

HN1B01FU

AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER APPLICATIONS.

Unit in mm

Q1 :

- High Voltage and High Current
: $V_{CEO} = -50V$, $I_C = -150mA$ (Max.)
- High h_{FE} : $h_{FE} = 120 \sim 400$
- Excellent h_{FE} Linearity
: $h_{FE}(I_C = -0.1mA) / h_{FE}(I_C = -2mA) = 0.95$ (Typ.)

Q2 :

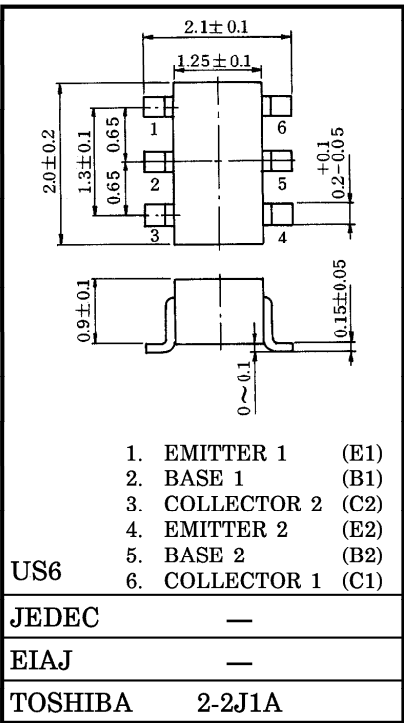
- High Voltage and High Current
: $V_{CEO} = 50V$, $I_C = 150mA$ (Max.)
- High h_{FE} : $h_{FE} = 120 \sim 400$
- Excellent h_{FE} Linearity
: $h_{FE}(I_C = 0.1mA) / h_{FE}(I_C = 2mA) = 0.95$ (Typ.)

Q1 MAXIMUM RATINGS (Ta = 25°C)

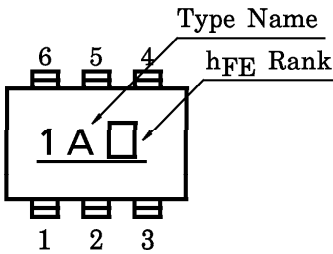
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-150	mA
Base Current	I_B	-50	mA

Q2 MAXIMUM RATINGS (Ta = 25°C)

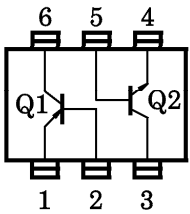
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	150	mA
Base Current	I_B	30	mA



MARKING



EQUIVALENT CIRCUIT (TOP VIEW)



961001EAA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

Q1, Q2 COMMON MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector Power Dissipation	P _C *	200	mW
Junction Temperature	T _j	125	°C
Storage Temperature Range	T _{stg}	−55~125	°C

* Total Rating

Q1 ELECTRICAL CHARACTERISTICS (Ta = 25°C)

