

TOSHIBA Multi Chip Discrete Device

HN4C05JU

Audio Frequency General Purpose Amplifier Applications
For Muting and Switching Applications

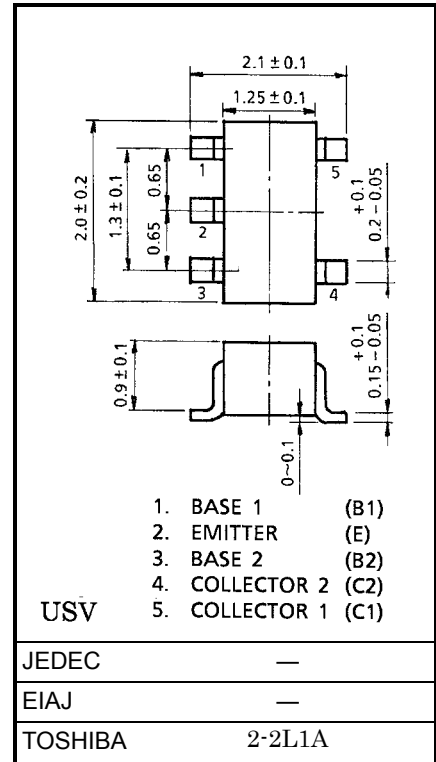
Unit in mm

- Low saturation voltage : $V_{CE(sat)}(1) = 15\text{mV (typ.)}$
@ $I_C = 10\text{mA} / I_B = 0.5\text{mA}$
- High current : $I_C = 400\text{mA (max)}$

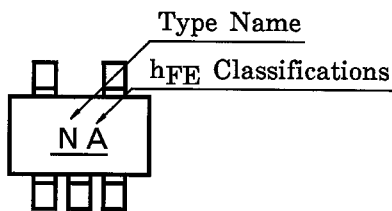
Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	15	V
Collector-emitter voltage	V_{CEO}	12	V
Emitter-base voltage	V_{EBO}	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	°C
Storage temperature range	T_{stg}	-55~125	°C

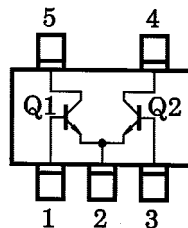
(*) Total rating



Marking



Pin Assignment (Top View)



