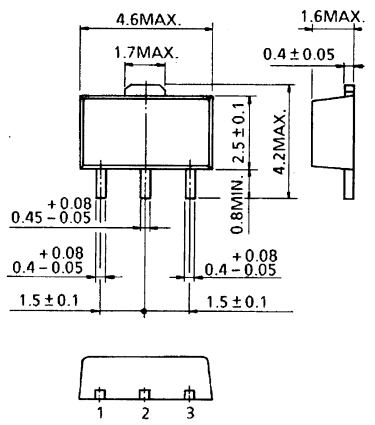
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC3268

VHF~UHF Band Low Noise Amplifier Applications

- NF = 1.7dB, $|S_{21e}|^2$ = 15.0dB (f = 500 MHz)
- NF = 2dB, $|S_{21e}|^2$ = 9.5dB (f = 1000 MHz)

Unit: mm



1. Base
2. Collector (heat sink)
3. Emitter

JEDEC	—
JEITA	—
TOSHIBA	2-5K1A

Weight: 0.052 g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	17	V
Collector-emitter voltage	V_{CEO}	12	V
Emitter-base voltage	V_{EBO}	3	V
Base current	I_B	30	mA
Collector current	I_C	70	mA
Collector power dissipation	P_C	300	mW
Collector power dissipation	P_C (Note 1)	800	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~150	°C

Note 1: When mounted ceramic substrate of 250 mm^2 × 0.8 mmt

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	V_{CE} = 10 V, I_C = 20 mA	—	5	—	GHz
Insertion gain	$\|S_{21e}\|^2$ (1)	V_{CE} = 10 V, I_C = 20 mA, f = 500 MHz	—	15.0	—	dB
	$\|S_{21e}\|^2$ (2)	V_{CE} = 10 V, I_C = 20 mA, f = 1 GHz	—	9.5	—	
Noise figure	NF (1)	V_{CE} = 10 V, I_C = 5 mA, f = 500 MHz	—	1.7	—	dB
	NF (2)	V_{CE} = 10 V, I_C = 5 mA, f = 1 GHz	—	2.0	—	

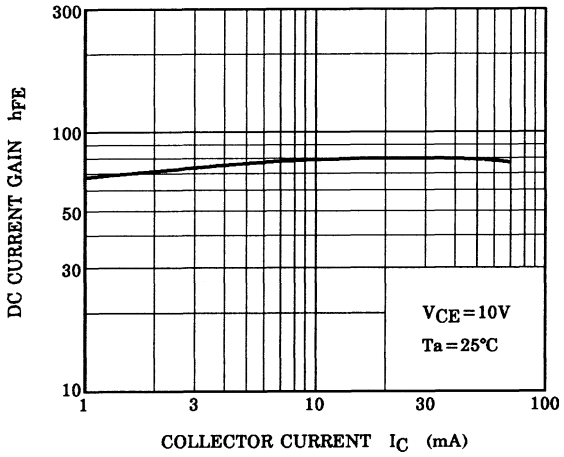
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 10 V, I_E = 0	—	—	1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 1 V, I_C = 0	—	—	1	μA
DC current gain	h_{FE}	V_{CE} = 10 V, I_C = 20 mA	25	—	—	
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz (Note 2)	—	1.05	—	pF
Reverse transfer capacitance	C_{re}		—	0.7	—	pF

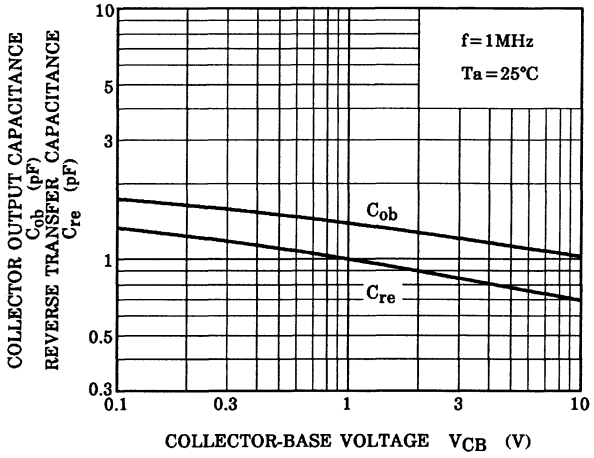
Note 2: C_{re} is measured by 3 terminal method with capacitance bridge.

