

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC2216,2SC2717

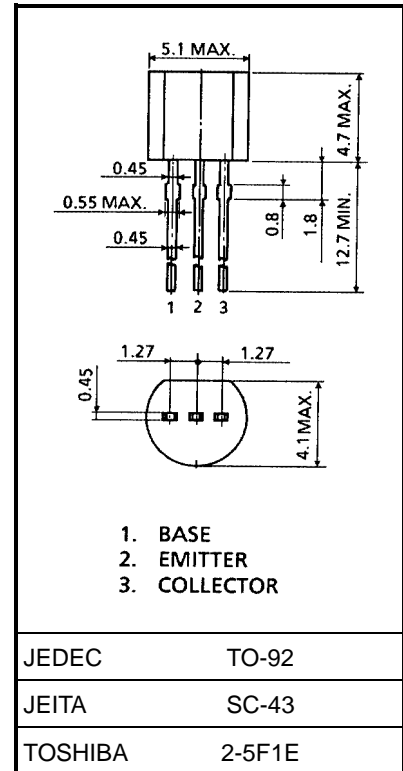
TV Final Picture IF Amplifier Applications

Unit: mm

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

Maximum Ratings ($T_a = 25^\circ\text{C}$)

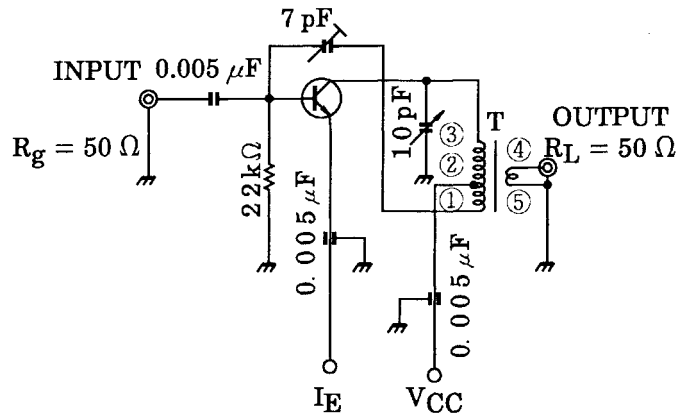
Characteristics	Symbol	Rating	Unit
Collector-base voltage	2SC2216	50	V
	2SC2717	30	
Collector-emitter voltage	2SC2216	45	V
	2SC2717	25	
Emitter-base voltage	V_{EBO}	4	V
Collector current	I_C	50	mA
Emitter current	I_E	-50	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55~125	$^\circ\text{C}$



Weight: 0.21 g (typ.)

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

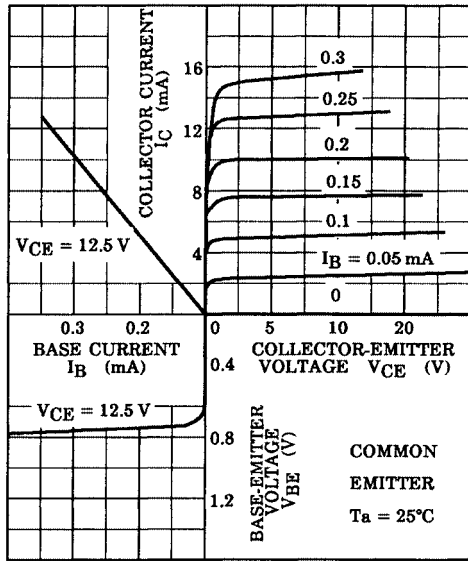
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	2SC2216	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	0.1	μA
	2SC2717					
Emitter cut-off current	I_{EBO}	$V_{EB} = 3\text{ V}, I_C = 0$	—	—	0.1	μA
Collector-emitter breakdown voltage	2SC2216	$I_C = 10\text{ mA}, I_B = 0$	45	—	—	V
	2SC2717					
DC current gain	2SC2216	$V_{CE} = 12.5\text{ V}, I_C = 12.5\text{ mA}$	40	—	140	
	2SC2717					
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 15\text{ mA}, I_B = 1.5\text{ mA}$	—	—	0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 15\text{ mA}, I_B = 1.5\text{ mA}$	—	—	1.5	V
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 30\text{ MHz}$	0.8	—	2.0	pF
Collector-base time constant	$C_c \cdot r_{bb'}$	$V_{CB} = 10\text{ V}, I_E = -1\text{ mA}, f = 30\text{ MHz}$	—	—	25	ps
Transition frequency	f_T	$V_{CE} = 12.5\text{ V}, I_C = 12.5\text{ mA}$	300	—	—	MHz
Power gain (Figure 1)	2SC2216	$V_{CC} = 12.5\text{ V}, I_E = -12.5\text{ mA}, f = 45\text{ MHz}$	29	—	36	dB
	2SC2717					



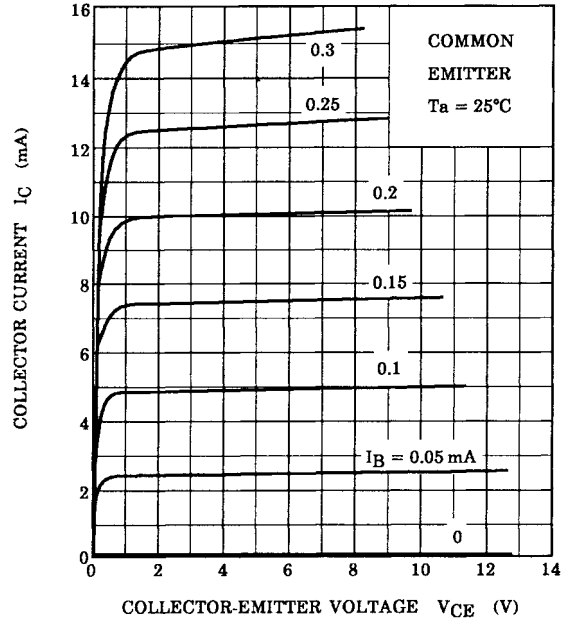
COIL DATA
 0.20mm ϕ Cu WIRE
 $L = 1.2\mu\text{H}$ WITH M-5 CORE
 T : ①-② 3.0T
 ②-③ 8.0T
 ④-⑤ 1.0T

