

HN1B04F

Audio Frequency General Purpose Amplifier Applications

Driver Stage Amplifier Applications

Switching application

Q1:

- Excellent h_{FE} linearity
: $h_{FE(2)} = 25$ (Min.) at $V_{CE} = -6V$ $I_C = -400mA$

Q2:

- Excellent h_{FE} linearity
: $h_{FE(2)} = 25$ (Min.) at $V_{CE} = 6V$ $I_C = 400mA$

Q1 Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-35	V
Collector-emitter voltage	V_{CEO}	-30	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-500	mA

Q2 Maximum Ratings (Ta = 25°C)

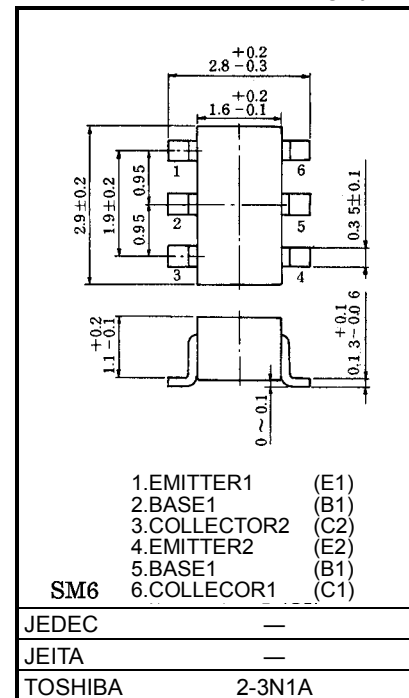
Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	35	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	500	mA

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

Characteristic	Symbol	Rating	Unit
Collector power dissipation	P_C^*	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55~150	°C

* Total rating. 200mW per element must be exceeded.

Unit: mm



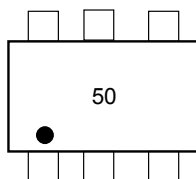
Q1 Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = -35V, I_E = 0$	—	—	-100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = -5V, I_C = 0$	—	—	-100	nA
DC current gain	$h_{FE(1)}$	—	$V_{CE} = -1V, I_C = -100mA$	70	—	400	
	$h_{FE(2)}$	—	$V_{CE} = -6V, I_C = -400mA$	25	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = -100mA, I_B = -10mA$	—	-0.1	-0.25	V
Base-Emitter Voltage	V_{BE}	—	$V_{CE} = -1V, I_C = -100mA$	—	-0.8	-1.0	V
Transition frequency	f_T	—	$V_{CE} = -6V, I_C = -20mA$	—	200	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = -6V, I_E = 0, f = 1MHz$	—	7	—	pF

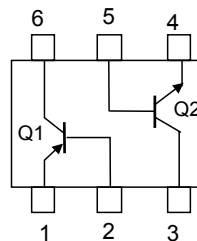
Q2 Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	$V_{CB} = 35V, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	—	$V_{EB} = 5V, I_C = 0$	—	—	100	nA
DC current gain	$h_{FE(1)}$	—	$V_{CE} = 1V, I_C = 100mA$	70	—	400	
	$h_{FE(2)}$	—	$V_{CE} = 6V, I_C = 400mA$	25	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 100mA, I_B = 10mA$	—	0.1	0.25	V
Base-Emitter Voltage	V_{BE}	—	$V_{CE} = 1V, I_C = 100mA$	—	0.8	1.0	V
Transition frequency	f_T	—	$V_{CE} = 6V, I_C = 20mA$	—	300	—	MHz
Collector output capacitance	C_{ob}	—	$V_{CB} = 6V, I_E = 0, f = 1MHz$	—	7	—	pF

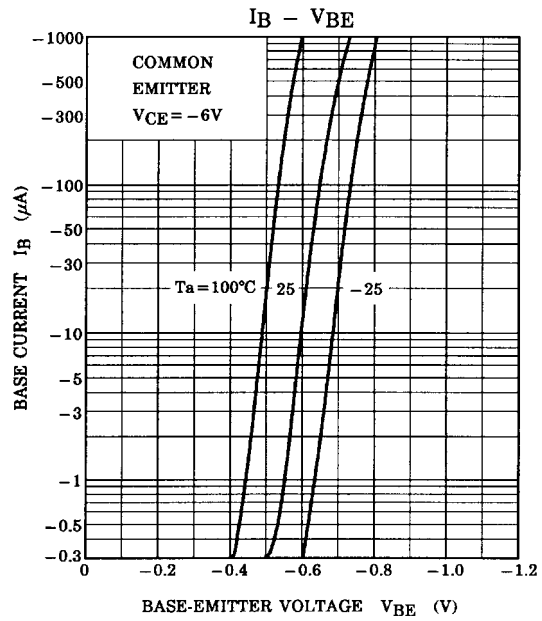
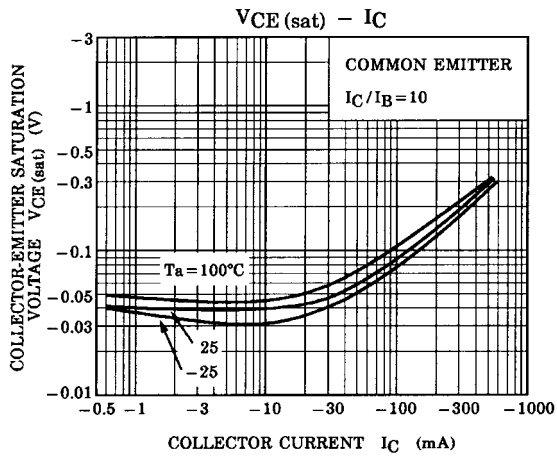
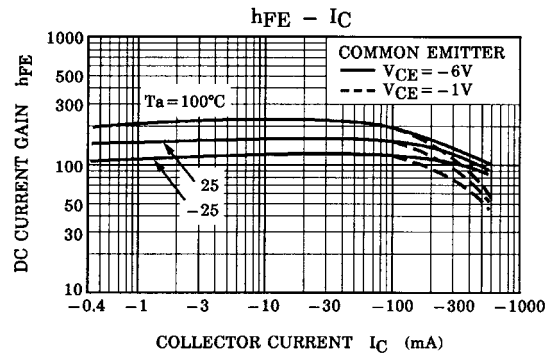
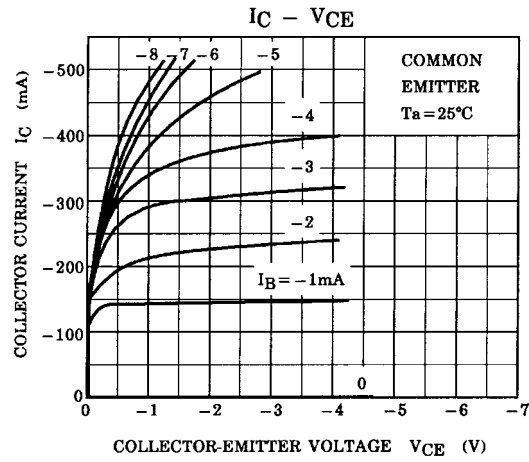
Marking



