TOSHIBA Transistor Silicon NPN Epitaxial Planar Type (PCT process)

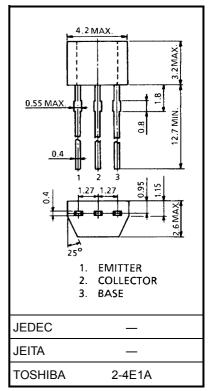
2SC2668

High Frequency Amplifier Applications FM, RF, IF Amplifier Applications

- Small reverse transfer capacitance: $C_{re} = 0.70 \text{ pF}$ (typ.)
- Low noise figure: NF = 2.5dB (typ.)

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	Ι _C	20	mA
Emitter current	Ι _Β	4	mA
Collector power dissipation	P _C	100	mW
Junction temperature range	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C



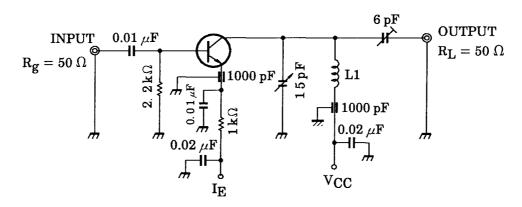
Weight: 0.13 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	$V_{CB} = 40 V, I_E = 0$		_	0.5	μA
Emitter cut-off current	I _{EBO}	$V_{EB} = 4 V$, $I_C = 0$	_	_	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 _{CE} = 6 V, f = 1 MHz	_	0.70	_	pF
Transition frequency	f _T	$V_{CE} = 6 V, I_{C} = 1 mA$	_	550	_	MHz
Collector-base time constant	C _c ·r _{bb'}	$V_{CE} = 6 \text{ V}, \text{ I}_{E} = -1 \text{ mA}, \text{ f} = 30 \text{ MHz}$	_	_	30	ps
Noise figure	NF	V _{CC} = 6 V, I _E = -1 mA, f = 100 MHz,		2.5	5.0	dB
Power gain	G _{pe}	(Figure 1)	_	18	_	dB

Note: hFE classification R: 40~80 O: 70~140 Y: 100~200

Unit: mm



 $L_1:$ 0.8 mm ϕ silver plated copper wire, 4 turns. 10 mm ID, 8 mm length.



Y Parameter (typ.)

(1) Common emitter (VCE = 6 V, IE = -1 mA, f = 100 MHz)

Characteristics	Symbol	Тур.	Unit
Input conductance	gie	2.9	ms
Input capacitance	C _{ie}	10.2	pF
Reverse transfer admittance	Y _{re}	0.33	ms
Phase angle of reverse transfer admittance	θ_{re}	-90	o
Forward transfer admittance	Y _{fe}	40	ms
Phase angle of forward transfer admittance	θ_{fe}	-20	o
Output conductance	goe	45	μS
Output capacitance	C _{oe}	1.1	pF

(2) Common base ($V_{CB} = 6 V$, $I_E = -1 mA$, f = 100 MHz)

Characteristics	Symbol	Тур.	Unit
Input conductance	gib	34	ms
Input capacitance	C _{ib}	-10	pF
Reverse transfer admittance	Y _{rb}	0.27	ms
Phase angle of reverse transfer admittance	θ_{rb}	-105	o
Forward transfer admittance	Y _{fb}	34	ms
Phase angle of forward transfer admittance	θ_{fb}	165	o
Output conductance	9 _{ob}	45	μS
Output capacitance	C _{ob}	1.1	pF

0.05

-0.3

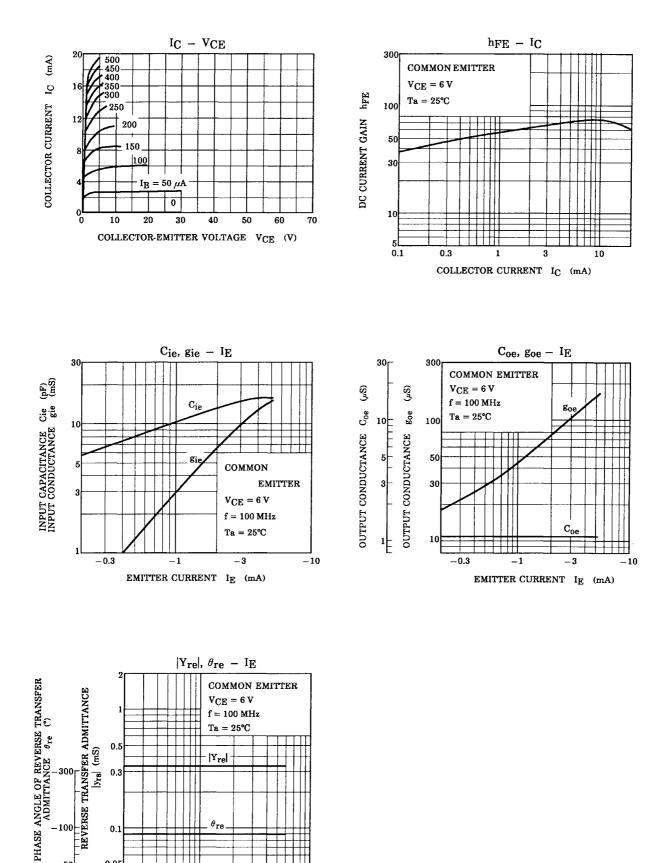
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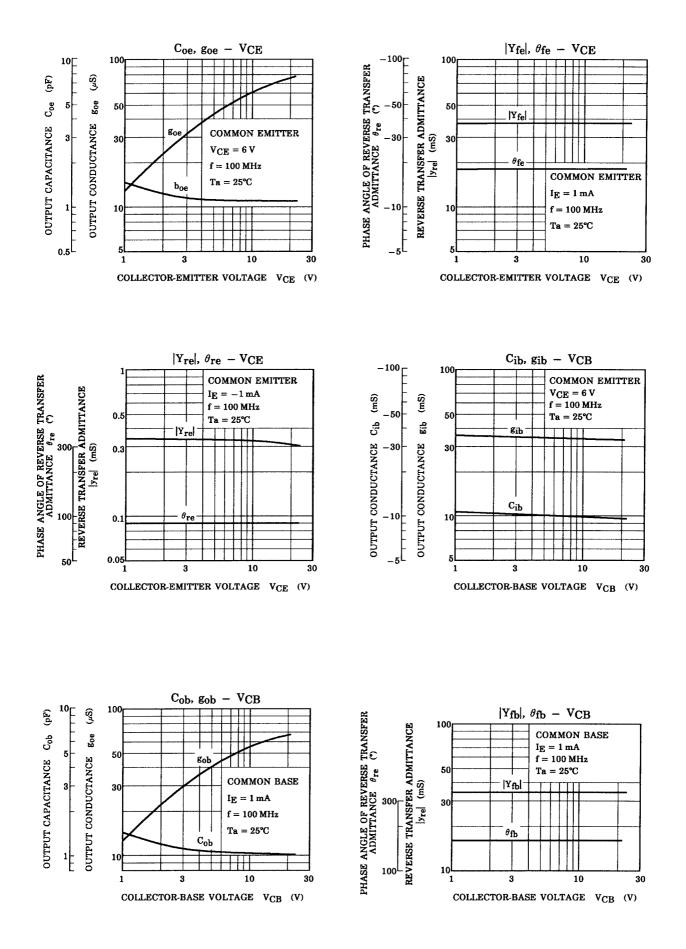
EMITTER CURRENT IE (mA)

