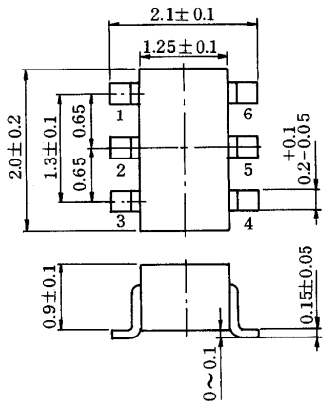
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

HN1C03FU

FOR MUTING AND SWITCHING APPLICATIONS.

Unit in mm

- Including Two Devices in US6 (Ultra Super Mini Type with 6 leads)
- High Emitter-Base Voltage : V_{EBO} = 25V (Min.)
- High Reverse h_{FE}
  : Reverse h_{FE} = 150 (Typ.) (V_{CE} = −2V, I_C = −4mA)
- Low on Resistance : R_{ON} = 1Ω (Typ.) (I_B = 5mA)



1. EMITTER1 (E1)
2. BASE 1 (B1)
3. COLLECTOR2 (C2)
4. EMITTER2 (E2)
5. BASE2 (B2)
6. COLLECTOR1 (C1)

JEDEC	—
EIAJ	—
TOSHIBA	2-2J1A

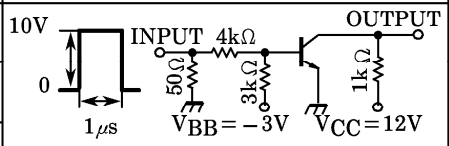
Weight : 6.8mg

MAXIMUM RATINGS (Ta = 25°C) (Q1, Q2 COMMON)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	25	V
Collector Current	I_C	300	mA
Base Current	I_B	60	mA
Collector Power Dissipation	P_C*	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

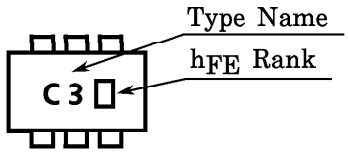
* Total Rating

ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Q1, Q2 COMMON)

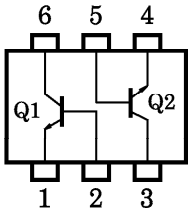
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 50V, I_E = 0	—	—	0.1	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 25V, I_C = 0	—	—	0.1	μA
DC Current Gain		h_{FE} (Note)	V_{CE} = 2V, I_C = 4mA	200	—	1200	
Collector-Emitter Saturation Voltage		V_{CE} (sat)	I_C = 30mA, I_B = 3mA	—	0.042	0.1	V
Base-Emitter Voltage		V_{BE}	V_{CE} = 2V, I_C = 4mA	—	0.61	—	V
Transition Frequency		f_T	V_{CE} = 6V, I_C = 4mA	—	30	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	4.8	7	pF
Switching Time	Turn-on Time	t_{on}		—	160	—	ns
	Storage Time	t_{stg}		—	500	—	
	Fall Time	t_f	DUTY CYCLE ≦ 2%	—	130	—	

Note: h_{FE} Classification
A : 200~700, B : 350~1200

MARKING

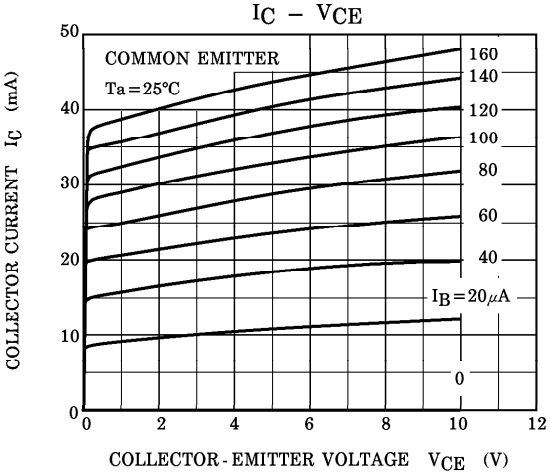


EQUIVALENT CIRCUIT (TOP VIEW)

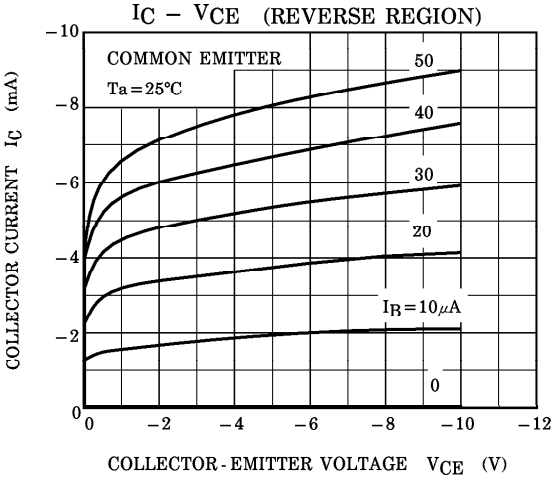


(Q1, Q2 COMMON)