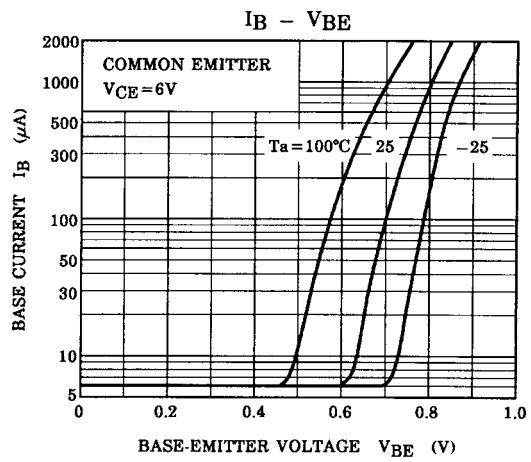
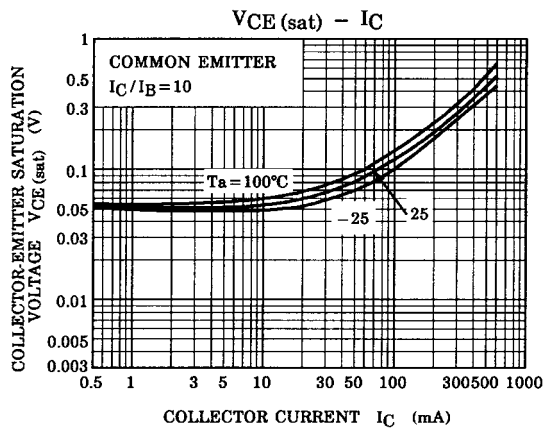
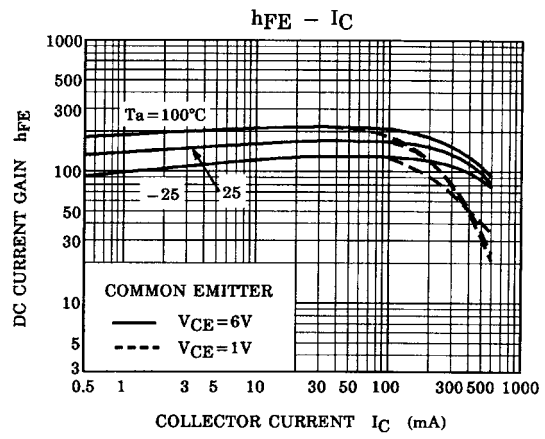
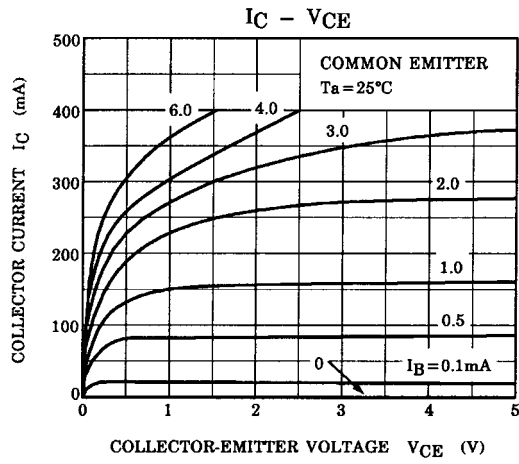
Equivalent Circuit (Top View)



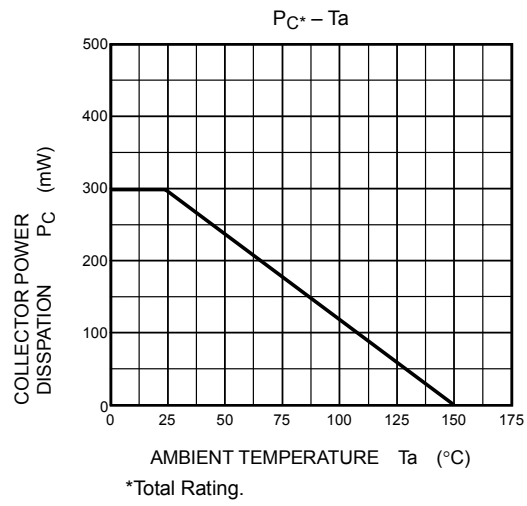
Q1 (PNP transistor)



Q2 (NPN transistor)



(Q1, Q2 Common)



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