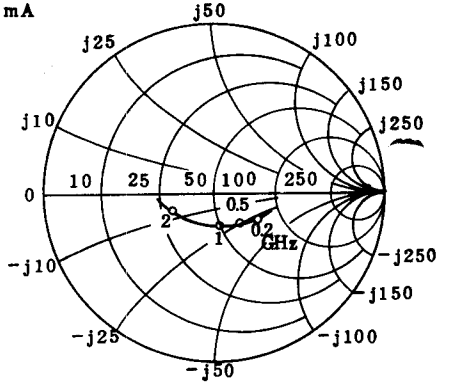
$V_{CE} = 10V$

$I_C = 30mA$



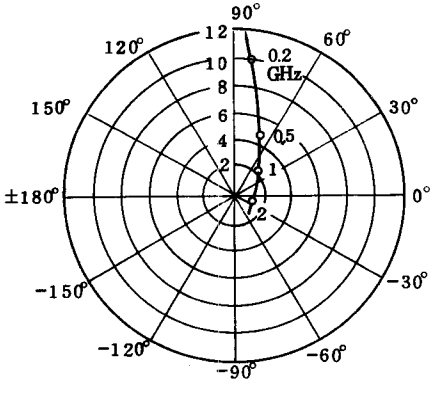
S11

(Unit in Ω)

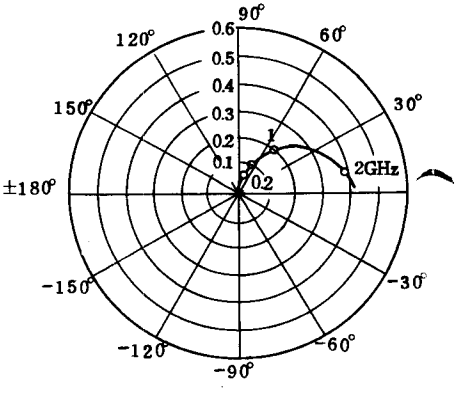


S22

(Unit in Ω)



S21



S12