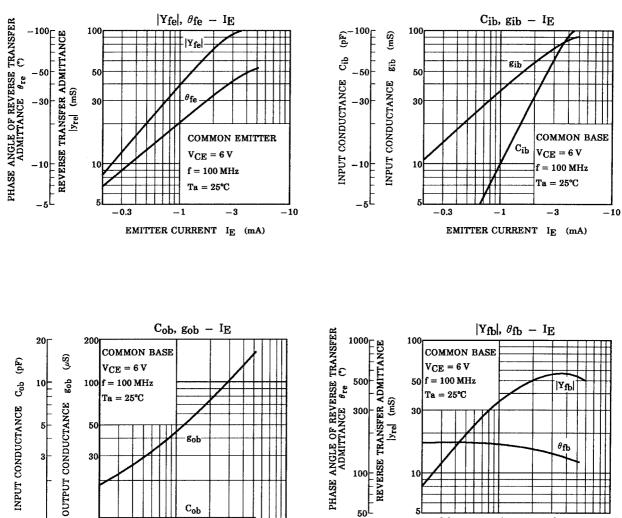
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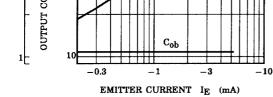
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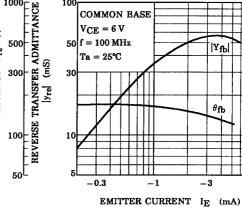
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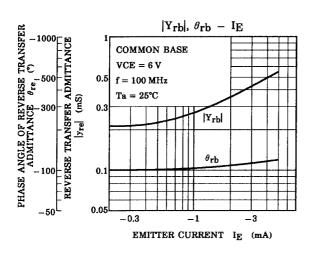


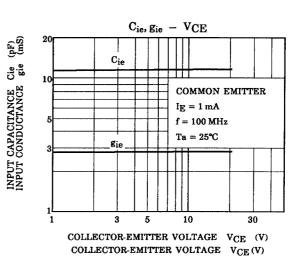










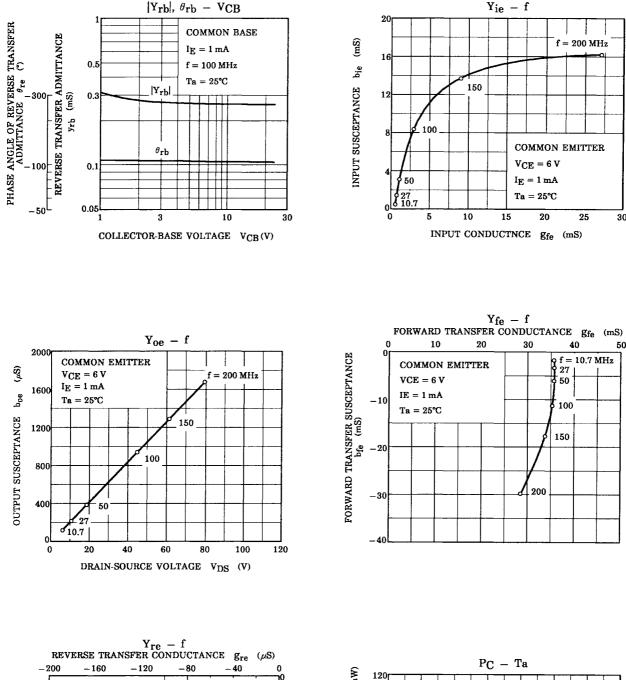


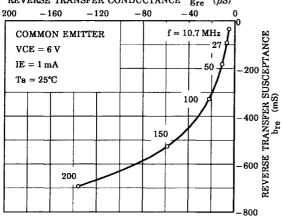
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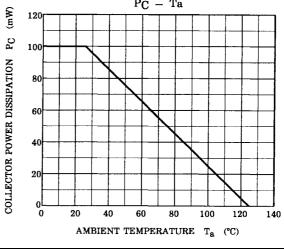
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