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

2SC1554
2SC1555

通信工業用
INDUSTRIAL APPLICATIONS

- ○ UHF～Sバンド中電力増幅用
- ○ UHF～Sバンド発振用

- ○ UHF～S Band Medium Power Amplifier Applications
- ○ UHF～S Band Oscillator Applications

- P_{OUT} = 22dBm (f=2GHz)
- G_{pe} = 7dB (f=2GHz)

Unit in mm

外形図
Outline

Refer to Page 628

TYPE	2SC1554	2SC1555
JEDEC	—	—
EIAJ	—	—
TOSHIBA	2-3C1A	2-3D1A

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(T_a=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
保存温度	T_{stg}	−65～175	°C

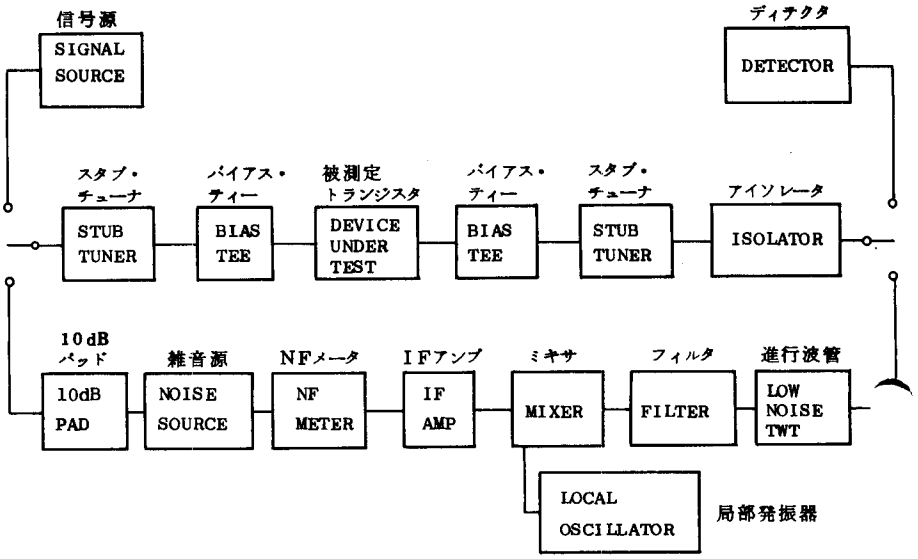
高周波特性 RF CHARACTERISTICS (Ta = 25 °C)

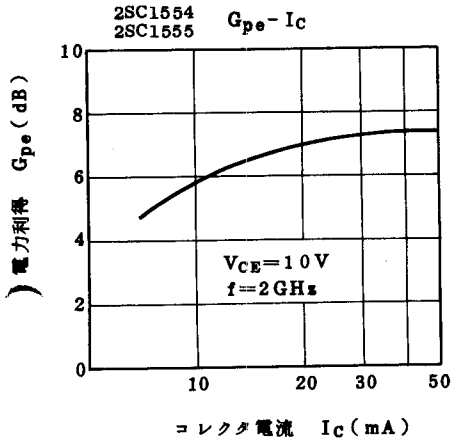
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
雑音指数 Fig 1	NF	V_{CE}=10V, I_C=5mA f=1GHz	—	3.0	4.0	dB
		V_{CE}=10V, I_C=5mA f=2GHz	—	6.0	7.0	dB
電力利得 Fig 1	G_{pe}	V_{CE}=10V, I_C=30mA f=1GHz	11.5	12.5	—	dB
		V_{CE}=10V, I_C=30mA f=2GHz	6.0	7.0	—	dB
トランジション周波数	f_T	V_{CE}=10V, I_C=50mA	3.0	4.0	—	GHz
最大発振周波数	f_{Max}	V_{CE}=10V, I_C=30mA	4.0	5.0	—	GHz
飽和出力	P_O	V_{CE}=10V, I_C=50mA f=2GHz (Note 1)	—	22.0	—	dBm

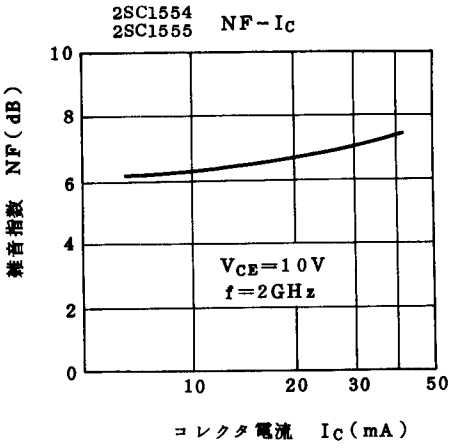
電気的特性　ELECTRICAL CHARACTERISTICS　(Ta = 25°C)

