

**TOSHIBA**

**HN4C05JU**

TOSHIBA MULTI CHIP DISCRETE DEVICE

# HN4C05JU

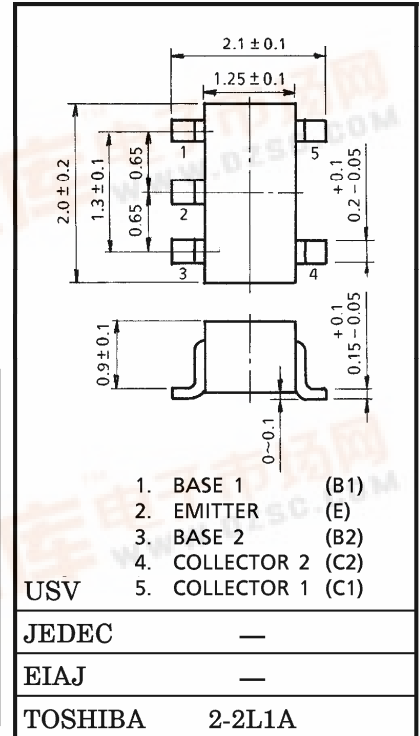
AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER APPLICATIONS  
FOR MUTING AND SWITCHING APPLICATIONS

Unit in mm

- Low Saturation Voltage :  $V_{CE(sat)}(1) = 15\text{ mV (Typ.)}$   
@  $I_C = 10\text{ mA} / I_B = 0.5\text{ mA}$
- High Current :  $I_C = 400\text{ mA (Max.)}$

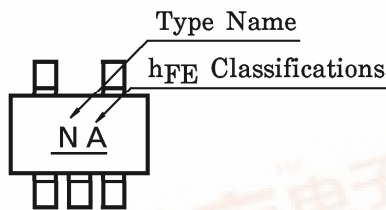
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ ) (Q1, Q2 COMMON)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	15	V
Collector-Emitter Voltage	$V_{CEO}$	12	V
Emitter-Base Voltage	$V_{EB0}$	5	V
Collector Current	$I_C$	400	mA
Base Current	$I_B$	50	mA
Collector Power Dissipation	$P_C$ (*)	200	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ\text{C}$

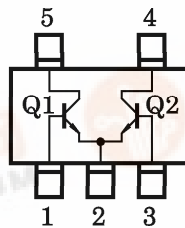


(\*) Total Rating

MARKING



PIN ASSIGNMENT (TOP VIEW)



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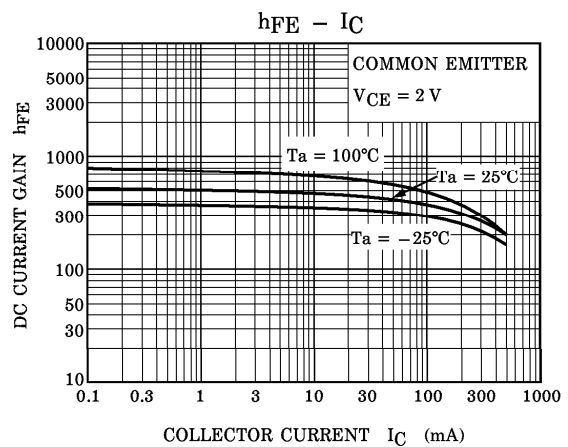
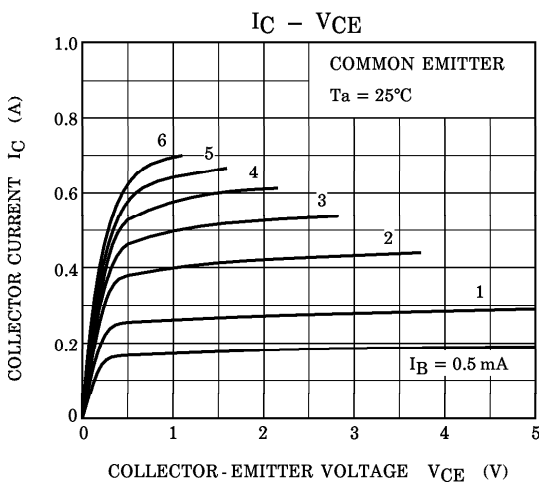


