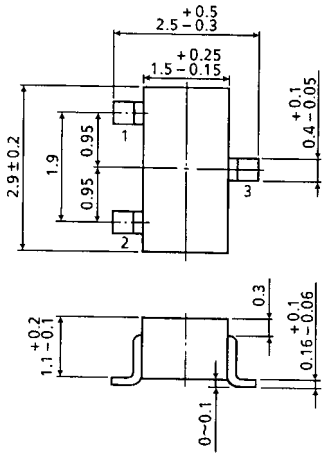
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC3122

TV VHF RF Amplifier Applications

- High gain: G_{pe} = 24dB (typ.) (f = 200 MHz)
- Low noise: NF = 2.0dB (typ.) (f = 200 MHz)
- Excellent forward AGC characteristics

Unit: mm



JEDEC	—
JEITA	SC-59
TOSHIBA	2-3F1A

Weight: 0.012 g (typ.)

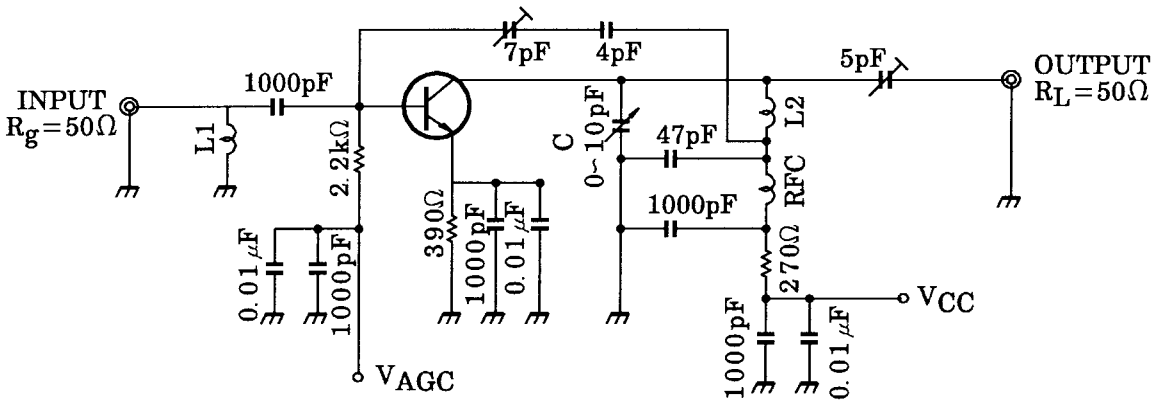
Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	3	V
Collector current	I_C	20	mA
Base current	I_B	10	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 25 V, I_E = 0	—	—	100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 2 V, I_C = 0	—	—	100	nA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = 1 mA, I_B = 0	30	—	—	V
DC current gain	h_{FE}	V_{CE} = 10 V, I_C = 2 mA	60	150	300	
Reverse transfer capacitance	C_{re}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	0.3	0.45	pF
Transition frequency	f_T	V_{CE} = 10 V, I_C = 2 mA	400	650	—	MHz
Power gain	G_{pe}	V_{CE} = 12 V, V_{AGC} = 1.4 V, f = 200 MHz	20	24	28	dB
Noise figure	NF		—	2.0	3.2	dB
AGC voltage	V_{AGC}	V_{CC} = 12 V, GR = 30dB, f = 200 MHz (Note)	3.6	4.4	5.1	V

Note: V_{AGC} measured by test circuit shown in Figure 1 when power gain is reduced to 30dB compared that of V_{AGC} at 1.4 V.