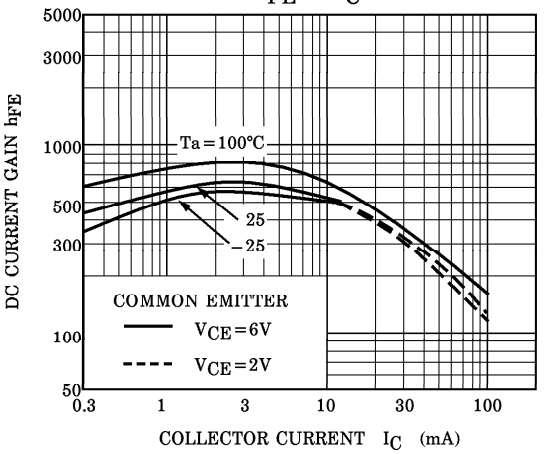
I_C – V_{CE}



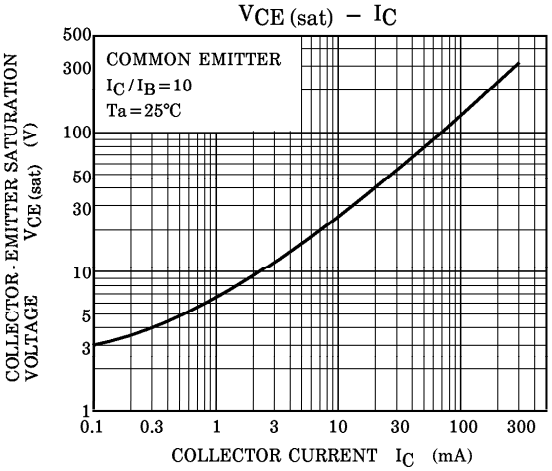
I_C – V_{CE} (REVERSE REGION)



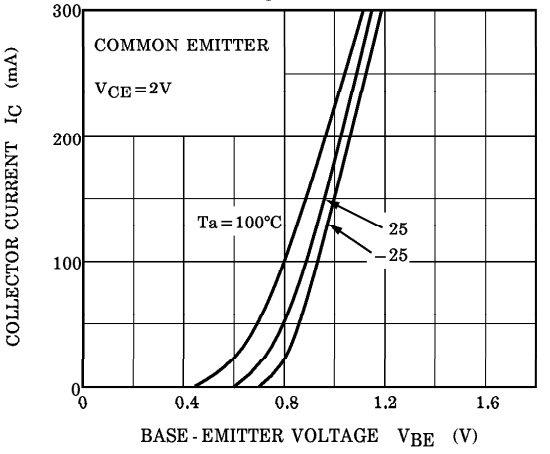
h_{FE} – I_C



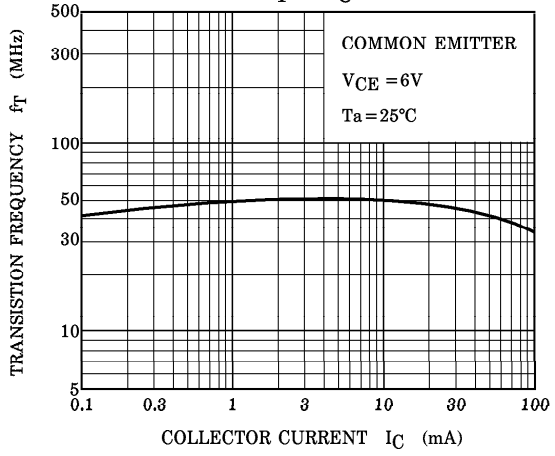
$V_{CE\,(sat)}$ – I_C



I_C – V_{BE}

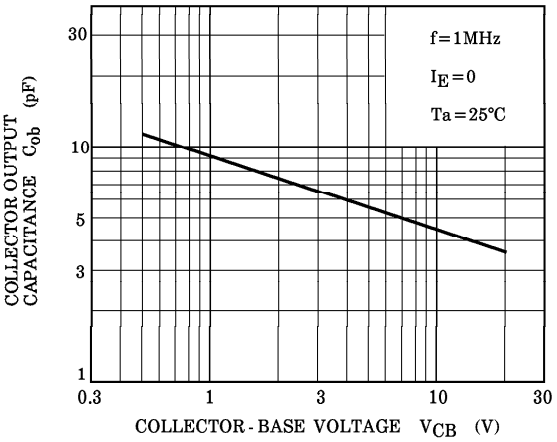


f_T – I_C

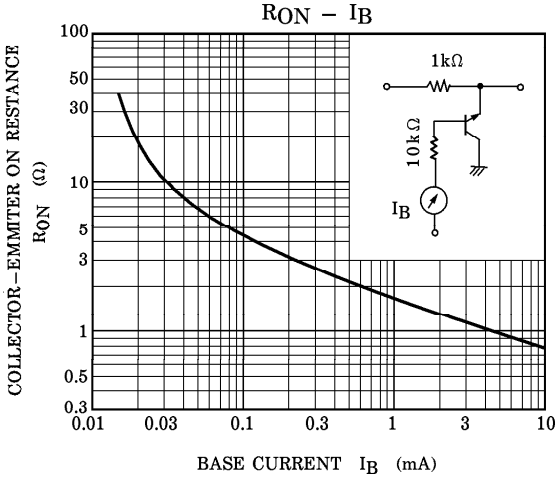


(Q1, Q2 COMMON)

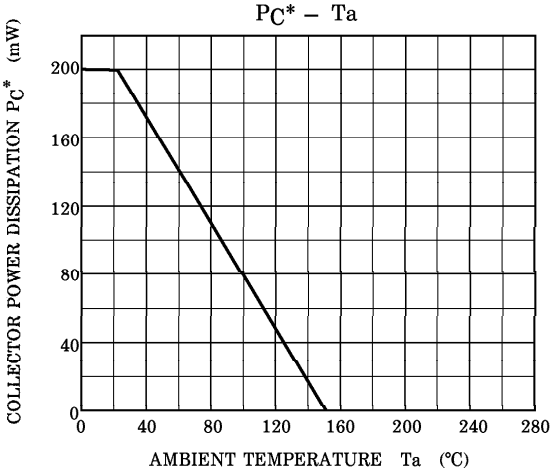
C_{ob} – V_{CB}



R_{ON} – I_B



P_C* – Ta



*: Total Rating