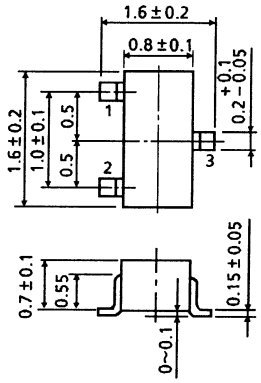
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC4915

High Frequency Amplifier Applications
FM, RF, MIX, If Amplifier Applications

- Small reverse transfer capacitance: C_{re} = 0.55 pF (typ.)
- Low noise figure: NF = 2.3dB (typ.)

Unit: mm



1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	—
JEITA	—
TOSHIBA	2-2H1A

Weight: 2.4 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	4	V
Collector current	I_C	20	mA
Base current	I_B	4	mA
Collector power dissipation	P_C	100	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55 to 125	°C

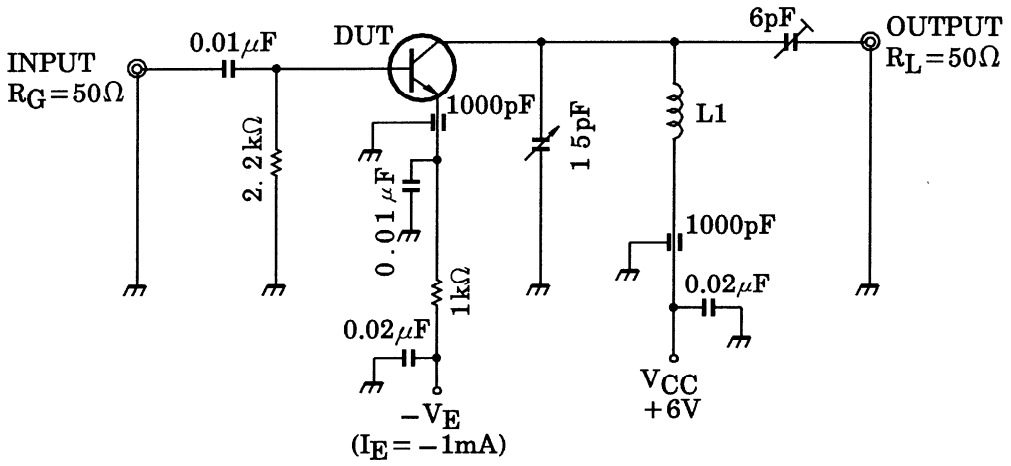
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 40 V, I_E = 0 A	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4 V, I_C = 0 A	—	—	0.5	μA
DC current gain	h_{FE} (Note)	V_{CE} = 6 V, I_C = 1 mA	40	—	200	
Reverse transfer capacitance	C_{re}	V_{CB} = 6 V, f = 1 MHz	—	0.55	—	pF
Transition frequency	f_T	V_{CE} = 6 V, I_C = 1 mA	260	550	—	MHz
Collector-base time constant	$C_c \cdot rbb'$	V_{CE} = 6 V, I_E = −1 mA, f = 30 MHz	—	—	20	ps
Noise figure	NF	V_{CC} = 6 V, I_E = −1 mA, f = 100 MHz, Figure 1	—	2.3	5.0	dB
Power gain	G_{pe}		17	23	—	dB

Note: h_{FE} classification R: 40 to 80, O: 70 to 140, Y: 100 to 200

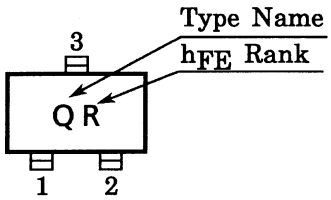
Start of commercial production
1992-02



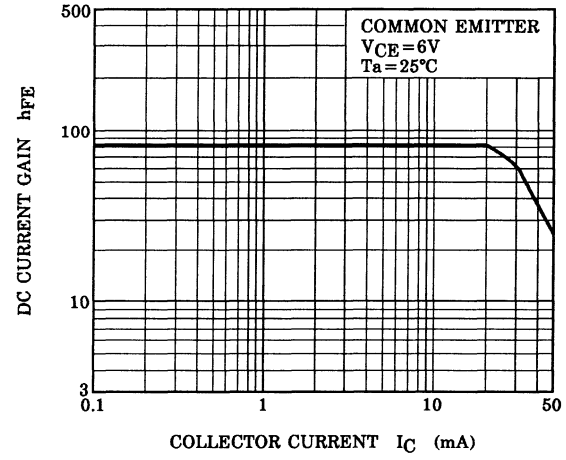
L1: 0.8 mmϕ silver plated copper wire, 4 T, 10 mm ID, 8 mm length

