

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

# HN2C01FE

## Audio Frequency General Purpose Amplifier Applications

Unit: mm

- Small package (dual type)
- High voltage and high current :  $V_{CE0} = 50V$ ,  $I_C = 150mA$  (max)
- High  $h_{FE}$  :  $h_{FE} = 120$  to 400
- Excellent  $h_{FE}$  linearity :  $h_{FE}(I_C = 0.1mA) / (I_C = 2mA) = 0.95$  (typ.)

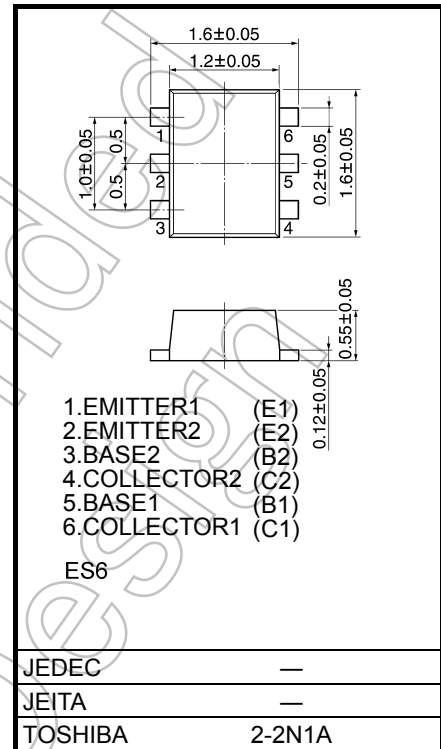
## Absolute Maximum Ratings ( $T_a = 25^\circ C$ ) (Q1, Q2 Common)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	$V_{CEO}$	50	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	150	mA
Base current	$I_B$	30	mA
Collector power dissipation	$P_C^*$	100	mW
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ C$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

\* Total rating



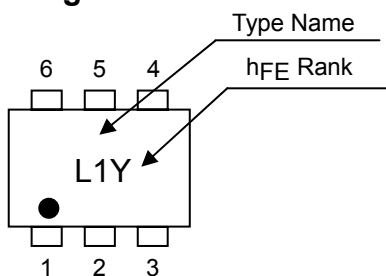
Weight: 3mg

## Electrical Characteristics ( $T_a = 25^\circ C$ ) (Q1, Q2 Common)

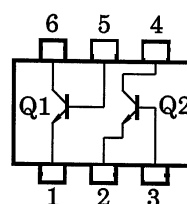
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	—	$V_{CB} = 60V, I_E = 0$	—	—	0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	—	$V_{EB} = 5V, I_C = 0$	—	—	0.1	$\mu A$
DC current gain	$h_{FE}$ (Note)	—	$V_{CE} = 6V, I_C = 2mA$	120	—	400	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 100mA, I_B = 10mA$	—	0.1	0.25	V
Transition frequency	$f_T$	—	$V_{CE} = 10V, I_C = 1mA$	60	—	—	MHz
Collector output capacitance	$C_{ob}$	—	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	2	—	pF

Note:  $h_{FE}$  classification Y(Y): 120 to 240, GR(G): 200 to 400 ( ) marking symbol