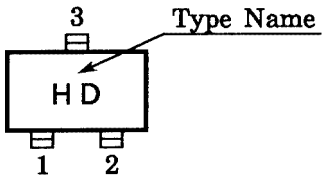


L1: RF Coil M-15 T (TOKO Inc.) or equivalent

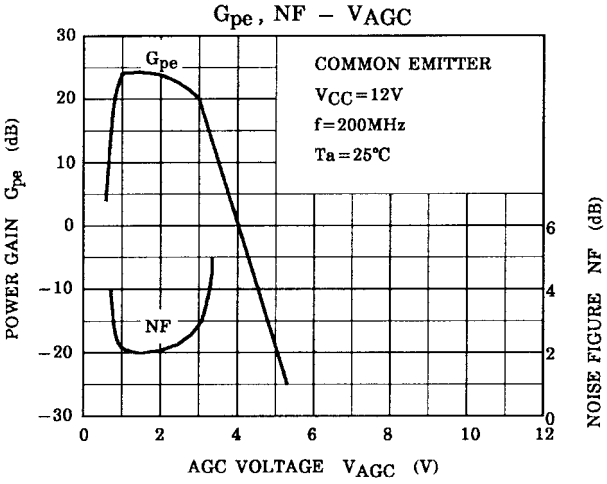
L2: RF Coil M-25 T (TOKO Inc.) or equivalent

