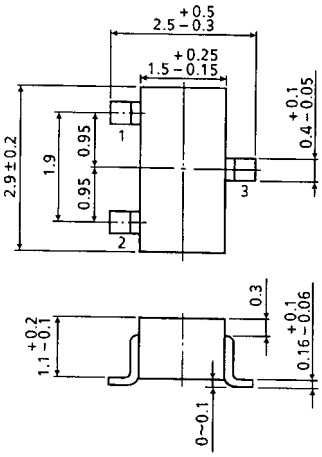
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC3124

TV Tuner, VHF Oscillator Applications

Unit: mm



JEDEC	—
JEITA	SC-59
TOSHIBA	2-3F1A

Weight: 0.012 g (typ.)

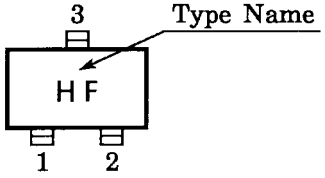
Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	15	V
Emitter-base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Base current	I_B	25	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

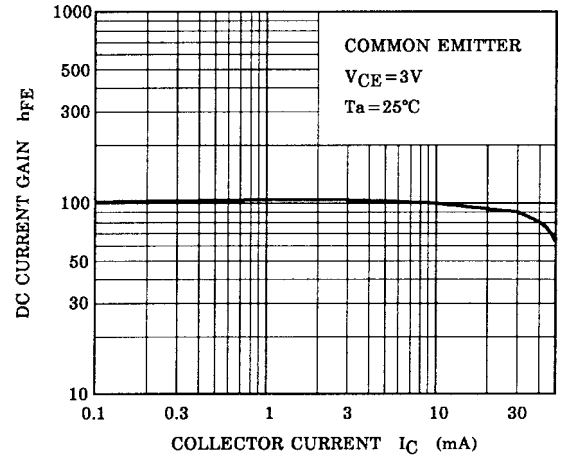
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 15 V, I_E = 0	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 3 V, I_C = 0	—	—	1.0	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = 1 mA, I_B = 0	15	—	—	V
DC current gain	h_{FE}	V_{CE} = 3 V, I_C = 8 mA	40	100	200	
Transition frequency	f_T	V_{CE} = 10 V, I_C = 8 mA	650	1100	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	0.9	1.3	pF
Collector-base time constant	C_c.rbb'	V_{CB} = 10 V, I_C = 8 mA, f = 30 MHz	—	7	12	ps