Marking: ME

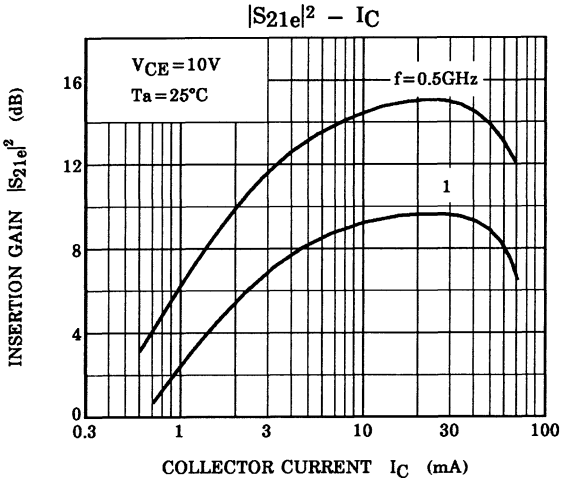
h_{FE} – I_C



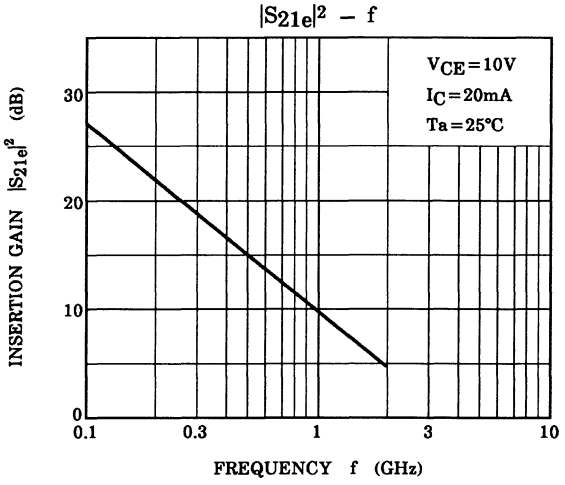
C_{ob}, C_{re} – V_{CB}



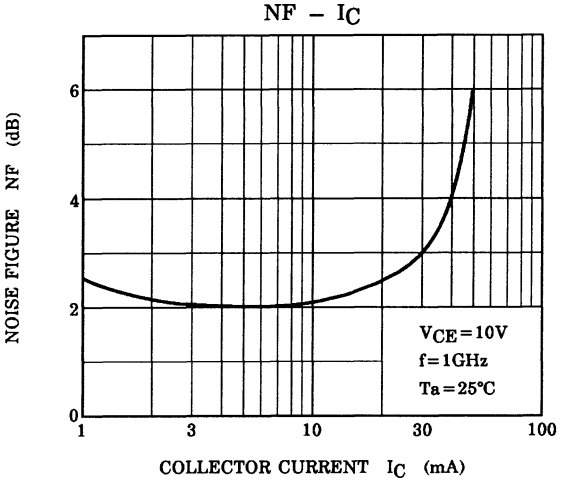
$|S_{21e}|^2$ – I_C



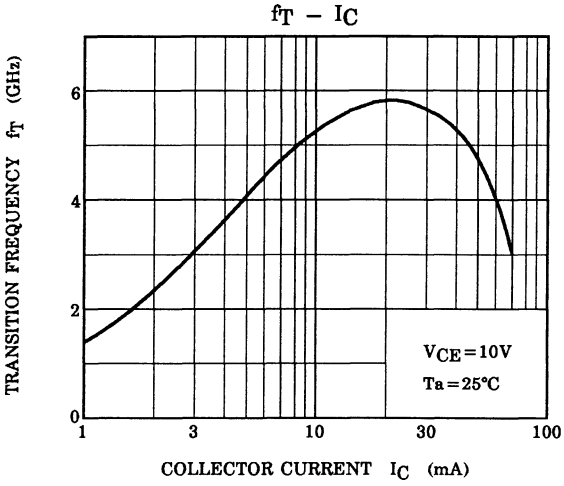
$|S_{21e}|^2$ – f



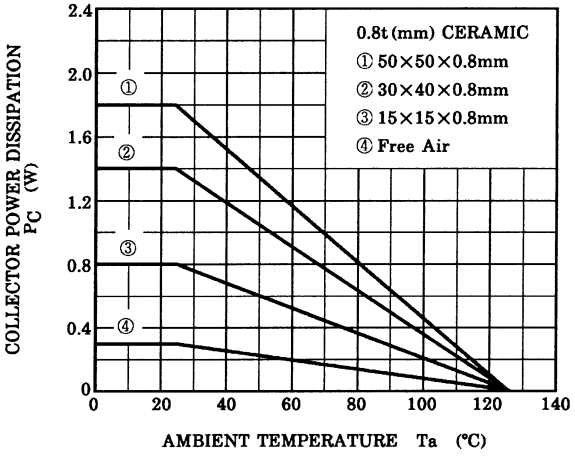
