

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

HN1A01FE

Audio Frequency General Purpose Amplifier Applications

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

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	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	°C
Storage temperature range	T_{stg}	-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. 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).

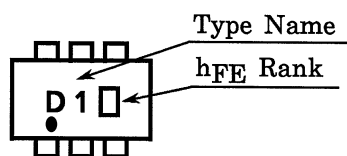
*Total rating

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

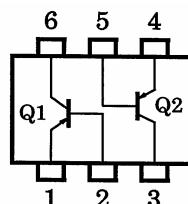
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = -50V$, $I_E = 0$	—	—	-0.1	μA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = -5V$, $I_C = 0$	—	—	-0.1	μA
DC current gain	h_{FE} (Note)	—	$V_{CE} = -6V$, $I_C = -2mA$	120	—	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = -100mA$, $I_B = -10mA$	—	-0.1	-0.3	V
Transition frequency	f_T	—	$V_{CE} = -10V$, $I_C = -1mA$	80	—	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = -10V$, $I_E = 0$, $f = 1MHz$	—	4	—	pF

Note: h_{FE} Classification Y (Y): 120 to 240, GR (G): 200 to 400 () Marking Symbol

Marking

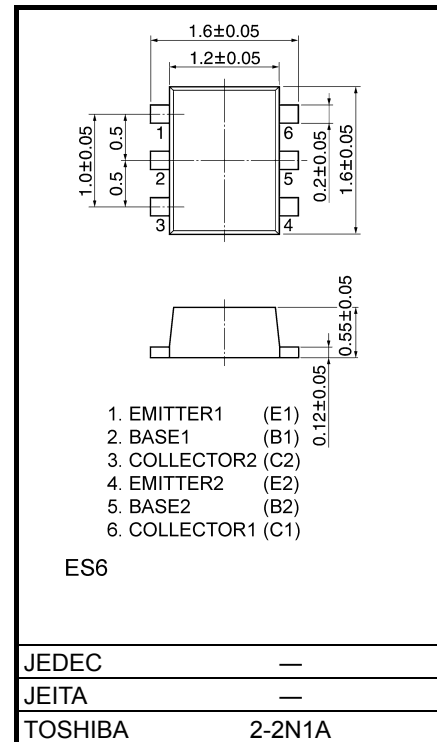


Equivalent Circuit (Top View)



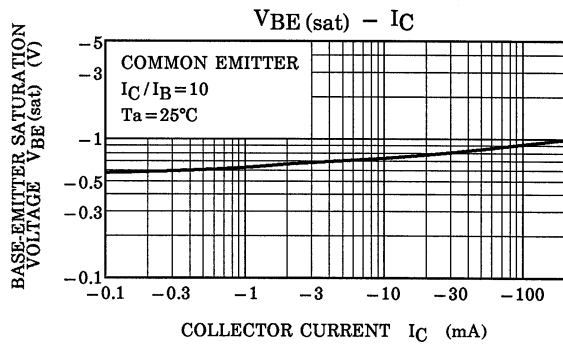
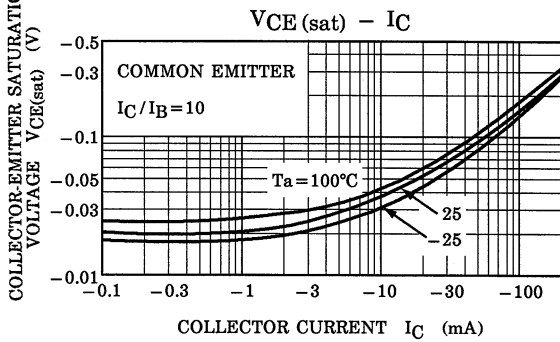
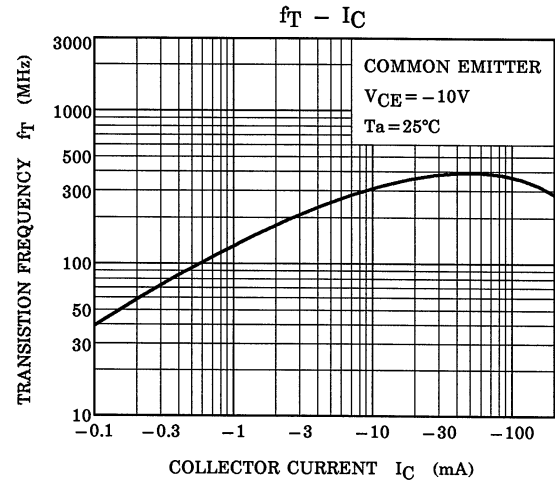
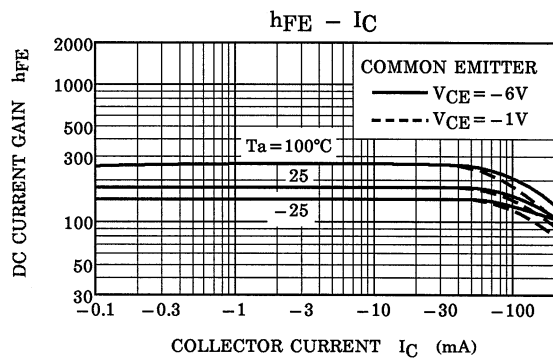
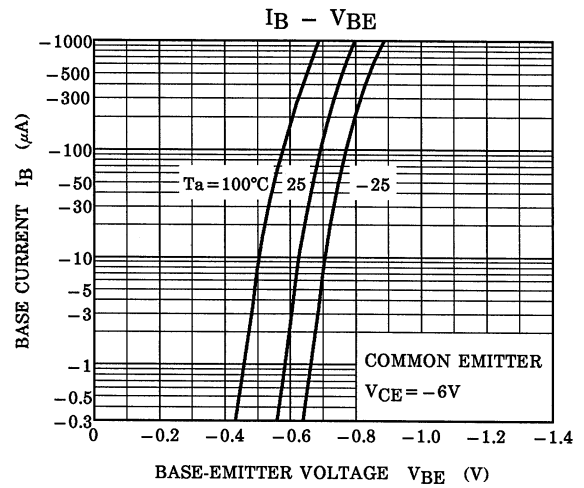
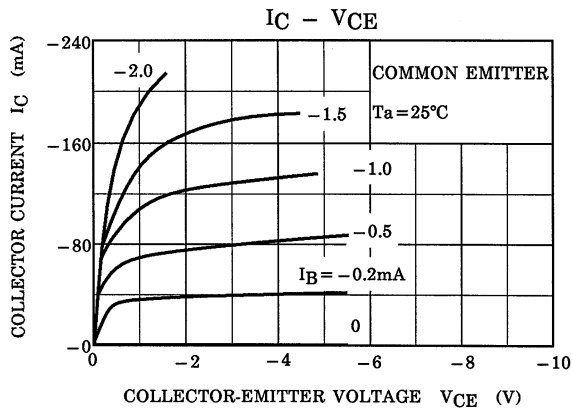
Start of commercial production
2000-05

Unit: mm



Weight: 3.0mg (typ.)

(Q1,Q2 Common)





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