Figure 1 200 MHz G_{pe}, NF Test Circuit

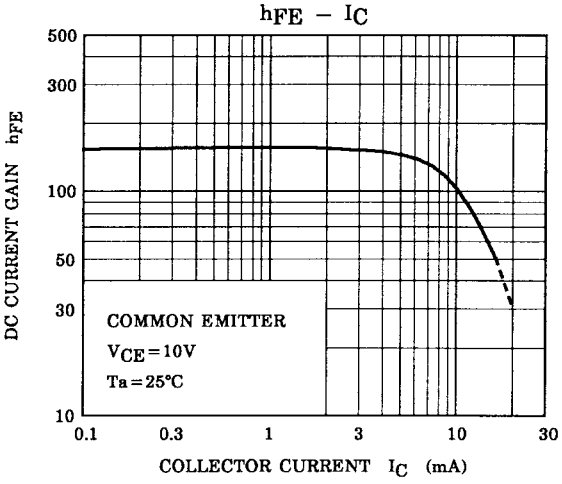
Marking



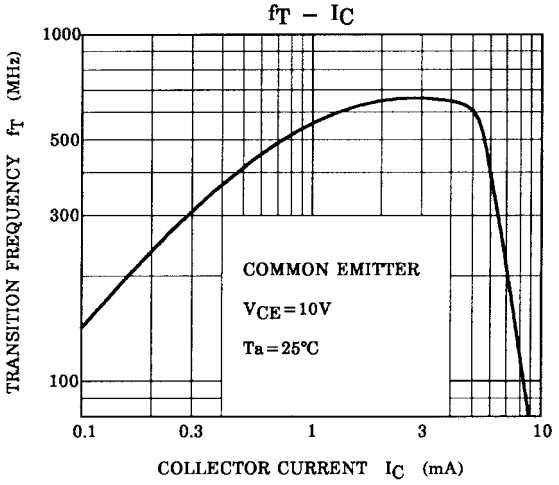
G_{pe}, NF – V_{AGC}



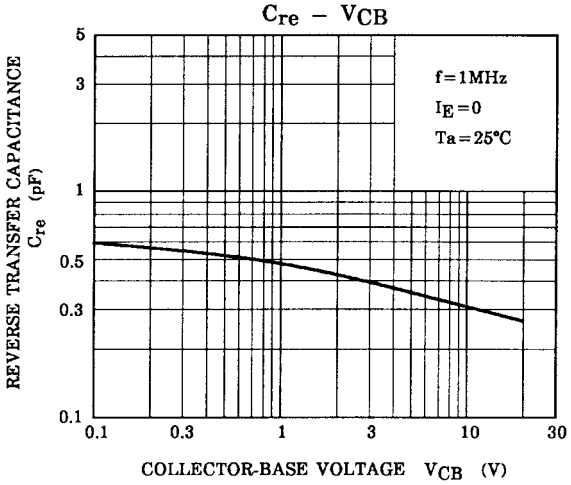
h_{FE} – I_C



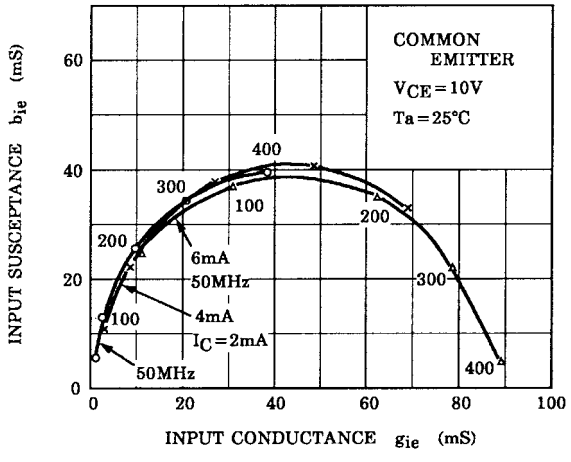
f_T – I_C



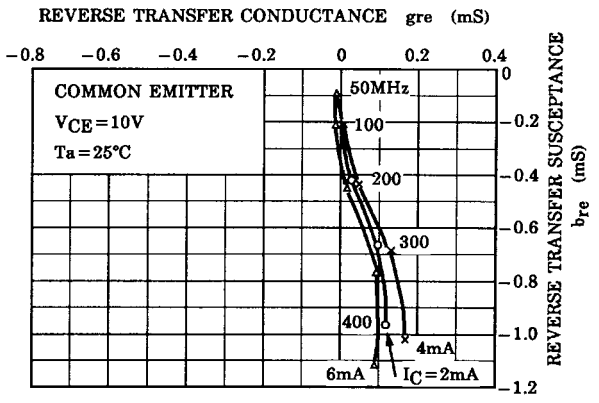
C_{re} – V_{CB}



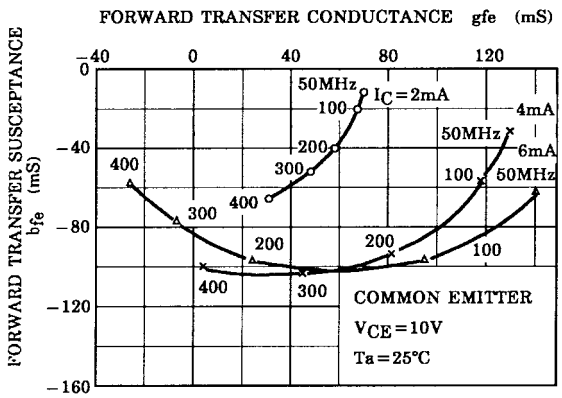
y_{ie} – f



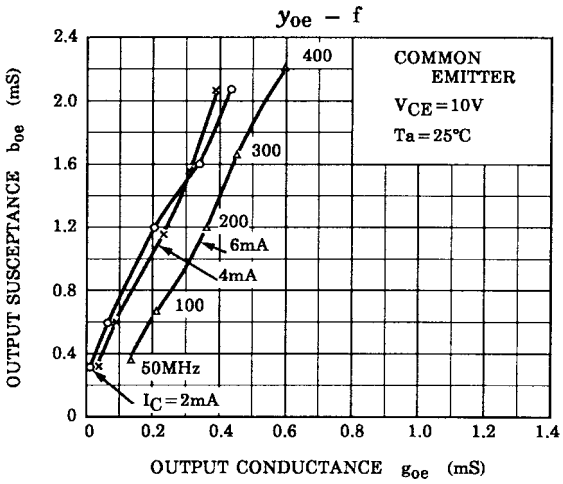
y_{re} – f



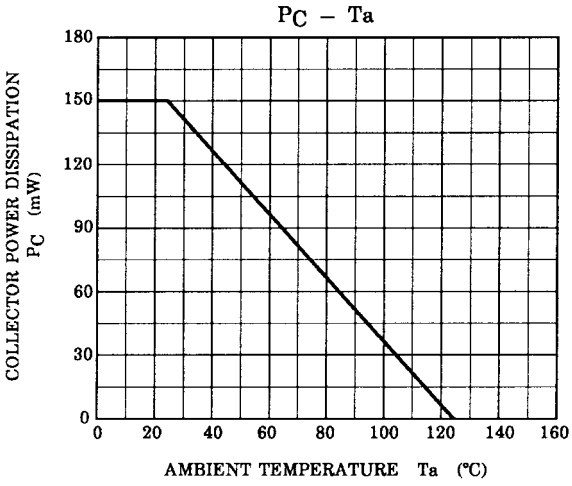
y_{fe} – f



y_{oe} – f



P_C – Ta



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