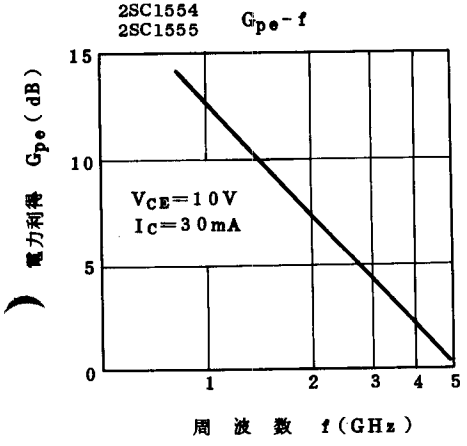
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
コレクタしゃ断電流	I_{CBO}	V_{CB} = 10V, I_E = 0	—	—	1.0	μA
エミッタしゃ断電流	I_{EBO}	V_{EB} = 20V, I_C = 0	—	—	10	μA
直流電流増幅率	h_{FE}	V_{CE} = 5V, I_C = 50mA	—	100	—	
コレクタ出力容量	C_{ob}	V_{CB} = 10V, I_E = 0	—	1.7	2.3	pF
帰還容量	C_{re}	V_{CB} = 10V, I_E = 0 (Note2)	—	1.0	—	pF

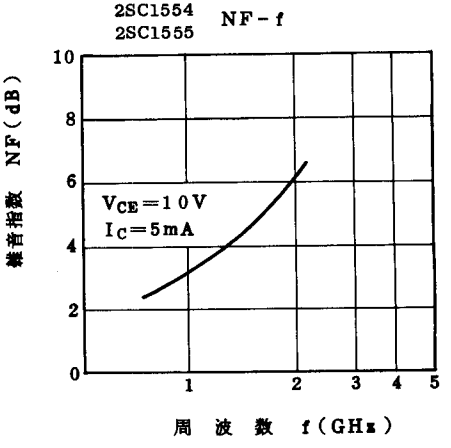
Fig 1　雑音指数および電力利得測定ブロックダイアグラム
NOISE FIGURE AND POWER GAIN TEST SET BLOCK DIAGRAM

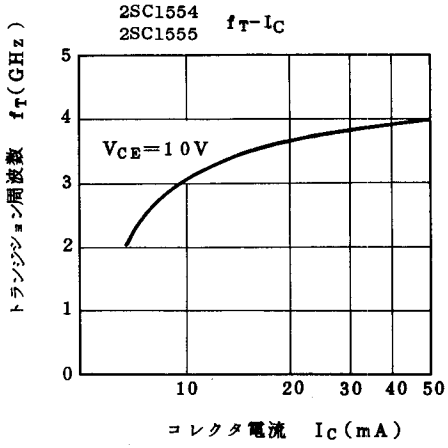


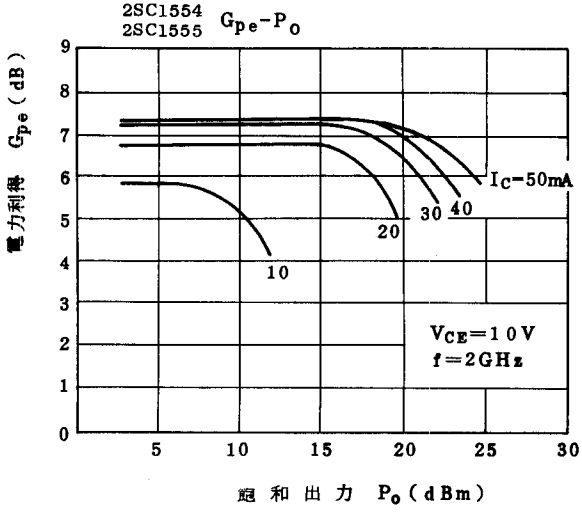

2SC1554
2SC1555
Gpe-Ic
電力利得 Gpe(dB)
VCE=10V
f=2GHz
コレクタ電流 Ic(mA)


2SC1554
2SC1555
NF-Ic
雑音指数 NF(dB)
VCE=10V
f=2GHz
コレクタ電流 Ic(mA)


2SC1554
2SC1555
Gpe-f
電力利得 Gpe(dB)
VCE=10V
Ic=30mA
周波数 f(GHz)


2SC1554
2SC1555
NF-f
雑音指数 NF(dB)
VCE=10V
Ic=5mA
周波数 f(GHz)





Note 1. 電力利得が1dB低下する点での出力

1dB gain compression.

