

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

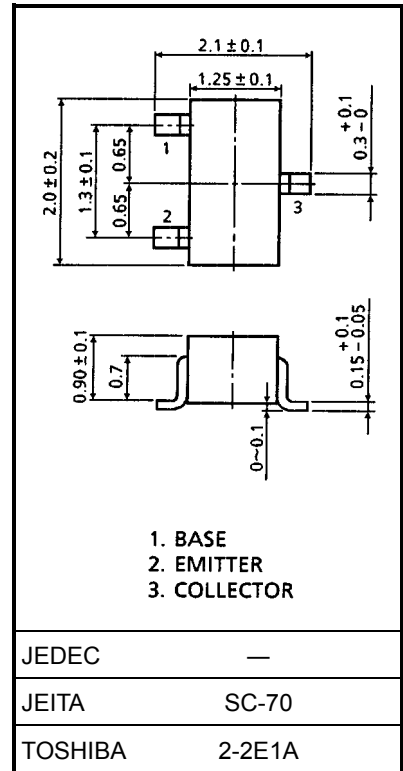
# 2SC4245

TV Tuner, UHF Mixer Applications  
VHF~UHF Band RF Amplifier Applications

Unit: mm

### Maximum Ratings (Ta = 25°C)

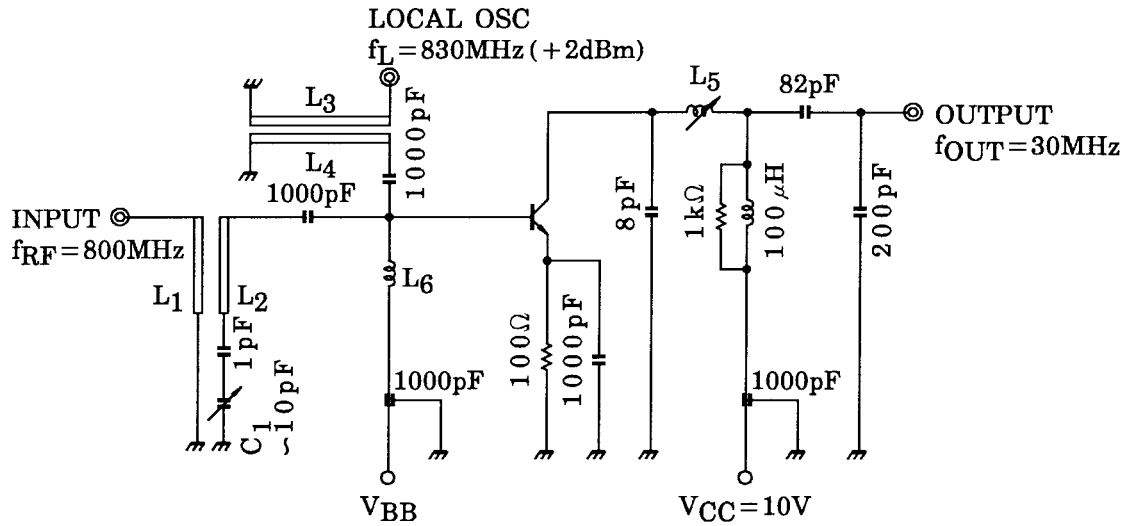
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	30	V
Collector-emitter voltage	$V_{CEO}$	15	V
Emitter-base voltage	$V_{EBO}$	3	V
Collector current	$I_C$	50	mA
Base current	$I_B$	25	mA
Collector power dissipation	$P_C$	100	mW
Junction temperature	$T_j$	125	°C
Storage temperature range	$T_{stg}$	-55~125	°C



Weight: 0.006 g (typ.)

### Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 30\text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 2\text{ V}, I_C = 0$	—	—	1.0	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}, I_B = 0$	15	—	—	V
DC current gain	$h_{FE}$	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	40	100	200	
Reverse transfer capacitance	$C_{re}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.6	0.9	pF
Transition frequency	$f_T$	$V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$	1500	2400	—	MHz
Conversion gain	$G_{ce}$	$V_{CC} = 10\text{ V}, I_C = 2\text{ mA}, f = 800\text{ MHz}$	12	17	—	dB
Noise figure	NF	$f_L = 830\text{ MHz (+2dBm)}$ (Figure 1)	—	8	13	dB



L1~L4:  $\phi$ 0.8 mm silver plated copper wire

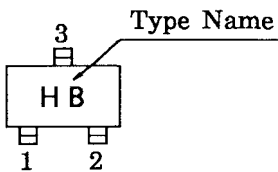
L5: Coil with core SCN-5948 (1)-(3) TOKO or equivalent

