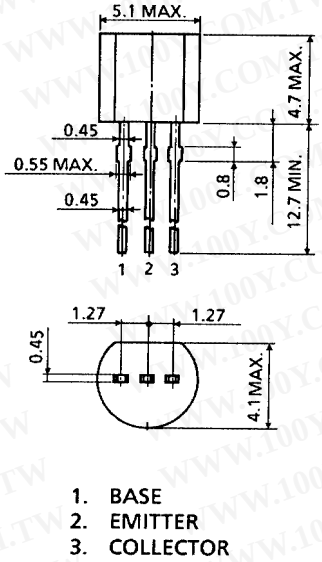
TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC2216,2SC2717

TV Final Picture IF Amplifier Applications

- High gain: G_{pe} = 33dB (typ.) (f = 45 MHz)
- Good linearity of h_{FE}.

Unit: mm



JEDEC	TO-92
JEITA	SC-43
TOSHIBA	2-5F1E

Weight: 0.21 g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage	2SC2216	V_{CBO}	50	V
	2SC2717		30	
Collector-emitter voltage	2SC2216	V_{CEO}	45	V
	2SC2717		25	
Emitter-base voltage		V_{EBO}	4	V
Collector current		I_C	50	mA
Emitter current		I_E	−50	mA
Collector power dissipation		P_C	300	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	2SC2216	I_{CBO}	V_{CB} = 50 V, I_E = 0	—	—	0.1	μA
	2SC2717		V_{CB} = 30 V, I_E = 0				
Emitter cut-off current		I_{EBO}	V_{EB} = 3 V, I_C = 0	—	—	0.1	μA
Collector-emitter breakdown voltage	2SC2216	$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	45	—	—	V
	2SC2717			25	—	—	
DC current gain	2SC2216	h_{FE}	V_{CE} = 12.5 V, I_C = 12.5 mA	40	—	140	
	2SC2717			40	—	240	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 15 mA, I_B = 1.5 mA	—	—	0.2	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 15 mA, I_B = 1.5 mA	—	—	1.5	V
Collector output capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 30 MHz	0.8	—	2.0	pF
Collector-base time constant		$C_c \cdot rbb'$	V_{CB} = 10 V, I_E = −1 mA, f = 30 MHz	—	—	25	ps
Transition frequency		f_T	V_{CE} = 12.5 V, I_C = 12.5 mA	300	—	—	MHz
Power gain (Figure 1)	2SC2216	G_{pe}	V_{CC} = 12.5 V, I_E = −12.5 mA, f = 45 MHz	29	—	36	dB
	2SC2717			28	—	36	

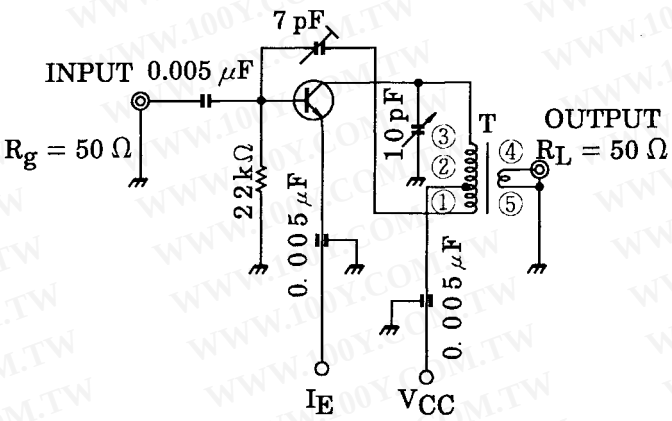
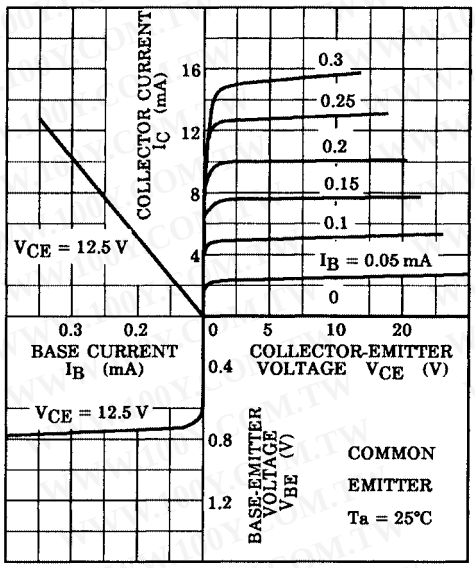
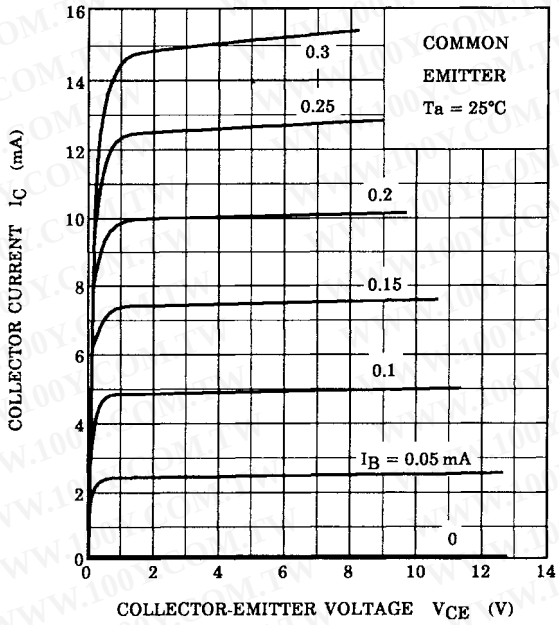