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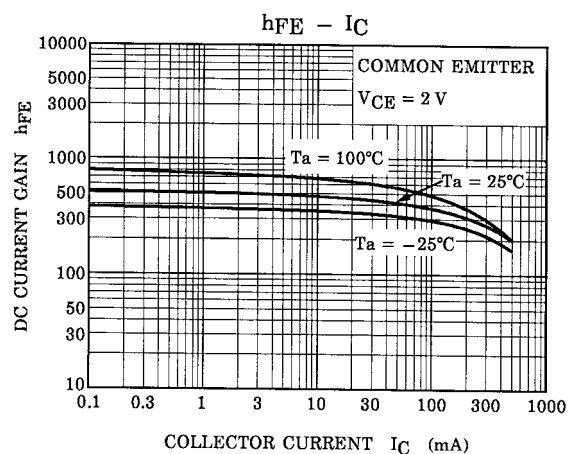
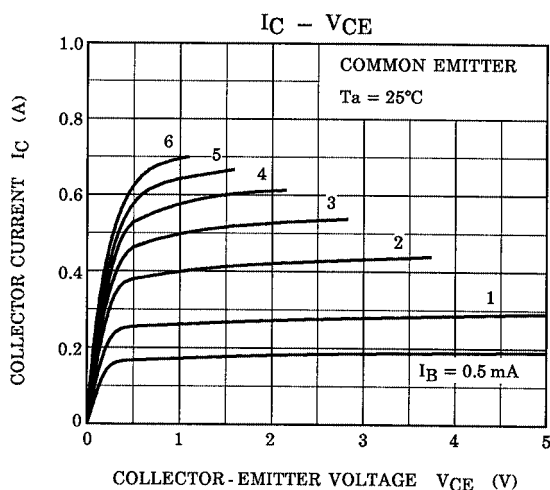
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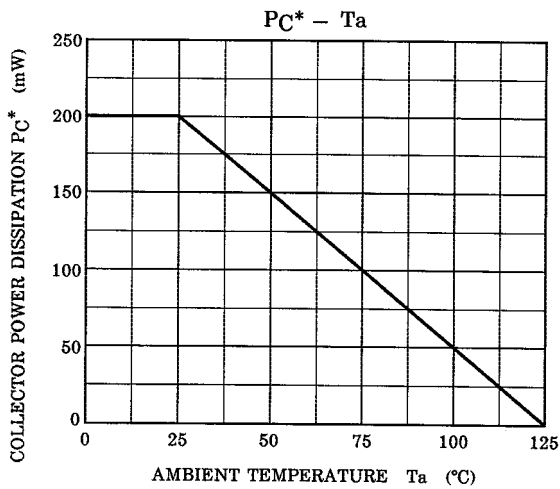
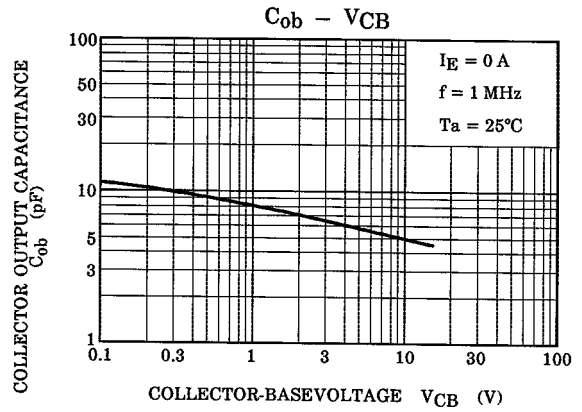
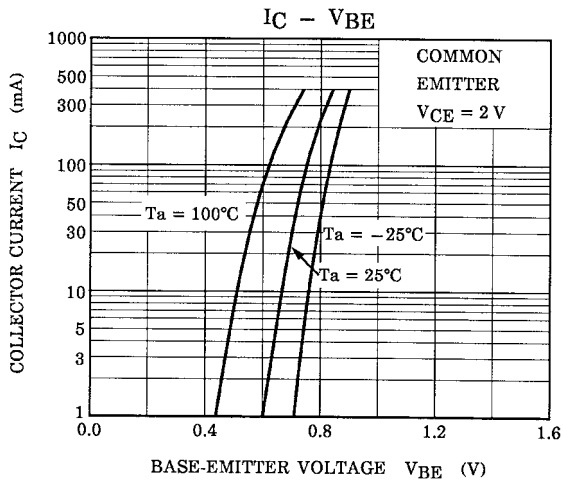
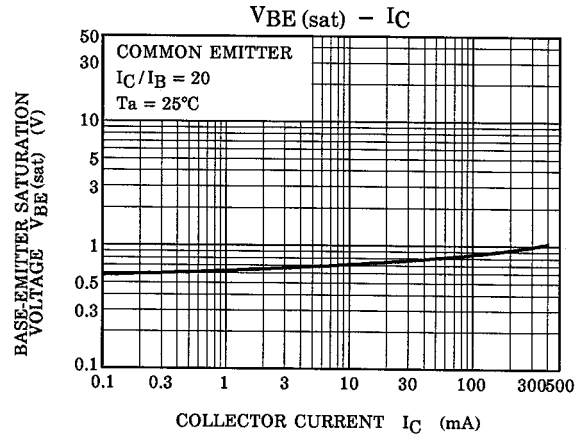
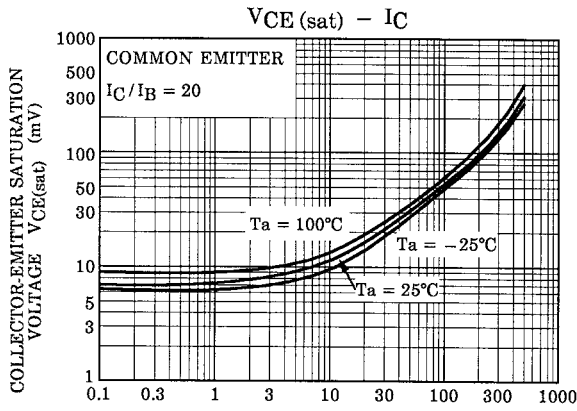
Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	I_{CBO}	—	$V_{CB} = 15V, I_E = 0$	—	—	0.1	μA	
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5V, I_C = 0$	—	—	0.1	μA	
DC current gain	h_{FE} (Note)	—	$V_{CE} = 2V, I_C = 10mA$	300	—	1000	—	
Collector-emitter saturation voltage	$V_{CE(sat)} (1)$	—	$I_C = 10mA, I_B = 0.5mA$	—	15	30	mV	
	$V_{CE(sat)} (2)$	—	$I_C = 200mA, I_B = 10mA$	—	110	250		
Base-emitter voltage	$V_{BE(sat)}$	—	$I_C = 200mA, I_B = 10mA$	—	0.87	1.2	V	
Transition frequency	f_T	—	$V_{CE} = 2V, I_C = 10mA$	80	130	—	MHz	
Collector output capacitance	C_{ob}	—	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	4.2	—	pF	
Collector-emitter on resistance	R_{on}	—	$I_B = 1mA, V_{in} = 1 V_{rms}, f = 1kHz$	—	0.9	—	Ω	
Switching time	Turn-on time	t_{on}	<p>DUTY CYCLE $\leq 2\%$ $I_{B1} = -I_{B2} = 5 mA$</p>	—	85	—	ns	
	Storage time	t_{stg}		—	—	170		—
	Fall time	t_f		—	—	—		40

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

(Q1, Q2 Common)





*: Total Rating



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