NF – I_C



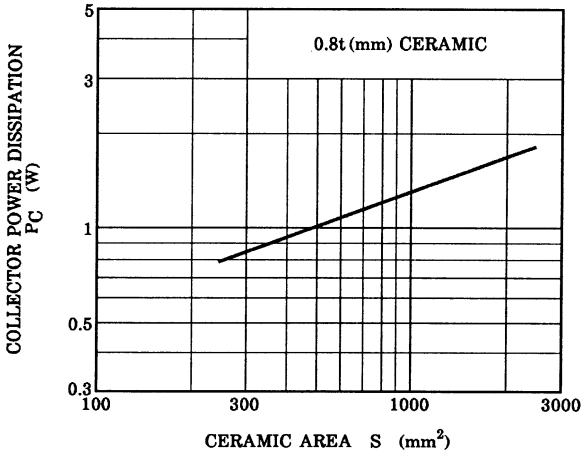
f_T – I_C



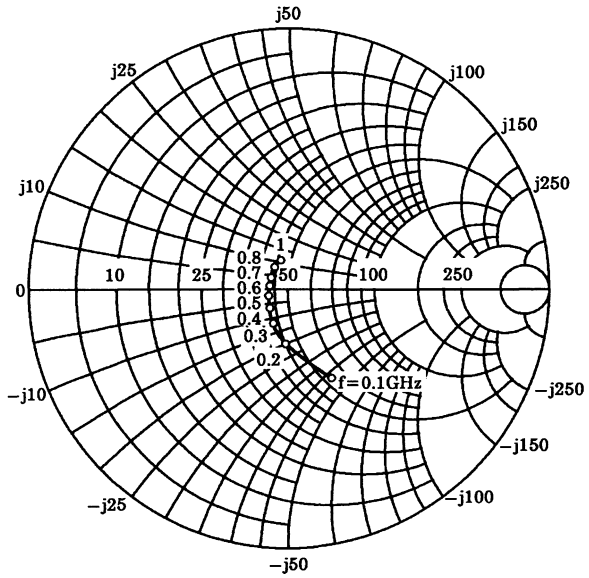
P_C – Ta


0.8t (mm) CERAMIC
① 50×50×0.8mm
② 30×40×0.8mm
③ 15×15×0.8mm
④ Free Air
COLLECTOR POWER DISSIPATION P_C (W)
2.4
2.0
1.6
1.2
0.8
0.4
0
0
20
40
60
80
100
120
140
AMBIENT TEMPERATURE Ta (°C)