Figure 1 45 MHz G_{pe} Test Circuit

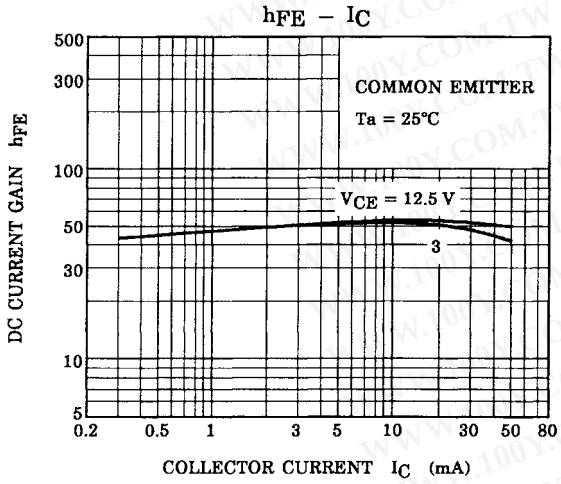
STATIC CHARACTERISTICS



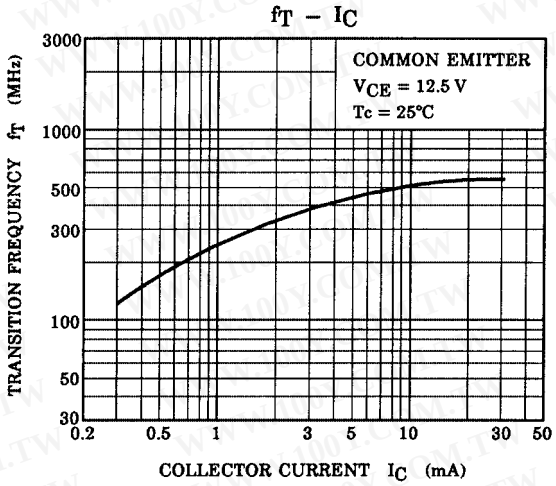
I_C – V_{CE}



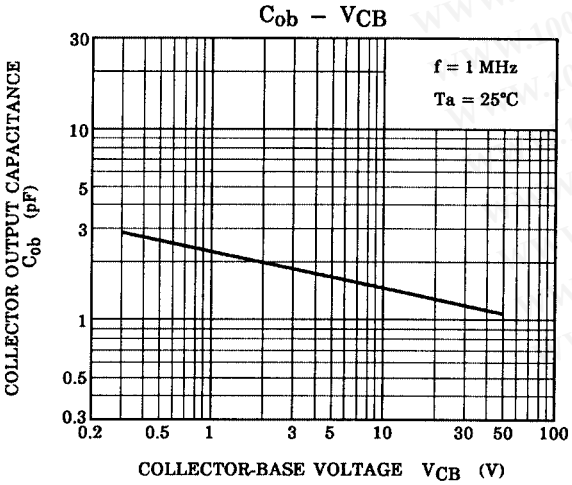
h_{FE} – I_C



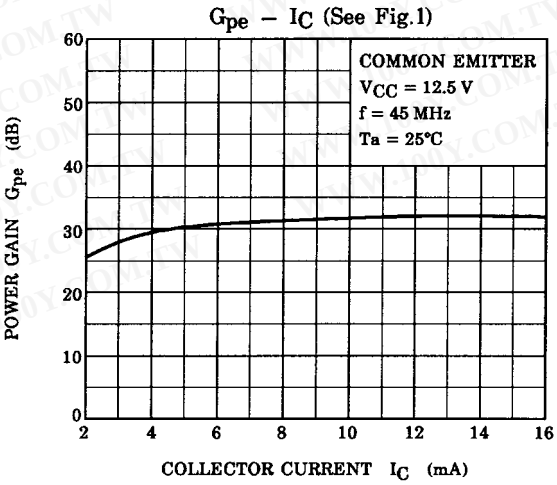
f_T – I_C

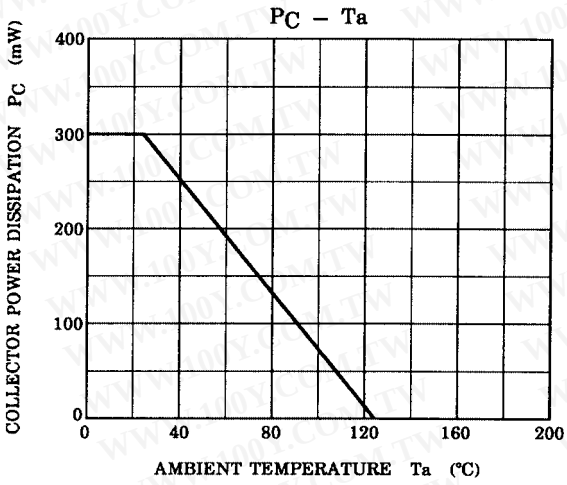


C_{ob} – V_{CB}



G_{pe} – I_C (See Fig.1)





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