## Marking

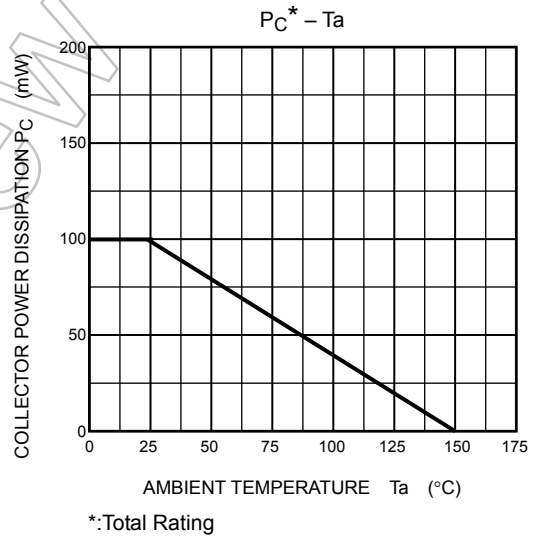
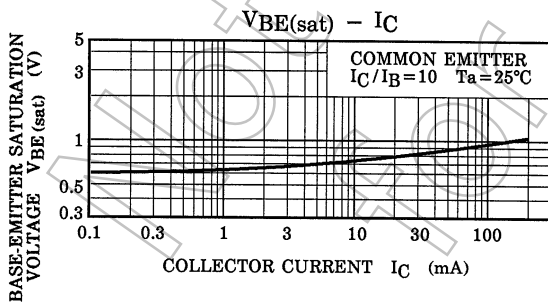
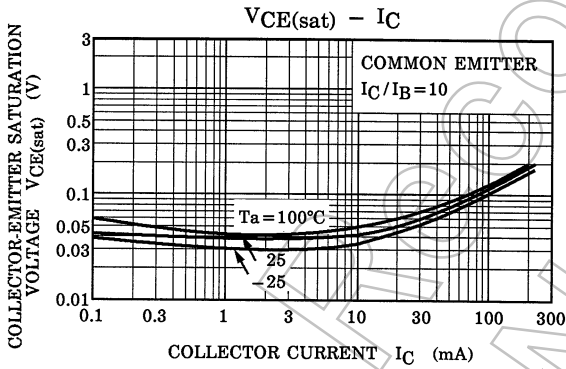
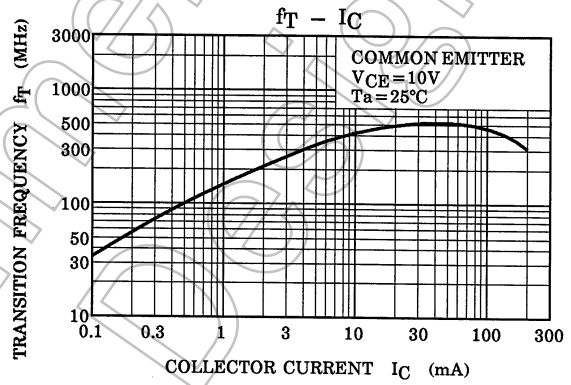
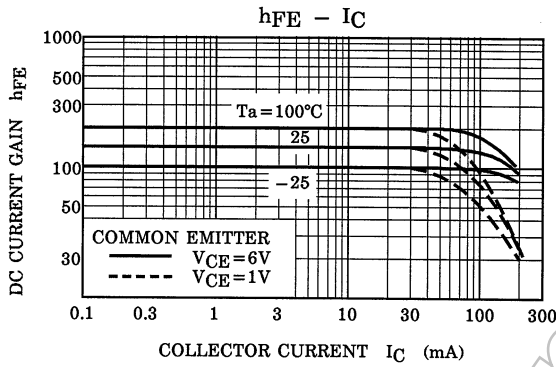
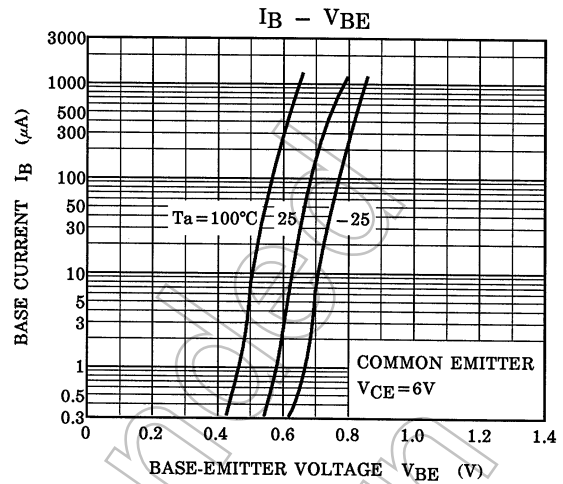
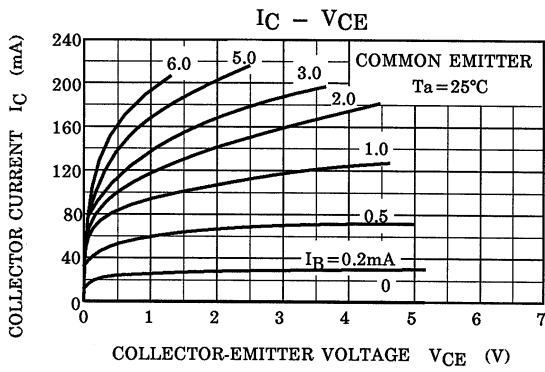


## Equivalent Circuit (Top View)



Start of commercial production  
2000-06

(Q1, Q2 Common)



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