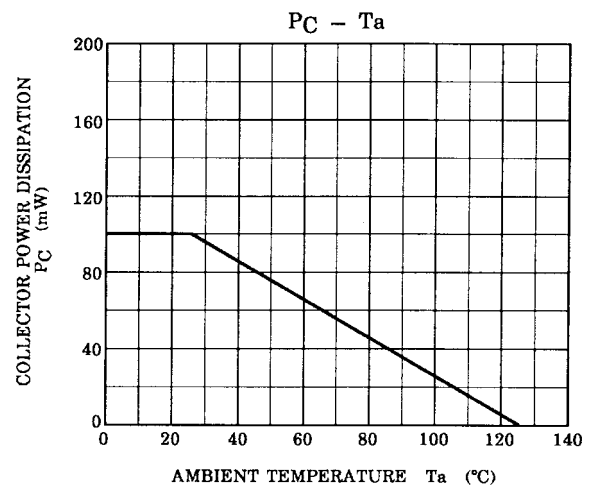
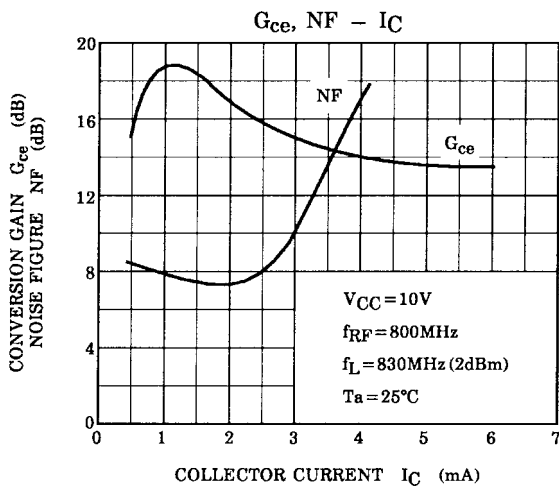
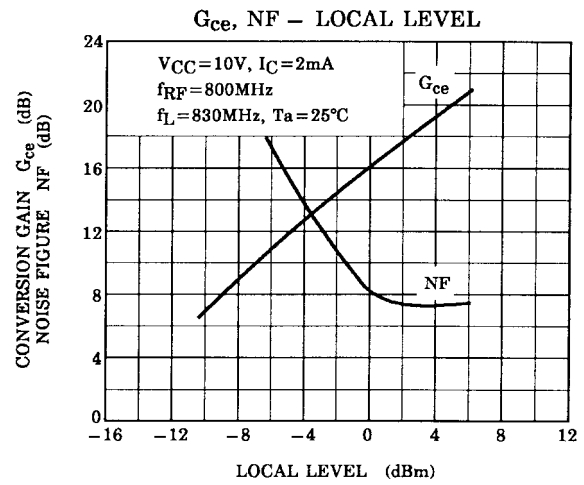
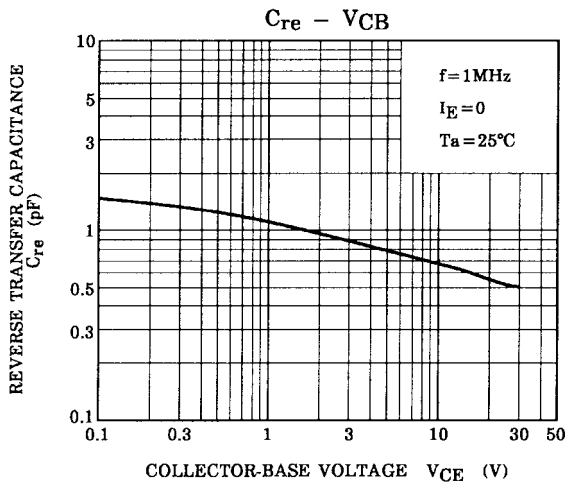
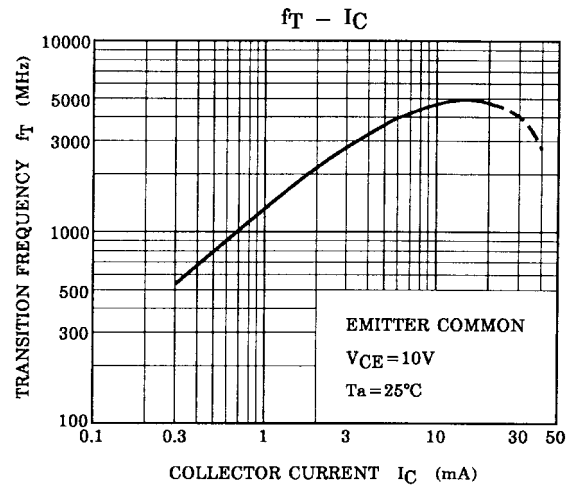
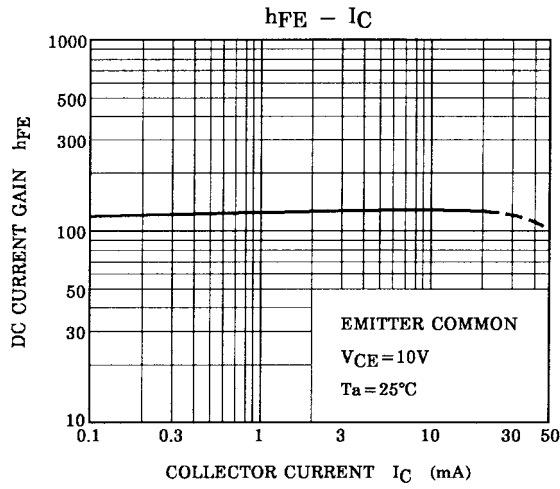
L6:  $\phi$ 0.2 mm copper wire 10 T 5 mm ID

