

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

HN1A01F

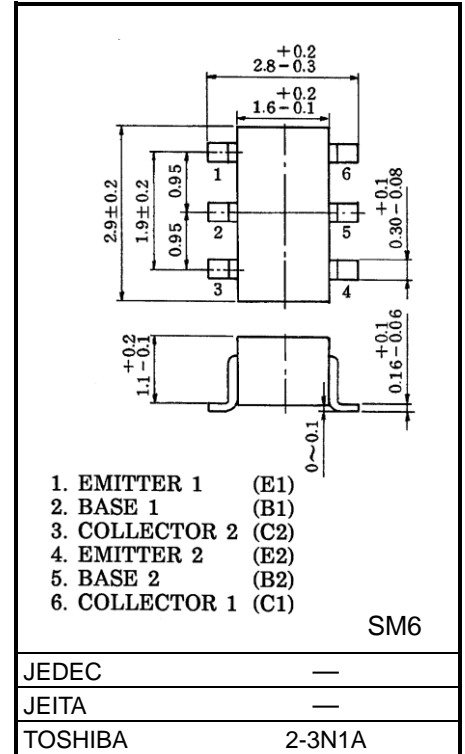
Audio Frequency General Purpose Amplifier Applications

Unit: mm

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

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	-50	V
Collector-emitter voltage	V_{CE0}	-50	V
Emitter-base voltage	V_{EB0}	-5	V
Collector current	I_C	-150	mA
Base current	I_B	-30	mA
Collector power dissipation	P_C^*	300	mW
Junction temperature	T_j (Note 1)	150	°C
	T_j (Note 2)	125	
Storage temperature range	T_{stg} (Note 1)	-55 to 150	°C
	T_{stg} (Note 2)	-55 to 125	



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

Note 1: For devices with the ordering part number ending in LF(T).

Note 2: For devices with the ordering part number in other than LF(T).

Start of commercial production
1988-11

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

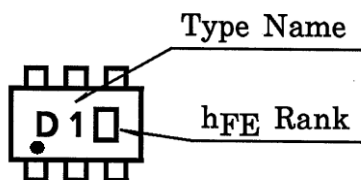
Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	—	V _{CB} = -50 V, I _E = 0 A	—	—	-0.1	μA
Emitter cut-off current	IEBO	—	V _{EB} = -5 V, I _C = 0 A	—	—	-0.1	μA
DC current gain	h _{FE} (Note)	—	V _{CE} = -6 V, I _C = -2 mA	120	—	400	—
Collector-emitter saturation voltage	V _{CE} (sat)	—	I _C = -100 mA, I _B = -10 mA	—	-0.1	-0.3	V
Transition frequency	f _T	—	V _{CE} = -10 V, I _C = -1 mA	80	—	—	MHz
Collector output capacitance	C _{ob}	—	V _{CB} = -10 V, I _E = 0 A, f = 1 MHz	—	4	7	pF

