S2508

マイクロ波トランジスタ T-31-15

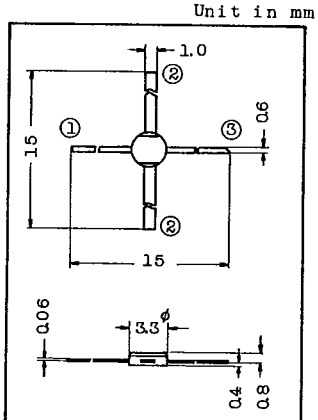
低雑音増幅用

○ UHF～L バンド低雑音増幅用

- UHF～L Band Low Noise Amplifier Applications.
- High Speed Switching Applications.

- NF = 2.0 dB (f = 500 MHz)
- S_{21} = 15 dB (f = 500 MHz)
- f_T = 3.5 GHz

Unit in mm



1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	
EIAJ	
TOSHIBA	2-3A1A

最大定格 MAXIMUM RATINGS (Ta = 25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
コレクタ・ベース間電圧	V_{CBO}	20	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	30	mA
エミッタ電流	I_E	−30	mA
コレクタ損失	P_C	175	mW
接合部温度	T_j	175	℃
保存温度	T_{stg}	−65～175	℃

マイクロ波特性 MICROWAVE CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
雑音指数 Fig 1	NF	V_{CE}=10 V, I_C=3 mA f=500 MHz	−	2.0	3.0	dB
		V_{CE}=10 V, I_C=3 mA f=1000 MHz	−	3.3	−	dB
挿入電力利得	$\|S_{21}\|^2$	V_{CE}=10 V, I_C=10 mA f=500 MHz	13.0	15.0	−	dB
		V_{CE}=10 V, I_C=10 mA f=1000 MHz	−	10.0	−	dB
トランジション周波数	f_T	V_{CE}=10 V, I_C=10 mA	2.5	3.5	−	GHz

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9097250 TOSHIBA (DISCRETE/OPTO)
39C 00512 D T-31-15

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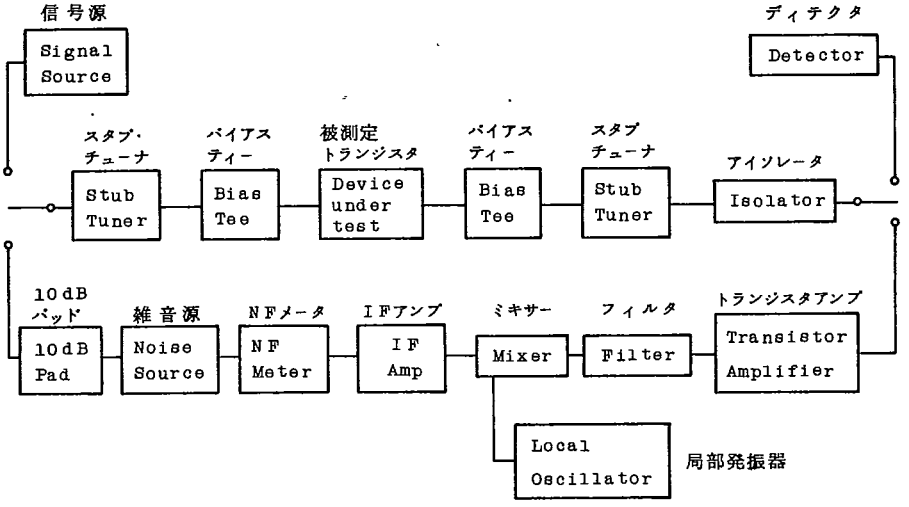
電気的特性 ELECTRICAL CHARACTERISTICS (Ta = 25℃)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
コレクタしや断電流	I_{CBO}	V_{CB} = 10 V, I_E = 0	—	—	1.0	μA
エミッタしや断電流	I_{EBO}	V_{EB} = 2.0V, I_E = 0	—	—	1.0	μA
直流電流増幅率	h_{FE}	V_{CE} = 10 V, I_C = 5mA	30	80		
コレクタ出力容量	C_{ob}	V_{CB} = 10 V, I_E = 0	—	0.8	1.0	pF
帰還容量	C_{re}	V_{CB} = 10 V, I_E = 0 (Note 1)	—	0.45		pF
エミッタ入力容量	C_{ib}	V_{EB} = 0 V, I_C = 0 f = 1 MHz	—	1.5	—	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



