

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC2644

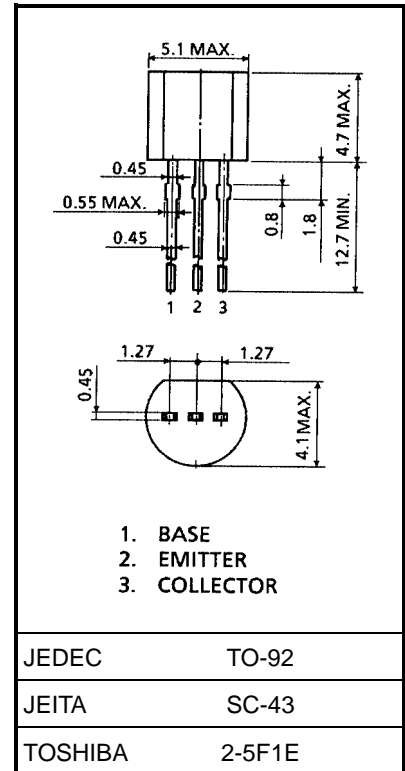
VHF~UHF Band Wideband Amplifier Applications

Unit: mm

- High gain
- Low IMD
- $f_T = 4$ GHz (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	25	V
Collector-emitter voltage	V_{CE0}	12	V
Emitter-base voltage	V_{EB0}	3.0	V
Collector current	I_C	120	mA
Emitter current	I_B	40	mA
Collector power dissipation	P_C	0.5	W
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~125	°C



Weight: 0.21 g (typ.)

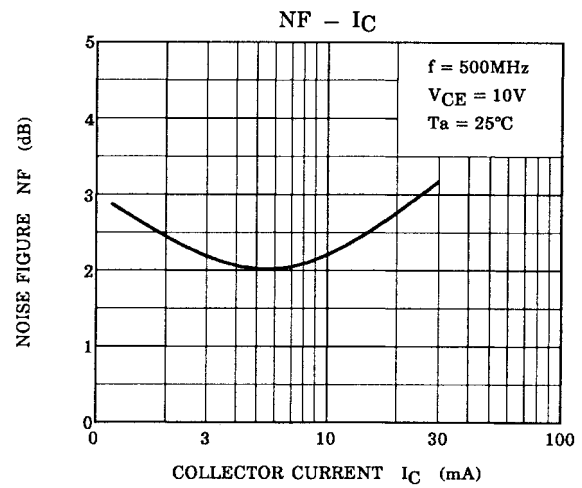
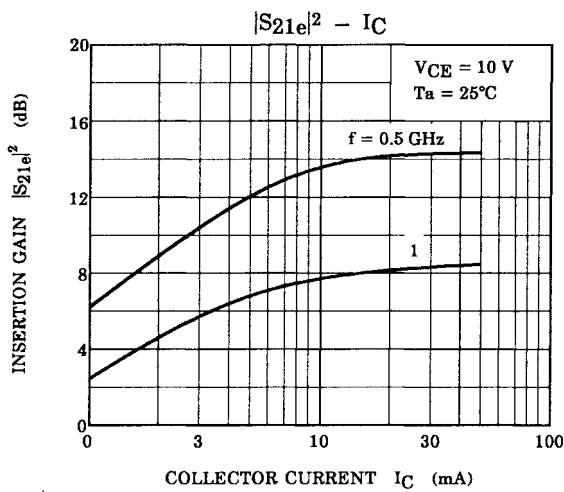
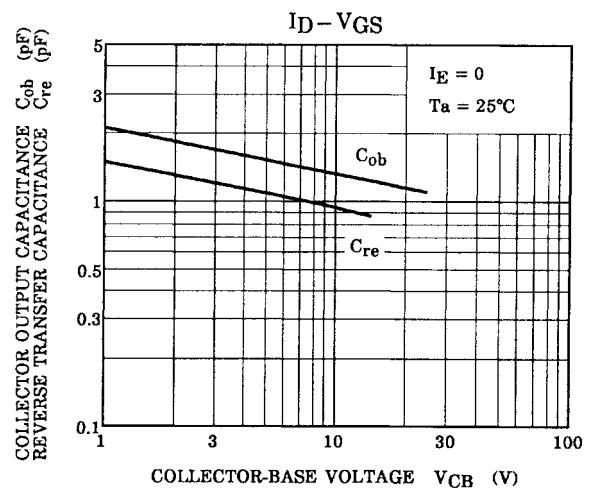
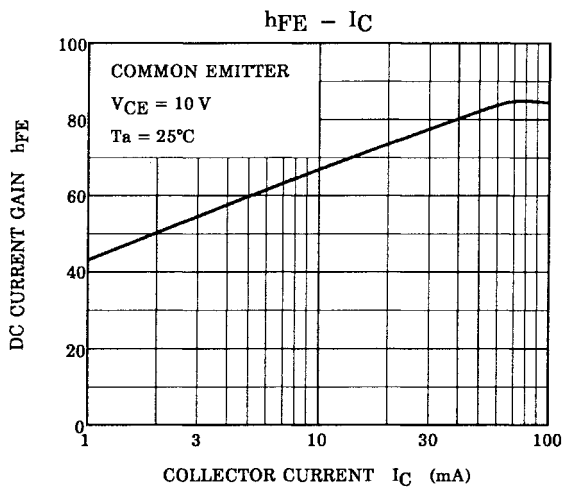
Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	$V_{CE} = 10$ V, $I_C = 30$ mA	—	4.0	—	GHz
Insertion gain	$ S_{21e} ^2$ (1)	$V_{CE} = 10$ V, $I_C = 30$ mA, $f = 0.5$ GHz	—	14.0	—	dB
	$ S_{21e} ^2$ (2)	$V_{CE} = 10$ V, $I_C = 30$ mA, $f = 1$ GHz	—	8.5	—	
Noise figure	NF (1)	$V_{CE} = 10$ V, $I_C = 10$ mA, $f = 0.5$ GHz	—	2.3	—	dB
	NF (2)	$V_{CE} = 10$ V, $I_C = 10$ mA, $f = 1$ GHz	—	3.0	—	