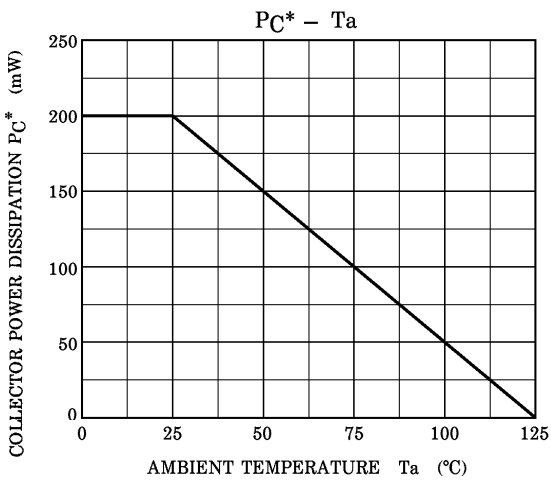
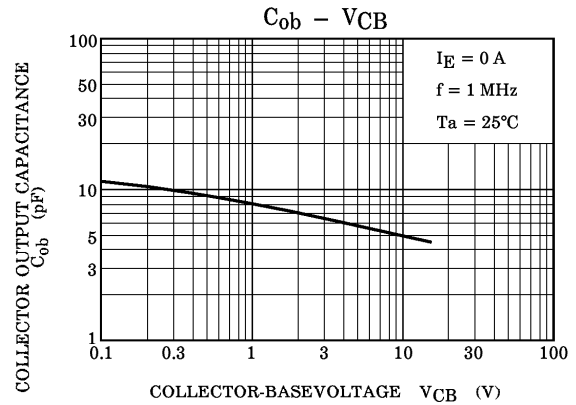
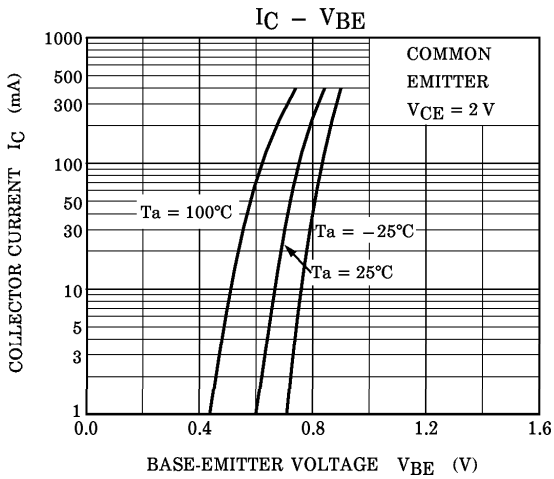
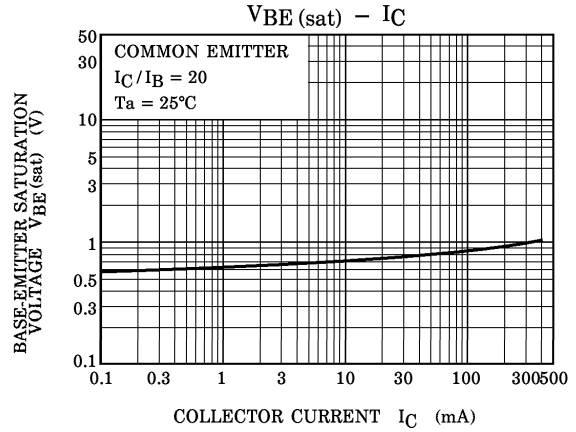
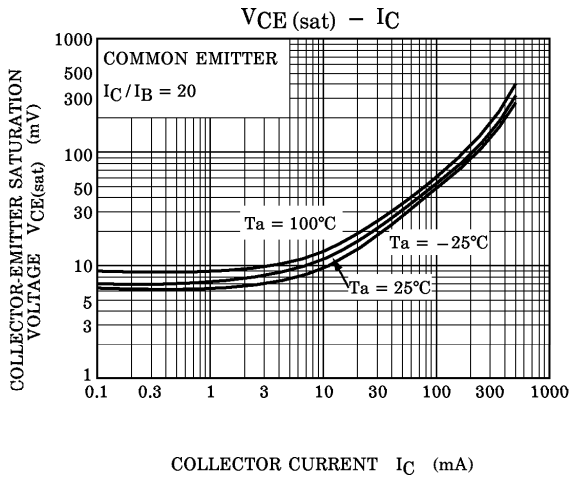
ELECTRICAL CHARACTERISTICS (Ta = 25°C) (Q1, Q2 COMMON)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 15\text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$	
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	0.1	$\mu\text{A}$	
DC Current Gain	$h_{FE}$ (Note)	$V_{CE} = 2\text{ V}, I_C = 10\text{ mA}$	300	—	1000		
Collector-Emitter Saturation Voltage	$V_{CE(sat)} (1)$	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$	—	15	30	mV	
	$V_{CE(sat)} (2)$	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	—	110	250		
Base-Emitter Voltage	$V_{BE(sat)}$	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	—	0.87	1.2	V	
Transition Frequency	$f_T$	$V_{CE} = 2\text{ V}, I_C = 10\text{ mA}$	80	130	—	MHz	
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	4.2	—	pF	
Collector-Emitter On Resistance	$R_{on}$	$I_B = 1\text{ mA}, V_{in} = 1\text{ V}_{rms}, f = 1\text{ kHz}$	—	0.9	—	$\Omega$	
Switching Time	Turn-on Time	$t_{on}$		—	85	—	ns
	Storage Time	$t_{stg}$		—	170	—	
	Fall Time	$t_f$		DUTY CYCLE $\leq 2\%$ $I_{B1} = -I_{B2} = 5\text{ mA}$	—	40	

(Note)  $h_{FE}$  Classification    A : 300~600,    B : 500~1000

(Q1, Q2 COMMON)





\*: Total Rating