C1: Air trimmer TTA23A100 MURATA Manufacturing. Co., Ltd. or equivalent

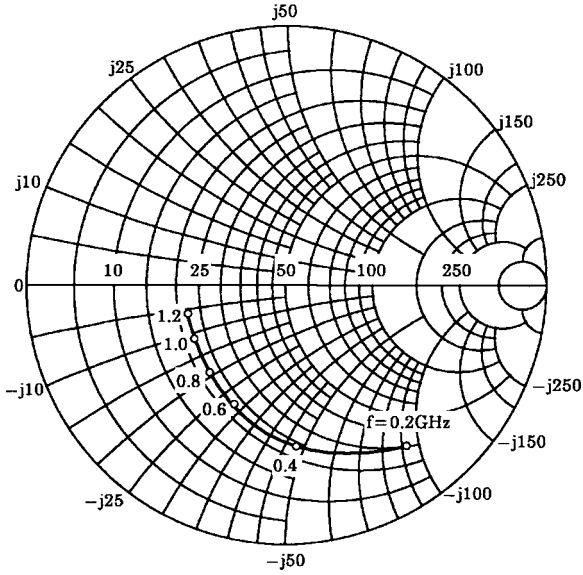
**Figure 1 800 MHz  $G_{ce}$ , NF Test Circuit**

**Marking**

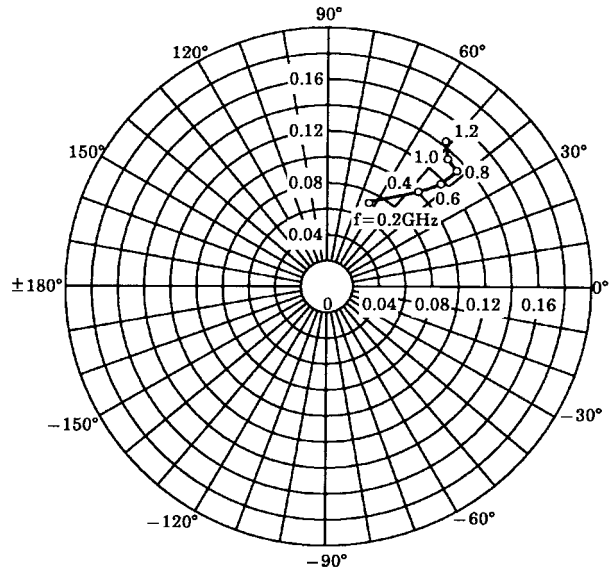




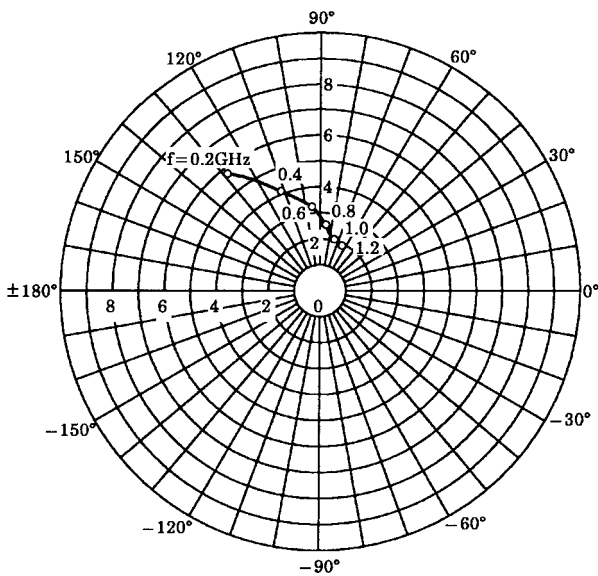
**S<sub>11e</sub>**  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)



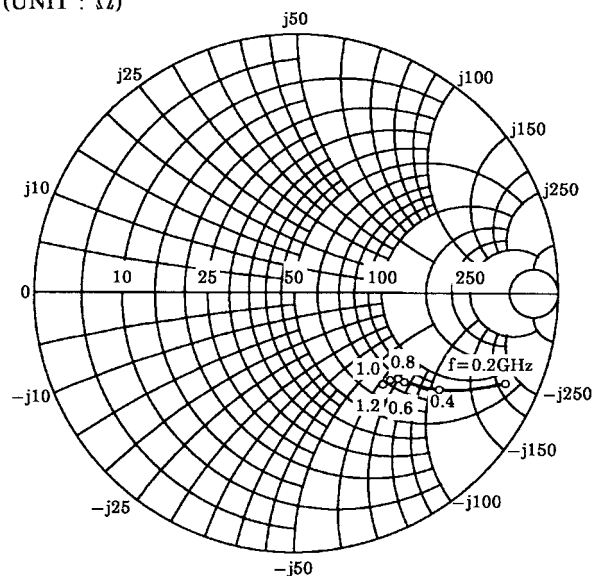
**S<sub>12e</sub>**  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C



**S<sub>21e</sub>**  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C



**S<sub>22e</sub>**  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)



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