Electrical Characteristics (Ta = 25°C)

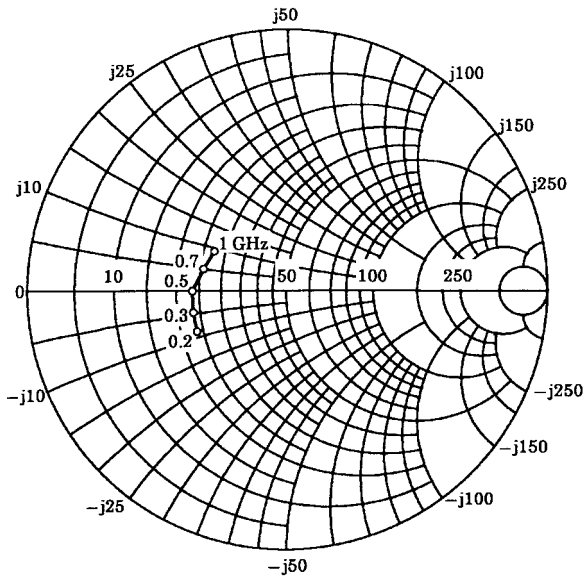
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CB0}	$V_{CB} = 10$ V, $I_E = 0$	—	—	1	μ A
Emitter cut-off current	I_{EB0}	$V_{EB} = 1.0$ V, $I_C = 0$	—	—	10	μ A
DC current gain	h_{FE}	$V_{CE} = 5$ V, $I_C = 50$ mA	20	50	—	
Collector output capacitance	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, $f = 1$ MHz (Note)	—	1.6	—	pF
Reverse transfer capacitance	C_{re}		—	1.1	—	pF