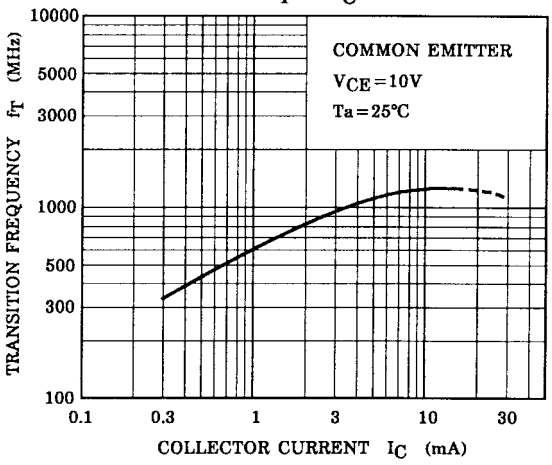
Marking



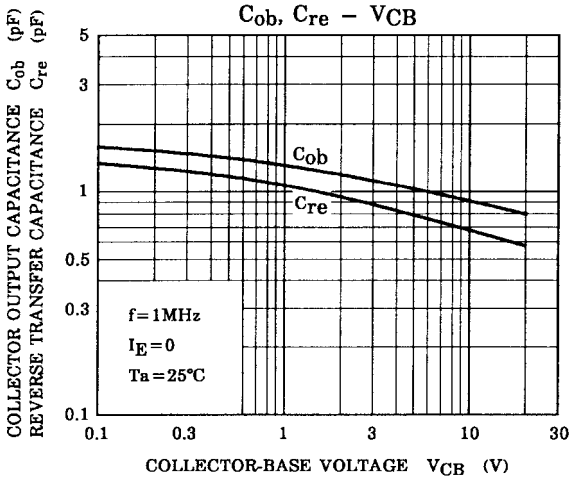
h_{FE} – I_C



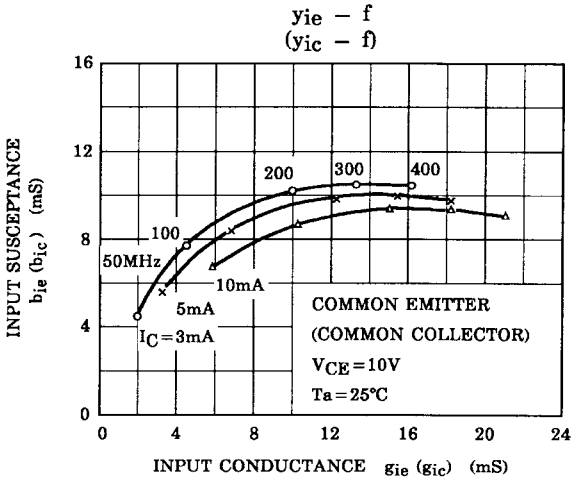
f_T – I_C



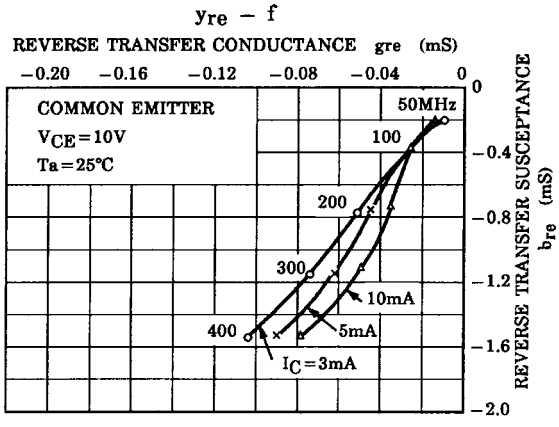
C_{ob}, C_{re} – V_{CB}



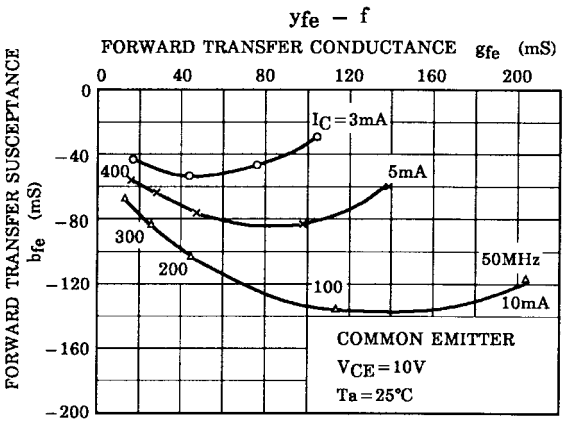
y_{ie} – f
(y_{ic} – f)

