TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

## HN1C01F

### Audio-Frequency General-Purpose Amplifier Applications

Small package (dual type)

High voltage and high current

: V<sub>CEO</sub> = 50 V, I<sub>C</sub> = 150 mA (max)

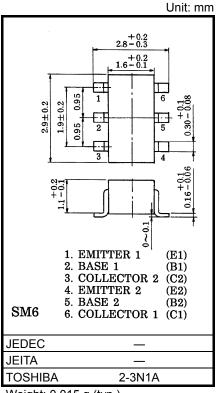
• High h<sub>FE</sub>: h<sub>FE</sub> = 120~400

Excellent h<sub>FE</sub> linearity

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

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	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	ΙΒ	30	mA
Collector power dissipation	P <sub>C</sub> *	300	mW
Junction temperature	Tj	125	°C
Storage temperature range	T <sub>stg</sub>	-55~125	°C



Weight: 0.015 g (typ.)

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

#### 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> = 60 V, I <sub>E</sub> = 0	_	_	0.1	μΑ
Emitter cut-off current	I <sub>EBO</sub>	_	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0	_	-	0.1	μΑ
DC current gain	h <sub>FE</sub> (Note)	_	V <sub>CE</sub> = 6 V, I <sub>C</sub> = 2 mA	120	_	400	
Collector-emitter saturation voltage	V <sub>CE</sub> (sat)	_	I <sub>C</sub> = 100 mA, I <sub>B</sub> = 10 mA	_	0.1	0.25	٧
Transition frequency	f <sub>T</sub>	_	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 1 mA	80	_	_	MHz
Collector output capacitance	C <sub>ob</sub>	_	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz	_	2	3.5	pF

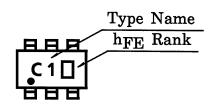
Note: hfe Classification

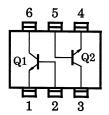
Y (Y): 120~240, GR (G): 200~400

( ) Marking symbol

### Marking

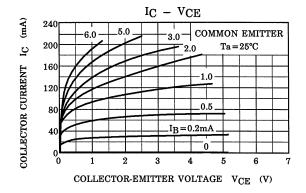
### **Equivalent Circuit (Top View)**

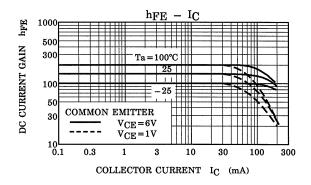


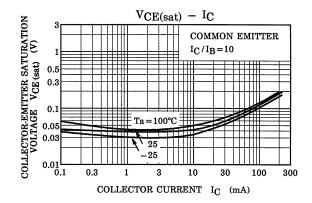


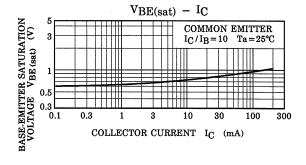
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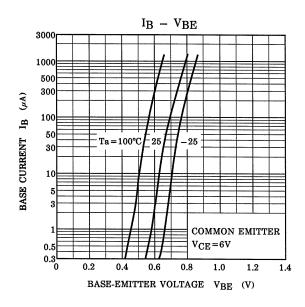
### (Q1, Q2 Common)

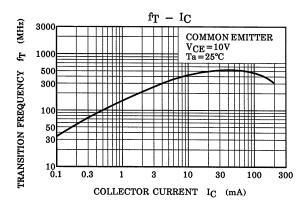


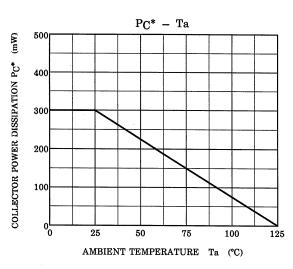












\* : Total Rating

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