Note: h_{FE} Classification

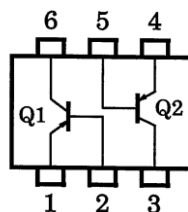
Y (Y): 120 to 240, GR (G): 200 to 400

() Marking Symbol

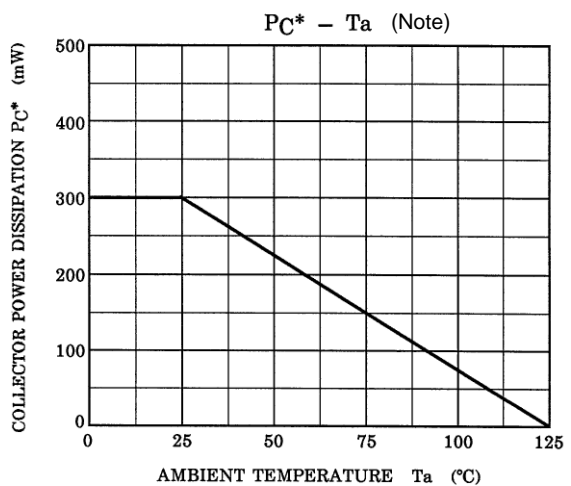
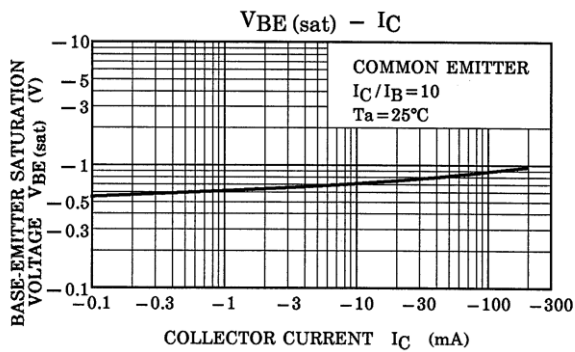
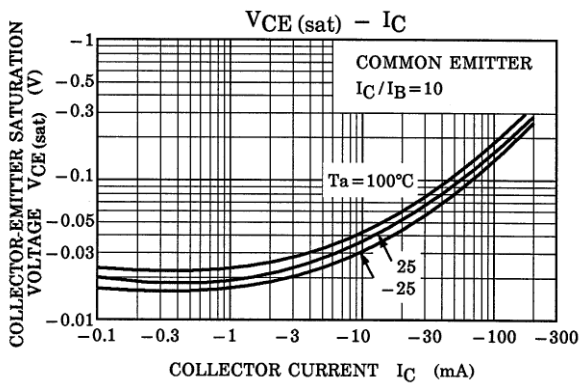
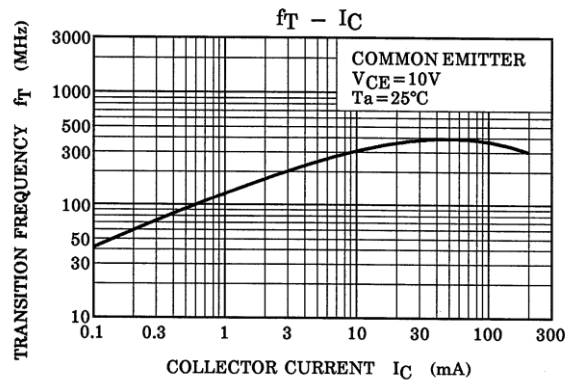
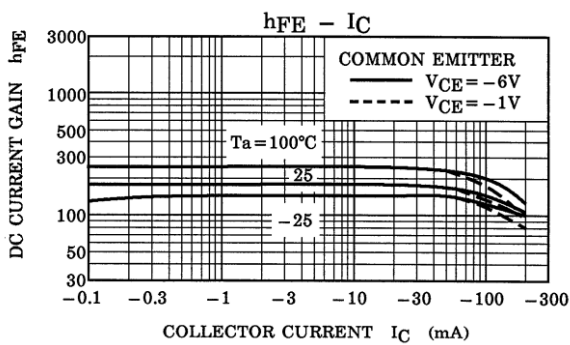
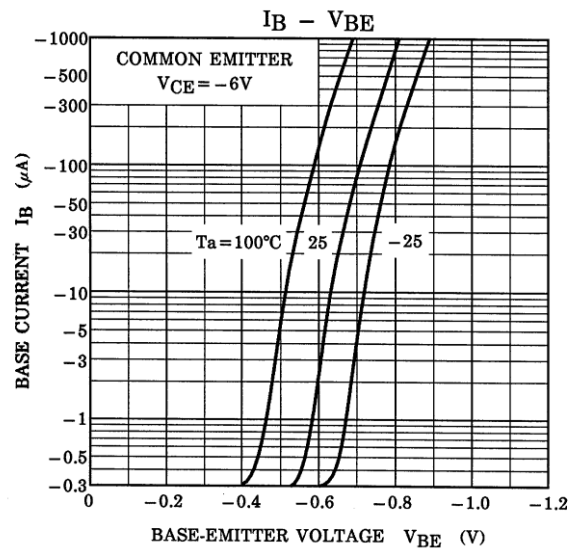
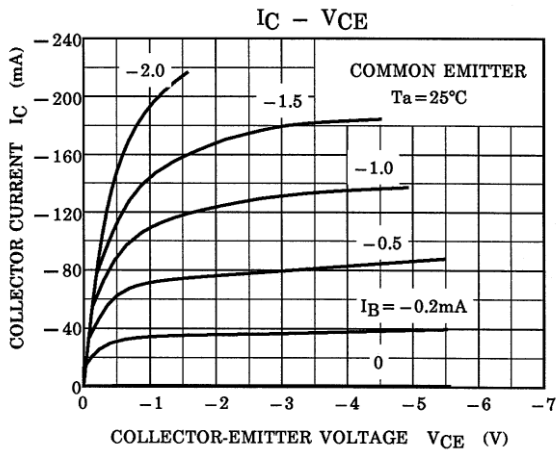
Marking



Equivalent Circuit (Top View)



Characteristics Curves (Q1, Q2 Common)



* : Total Rating

Note: Reference only with Tj of 125 °C.

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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