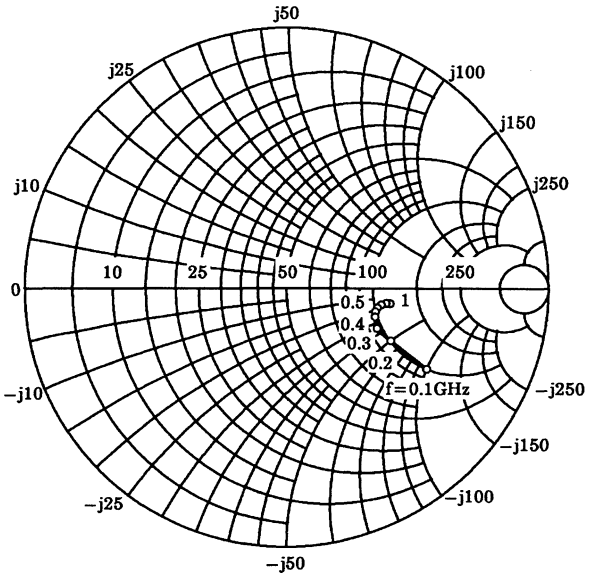
P_C – S


0.8t (mm) CERAMIC
COLLECTOR POWER DISSIPATION P_C (W)
5
3
1
0.5
0.3
100
300
1000
3000
CERAMIC AREA S (mm²)

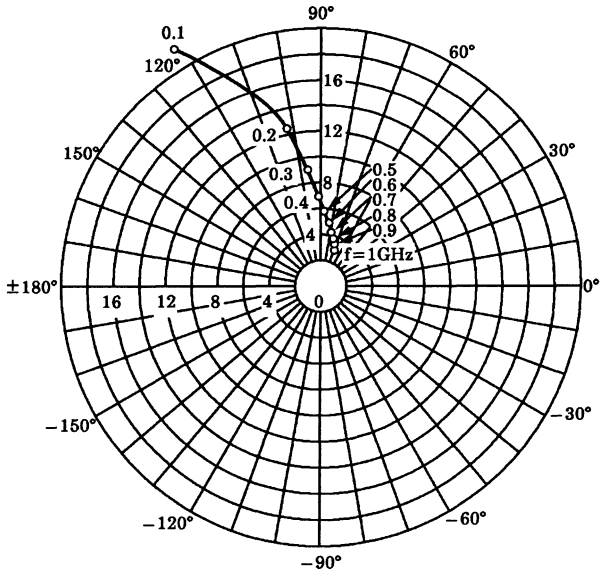
S_{11e}
V_{CE} = 10V
I_C = 20mA
Ta = 25°C
(UNIT : Ω)



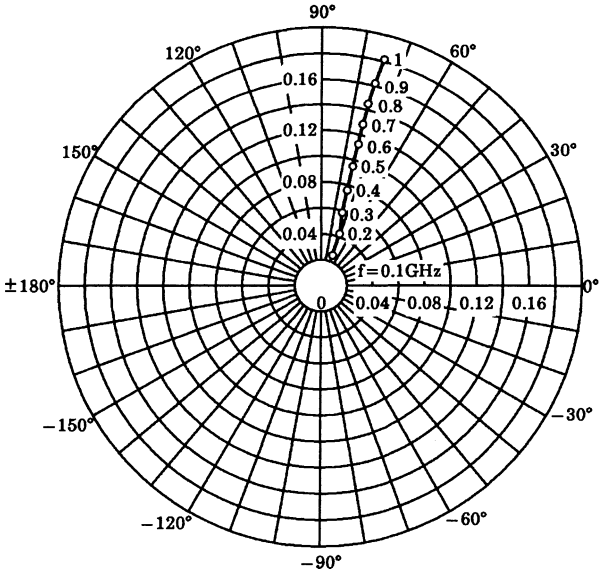
S_{22e}
V_{CE} = 10V
I_C = 20mA
Ta = 25°C
(UNIT : Ω)



S_{21e}
V_{CE} = 10V
I_C = 20mA
Ta = 25°C



S_{12e}
V_{CE} = 10V
I_C = 20mA
Ta = 25°C



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