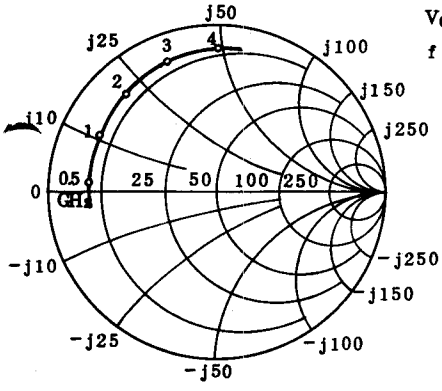
2. C_{re}は Boonton Electronics Corp. 製 75D Direct Capacitance Bridge によって三端子法で測定

C_{re} is measured by 3 terminal method with Boonton Electronics Corporations 75D direct capacitance bridge.

2SC1554
2SC1555 のエミッタ接地，小信号Sパラメータ

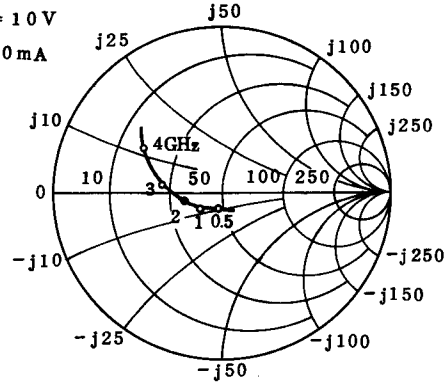
COMMON EMITTER SMALL SIGNAL S-PARAMETERS OF 2SC1554 AND 2SC1555

$V_{CE} = 10V$
$f = 20mA$



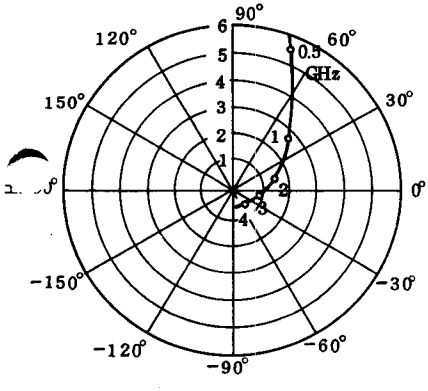
S11

(Unit in Ω)

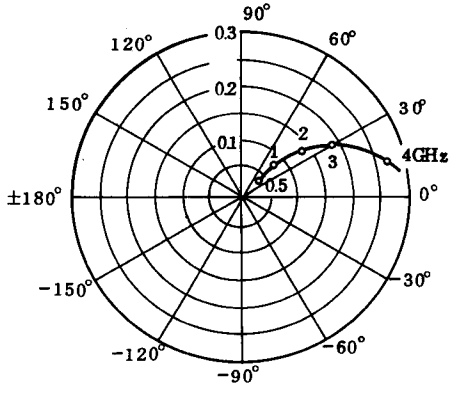


S22

(Unit in Ω)



S21

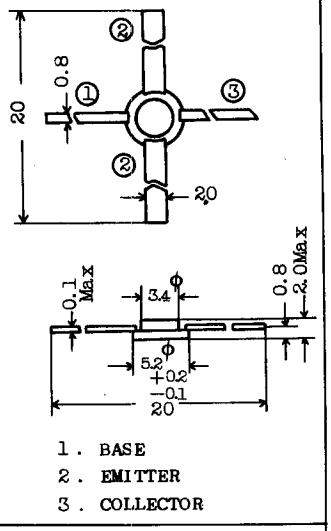


S12

外形図
OUTLINE

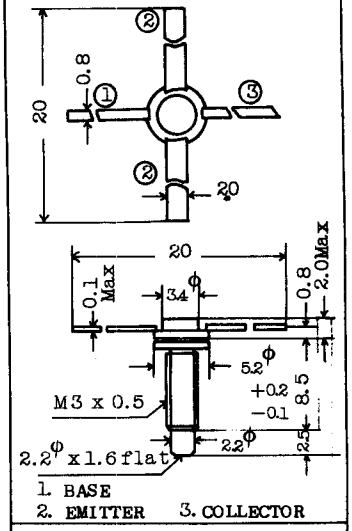
Unit in mm

2SC1554



JEDEC	—
EIAJ	—
TOSHIBA	2−3C1A

2SC1555



JEDEC	—
EIAJ	—
TOSHIBA	2−3D1A