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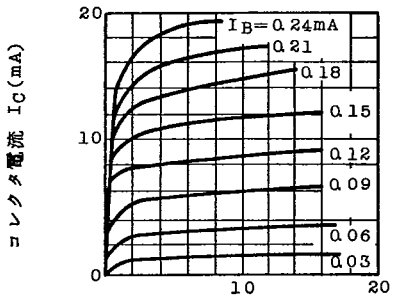
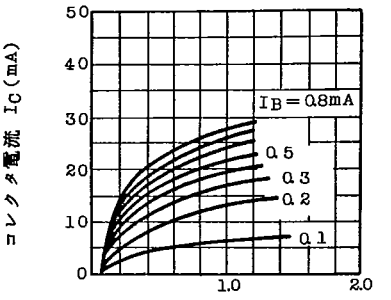
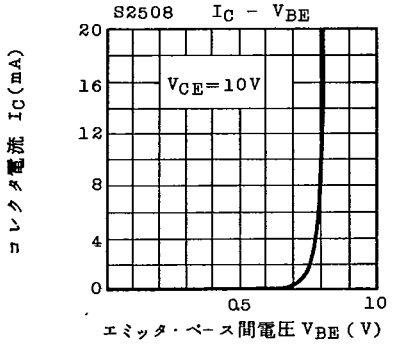
S2508 $I_C - V_{CE}$ (1)



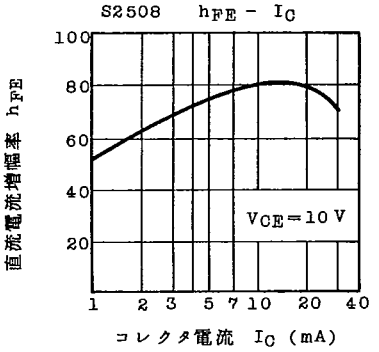
S2508 $I_C - V_{CE}$ (2)



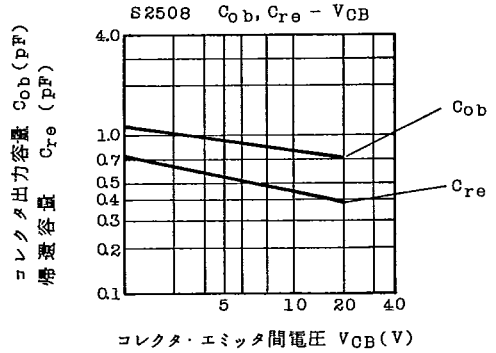
S2508 $I_C - V_{BE}$



S2508 $h_{FE} - I_C$



S2508 $C_{ob}, C_{re} - V_{CB}$



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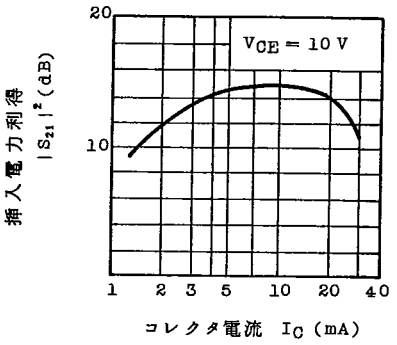
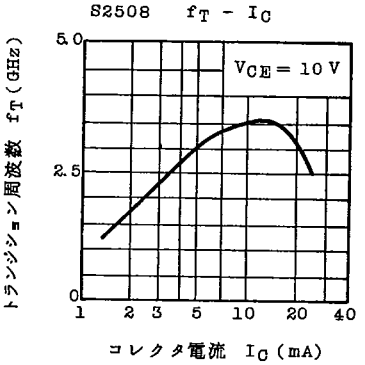
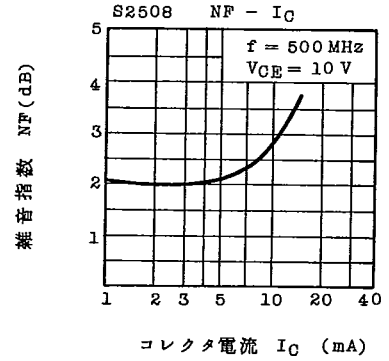
S2508 $S_{21}{}^2$ - I_C