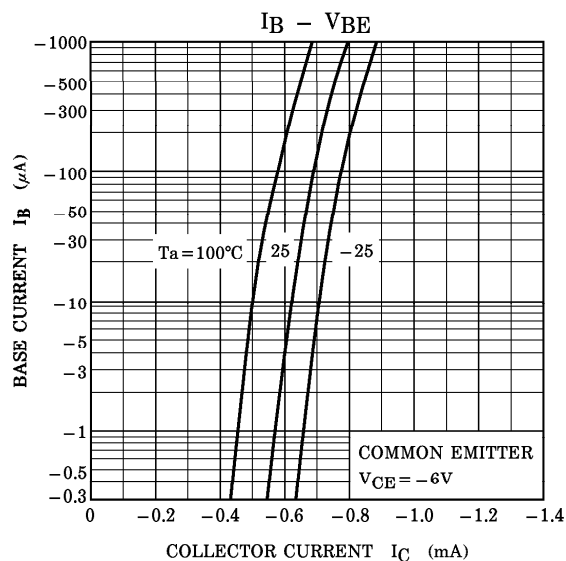
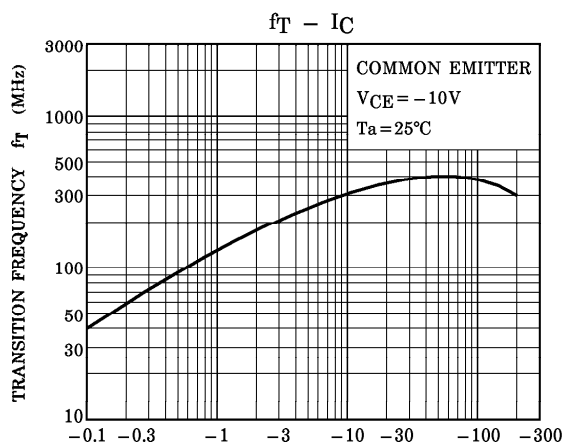
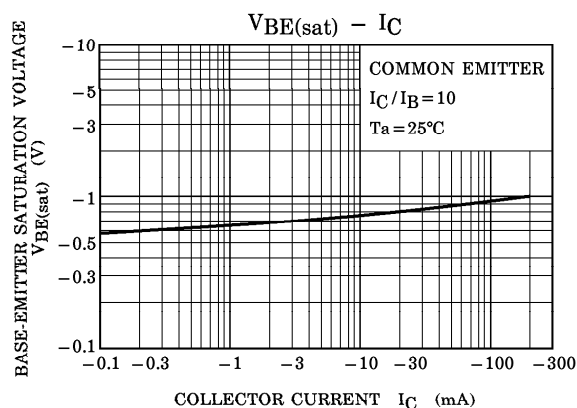
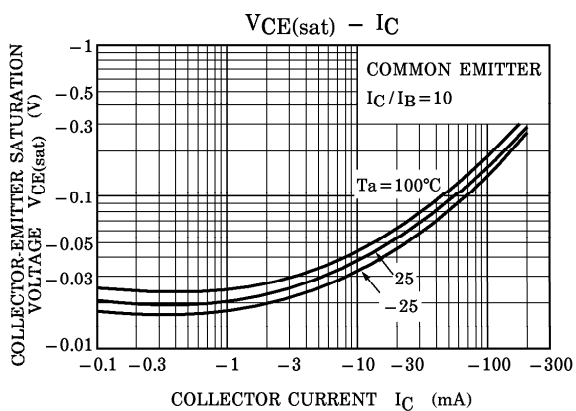
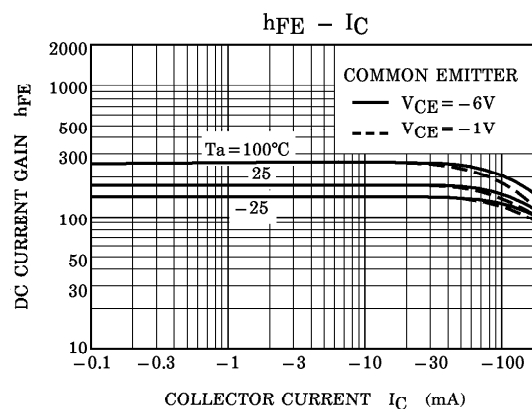
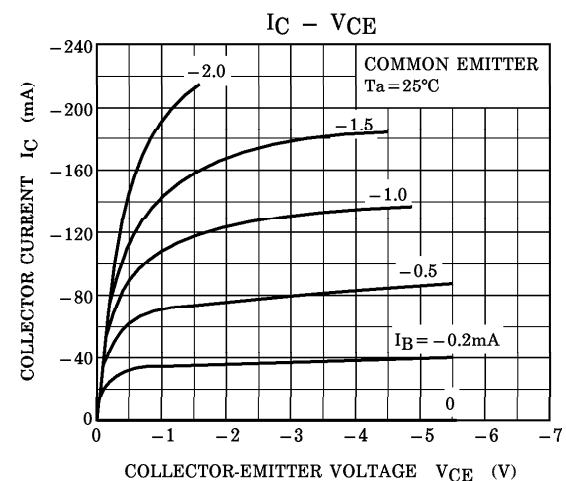
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CB} = −50V, I _E = 0	—	—	−0.1	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = −5V, I _C = 0	—	—	−0.1	μA
DC Current Gain	h _{FE} (Note)	V _{CE} = −6V, I _C = −2mA	120	—	400	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = −100mA, I _B = −10mA	—	−0.1	−0.3	V
Transition Frequency	f _T	V _{CE} = −10V, I _C = −1mA	—	120	—	MHz
Collector Output Capacitance	C _{ob}	V _{CB} = −10V, I _E = 0, f = 1MHz	—	4	—	pF

