Unit: mm

1.6±0.05

1.2±0.05

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

# HN1C01FE

## Audio Frequency General Purpose Amplifier Applications

- Small package (Dual type)
- High voltage and high current

:  $V_{CEO} = 50V$ ,  $I_{C} = 150mA$  (max)

- High  $h_{FF}$ :  $h_{FF}$  = 120 to 400
- Excellent hFE linearity

:  $h_{FE} (I_C = 0.1 \text{mA}) / h_{FE} (I_C = 2 \text{mA}) = 0.95 \text{ (typ.)}$ 

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	V <sub>CEO</sub>	50	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	Ic	150	mA
Base current	Ι <sub>Β</sub>	30	mA
Collector power dissipation	P <sub>C</sub> *	100	mW
Junction temperature	Tj	150	°C
Storage temperature range	T <sub>stg</sub>	-55 to 150	°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.

Weight: 3.0mg(typ.)

ES6

**JEDEC** 

**TOSHIBA** 

**JEITA** 

 $.0\pm0.05$ 

1. EMITTER1 2. BASE1

5. BASE2

3. COLLECTOR2 (C2) 4. EMITTER2

6. COLLECTOR1 (C1)

(B1)

(E2)

(B2)

2-2N1G

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).

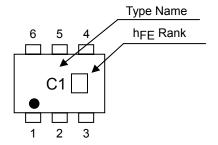
### Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

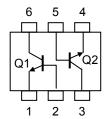
Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I <sub>CBO</sub>	_	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0	_	_	0.1	μΑ
Emitter cut-off current	I <sub>EBO</sub>	_	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	_	_	0.1	μΑ
DC current gain	h <sub>FE (Note)</sub>	_	V <sub>CE</sub> = 6V, I <sub>C</sub> = 2mA	120	_	400	
Collector-emitter saturation voltage	V <sub>CE</sub> (sat)	_	I <sub>C</sub> = 100mA, I <sub>B</sub> = 10mA	_	0.1	0.25	V
Transition frequency	f <sub>T</sub>	_	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	80	_	_	MHz
Collector output capacitance	C <sub>ob</sub>	_	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	1	2	_	pF

Note:hFE Classification Y (Y): 120 to 240, GR (G): 200 to 400 ( ) Marking Symbol

#### Marking

### **Equivalent Circuit (Top View)**

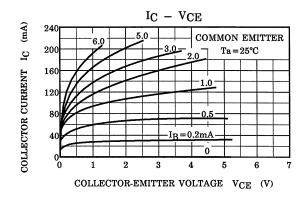


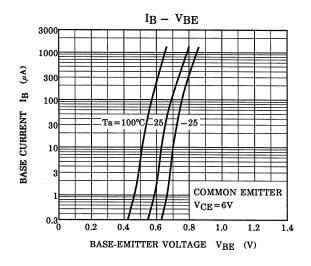


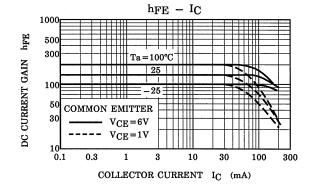
Start of commercial production 2000-05

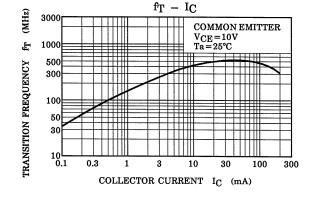
<sup>\*</sup>Total rating

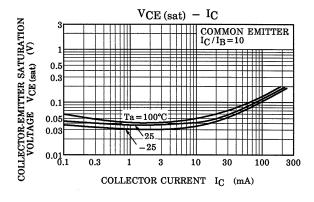
(Q1,Q2 Common)

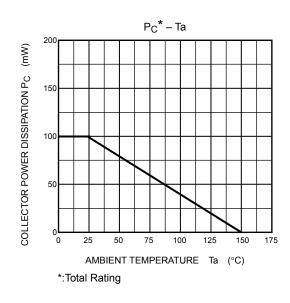


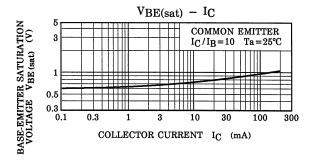












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