Figure 1 NF, G_{pe} Test Circuit

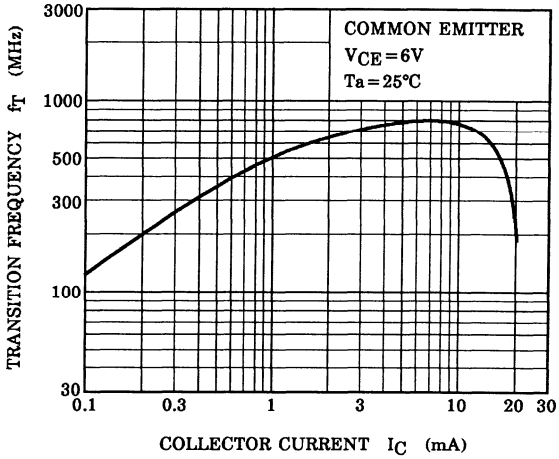
Marking



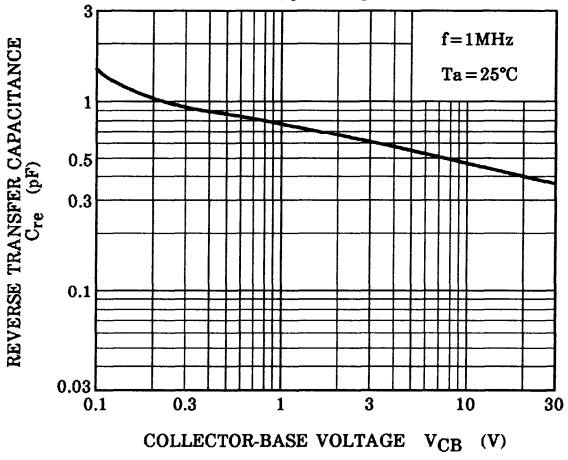
h_{FE} – I_C



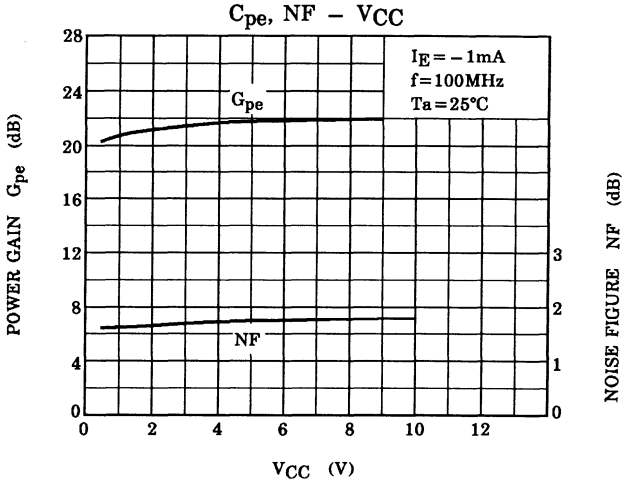
f_T – I_C



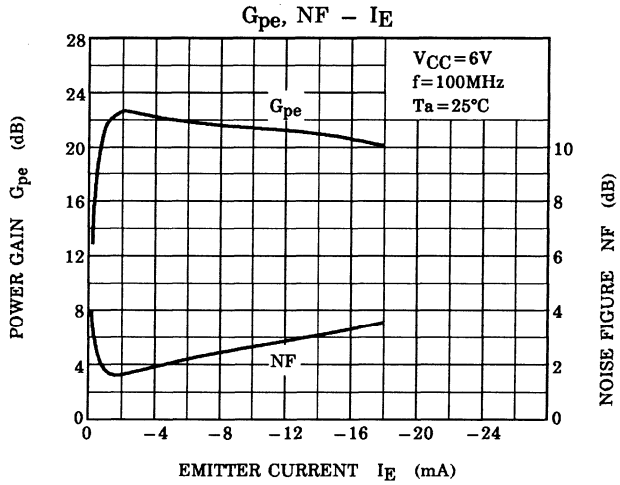
C_{re} – V_{CB}



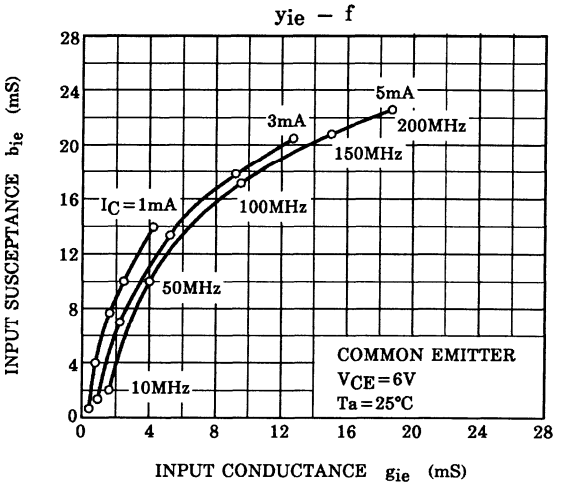
C_{pe}, NF – V_{CC}