Figure 1 45 MHz G_{pe} Test Circuit

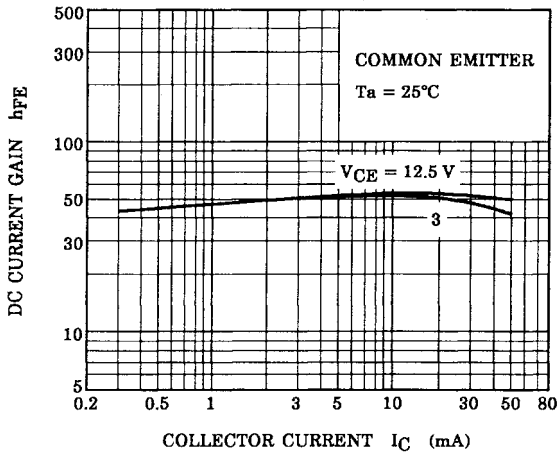
STATIC CHARACTERISTICS



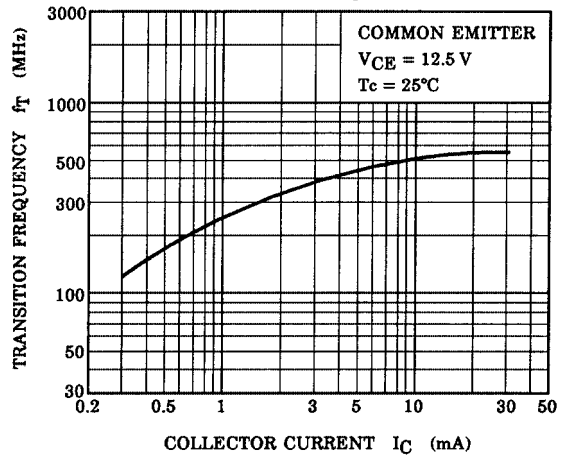
$I_C - V_{CE}$



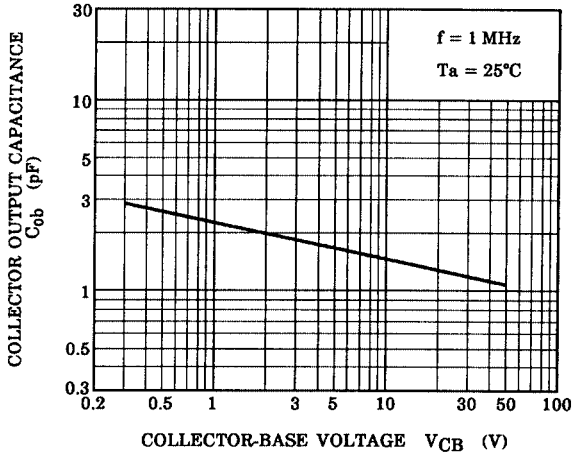
$h_{FE} - I_C$



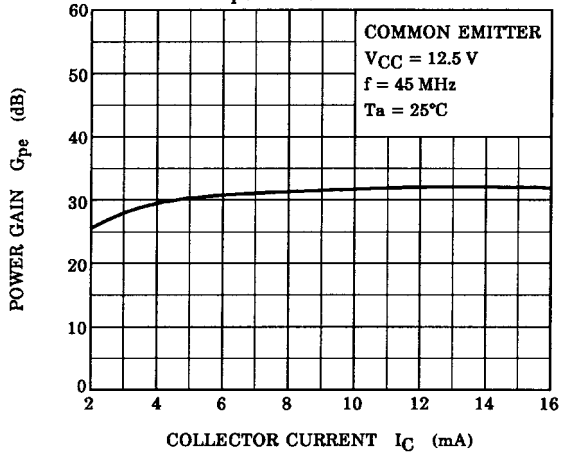
$f_T - I_C$

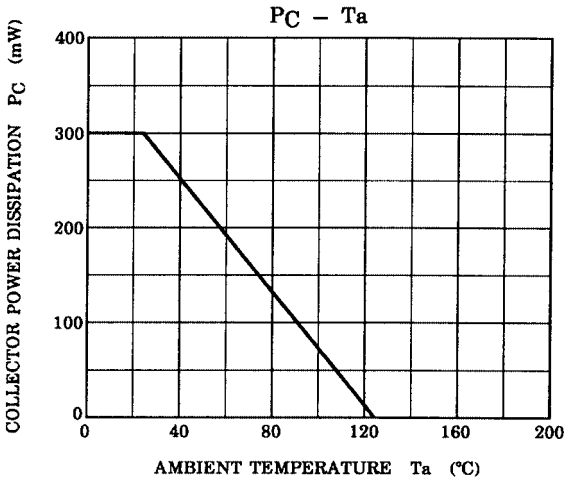


$C_{ob} - V_{CB}$



$G_{pe} - I_C$ (See Fig.1)





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