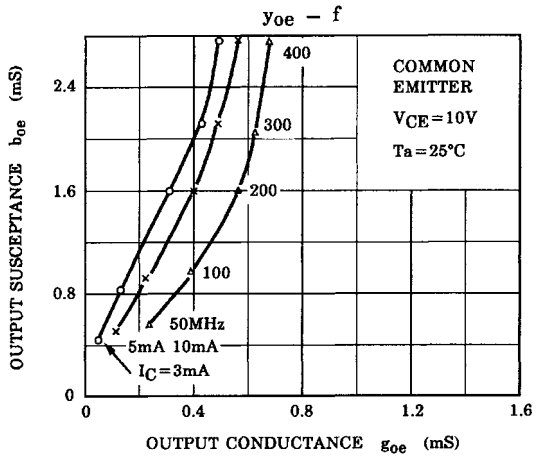


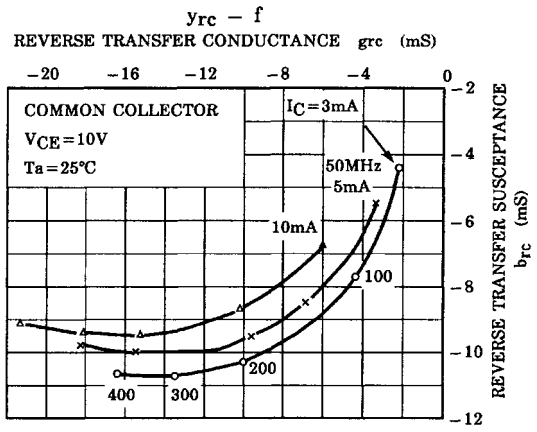
y_{re} – f

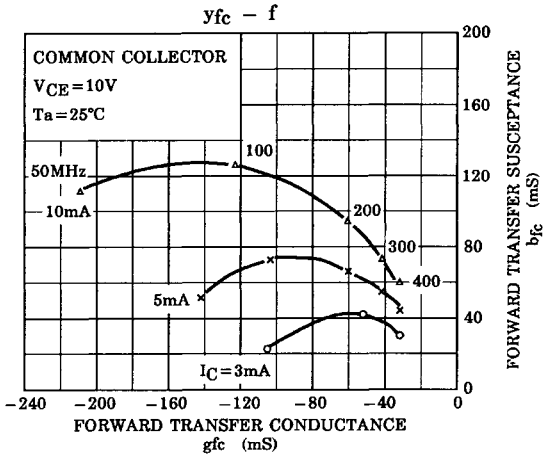


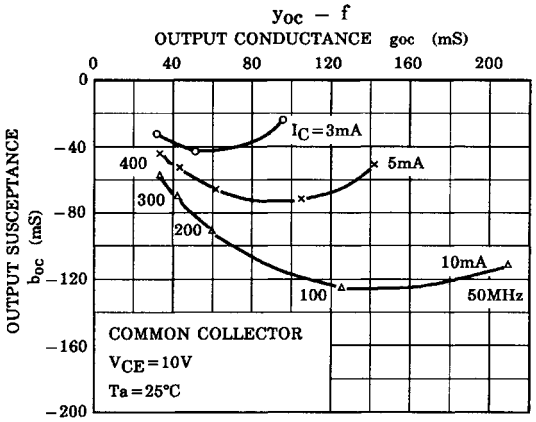
y_{fe} – f

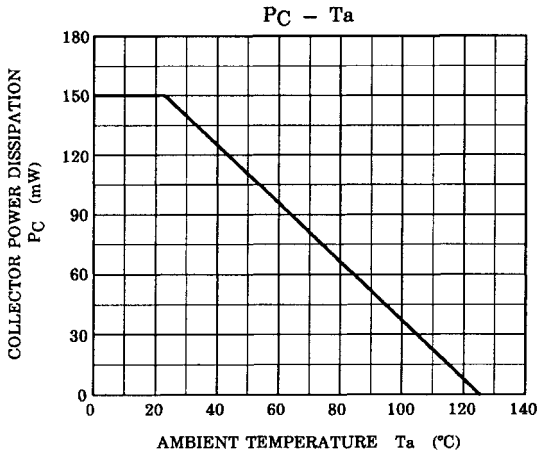



yoe – f
COMMON EMITTER
VCE=10V
Ta=25°C
400
300
200
100
50MHz
5mA 10mA
IC=3mA
OUTPUT SUSCEPTANCE boe (mS)
OUTPUT CONDUCTANCE goe (mS)
0
0.4
0.8
1.2
1.6
0.8
1.6
2.4


yrc – f
REVERSE TRANSFER CONDUCTANCE grc (mS)
COMMON COLLECTOR
VCE=10V
Ta=25°C
IC=3mA
50MHz
5mA
10mA
100
200
400
300
REVERSE TRANSFER SUSCEPTANCE brc (mS)
−20
−16
−12
−8
−4
0
−2
−4
−6
−8
−10
−12


yfc – f
COMMON COLLECTOR
VCE=10V
Ta=25°C
50MHz
10mA
100
200
300
400
5mA
IC=3mA
FORWARD TRANSFER SUSCEPTANCE bfc (mS)
FORWARD TRANSFER CONDUCTANCE gfc (mS)
−240
−200
−160
−120
−80
−40
0
200
160
120
80
40
0


yoc – f
OUTPUT CONDUCTANCE goc (mS)
COMMON COLLECTOR
VCE=10V
Ta=25°C
IC=3mA
5mA
10mA
50MHz
400
300
200
100
OUTPUT SUSCEPTANCE boc (mS)
0
40
80
120
160
200
−40
−80
−120
−160
−200


PC – Ta
COLLECTOR POWER DISSIPATION PC (mW)
AMBIENT TEMPERATURE Ta (°C)
180
150
120
90
60
30
0
0
20
40
60
80
100
120
140

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