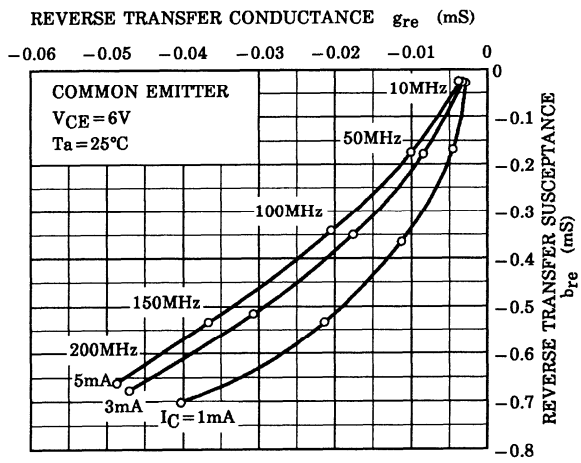
G_{pe}, NF – I_E



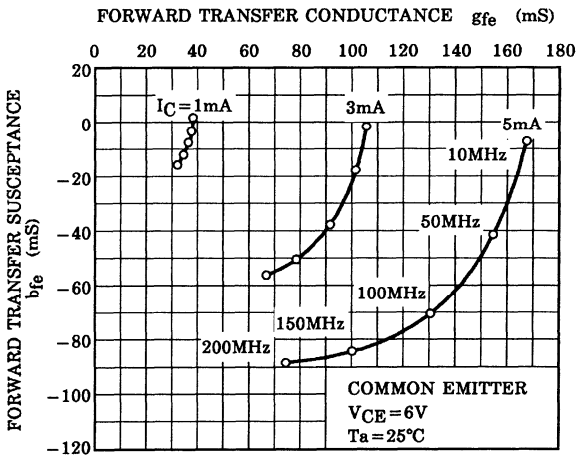
y_{ie} – f



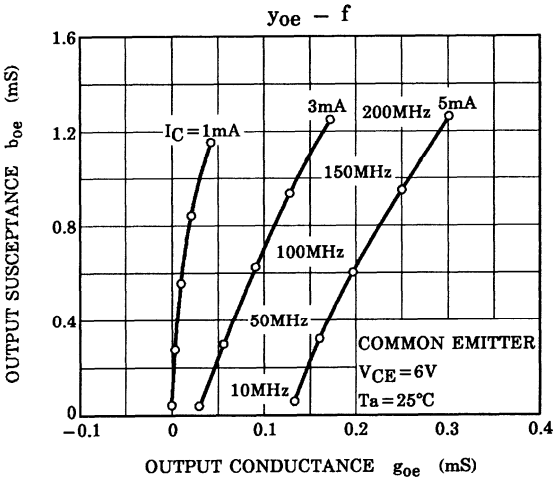
y_{re} – f



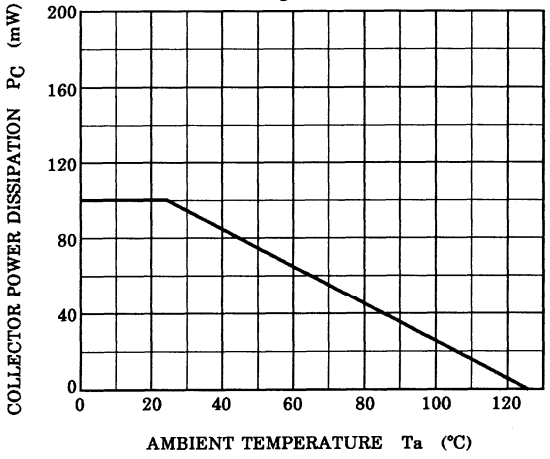
y_{fe} – f



y_{oe} – f



P_C – Ta



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