Q2 ELECTRICAL CHARACTERISTICS (Ta = 25°C)

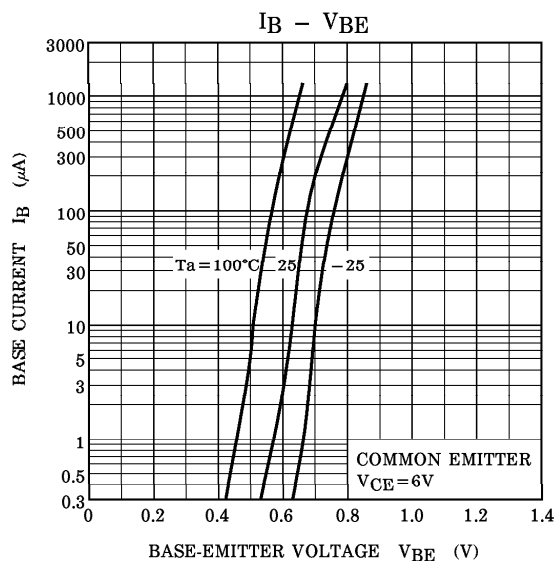
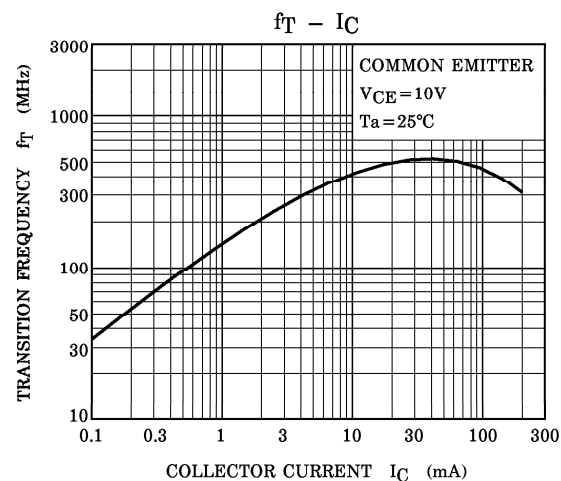
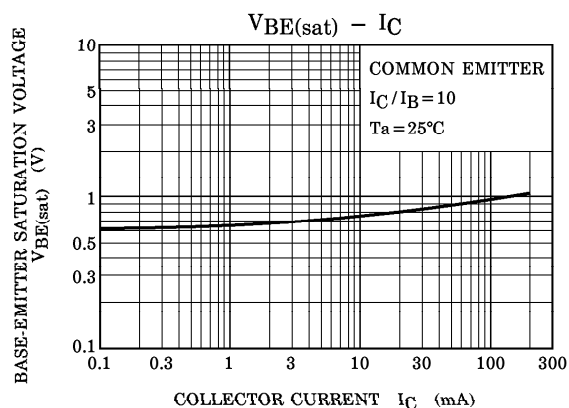
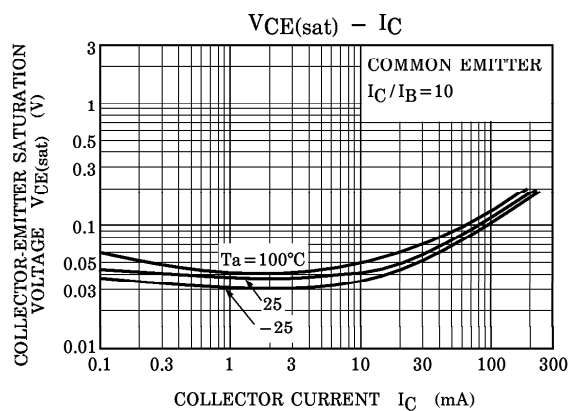
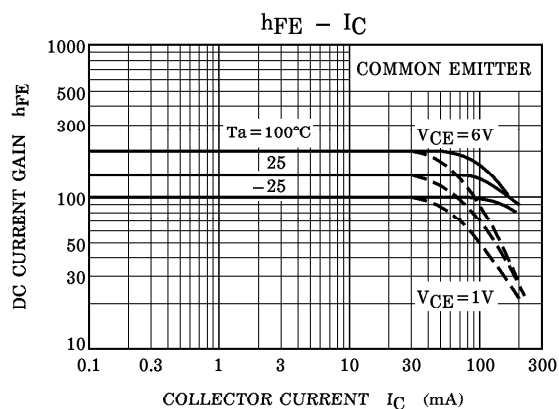
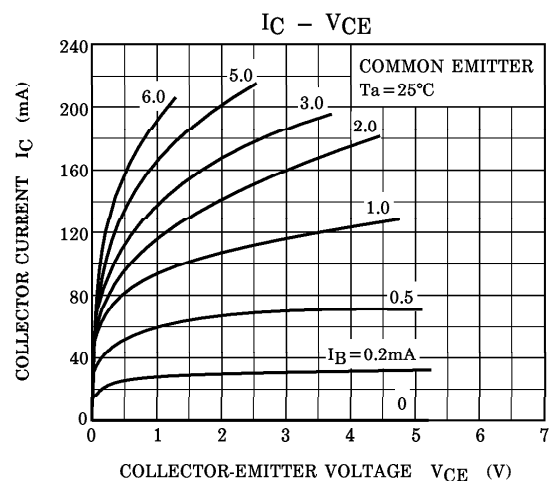
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CB} = 60V, I _E = 0	—	—	0.1	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 5V, I _C = 0	—	—	0.1	μA