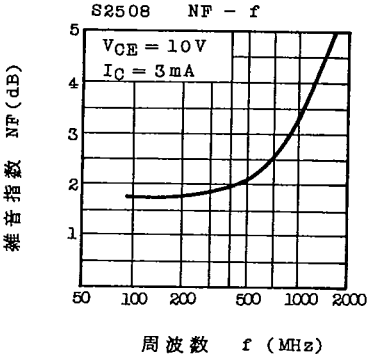
S2508 f_T - I_C



S2508 NF - I_C



S2508 NF - f



Note 1 C_{re} は Boonton Electronics Corp 製 75D Direct Capacitance Bridge によつて三端子法で測定

C_{re} is Measured by 3 Terminal method with Boonton Electronics Cord, 75D Direct Capacitance Bridgh.

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9097250 TOSHIBA (DISCRETE/OPTO)
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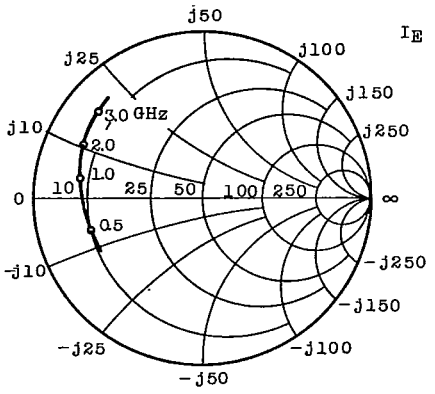
S2508のエミッタ接地小信号Sパラメータ

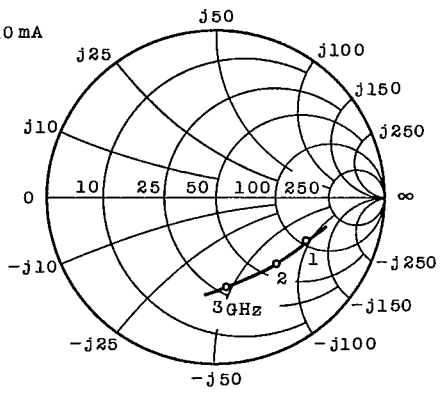
Common-Emitter Small Signal S-Parameter of S2508

V_{CB} = 10 V

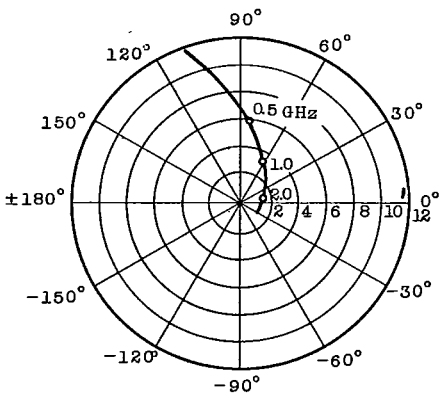
I_E = 10 mA



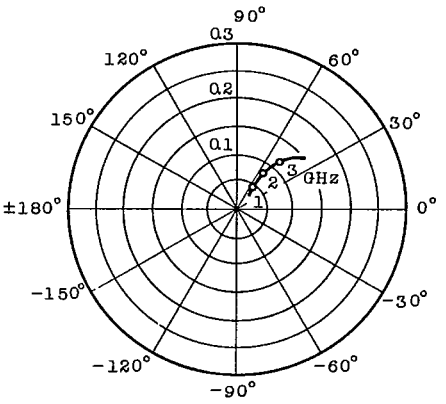
S11
(Unit : Ω)



S22
(Unit : Ω)



S21



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