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

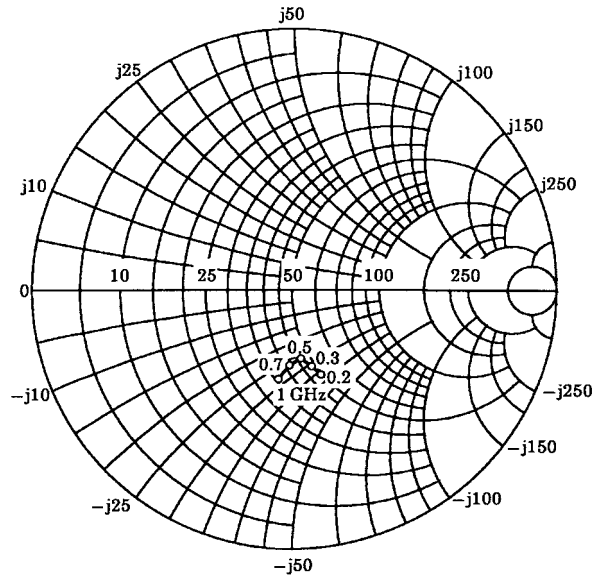


Common Emitter Small S-Parameters of 2SC2644

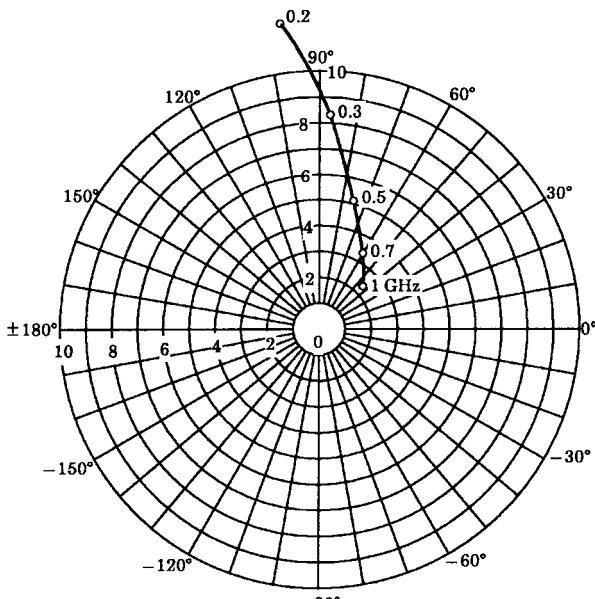
$V_{CE} = 10\text{ V}$, $I_C = 30\text{ mA}$



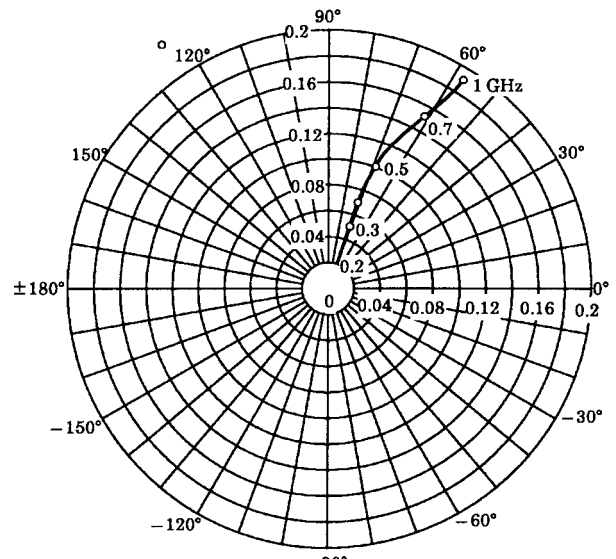
S_{11e} (UNIT : Ω)



S_{22e} (UNIT : Ω)



S_{21e}



S_{12e}

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