DC Current Gain	h _{FE} (Note)	V _{CE} = 6V, I _C = 2mA	120	—	400	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 100mA, I _B = 10mA	—	0.1	0.25	V
Transition Frequency	f _T	V _{CE} = 10V, I _C = 1mA	—	150	—	MHz
Collector Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	2	—	pF

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

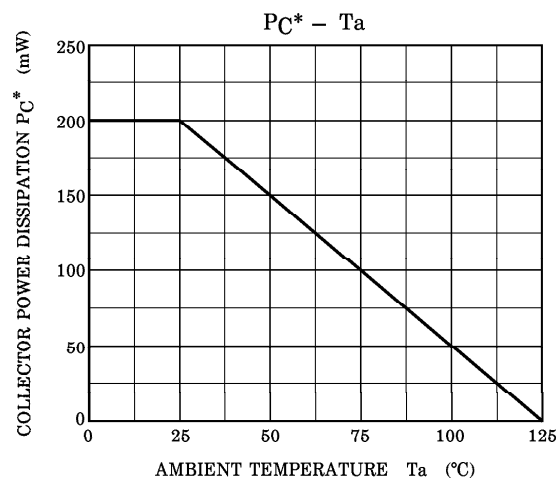
Q1 (PNP TRANSISTOR)



Q2 (NPN TRANSISTOR)



(Q1, Q2 COMMON)



*: Total Rating