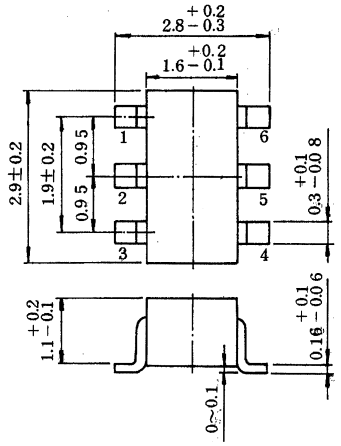
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

HN1C07F

Audio Frequency Small Power Amplifier Applications
Driver Stage Amplifier Applications
Switching applications

- Excellent Currrent gain(h_{FE}) linearity
  : $h_{FE(2)}$ = 25 (min) at V_{CE} = 6V, I_C = 400mA

Unit: mm



SM6

JEDEC	—
JEITA	—
TOSHIBA	2-3N1A

Weight: 0.015g (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	500	mA
Base current	I_B	50	mA
Collector power dissipation	P_C*	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

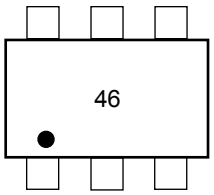
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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. Power dissipation per element should not exceed 200mW.

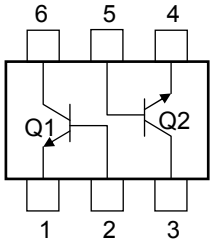
Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

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	$h_{FE(1)}$	V_{CE} =1V, I_C =100mA	70	—	240	
	$h_{FE(2)}$	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



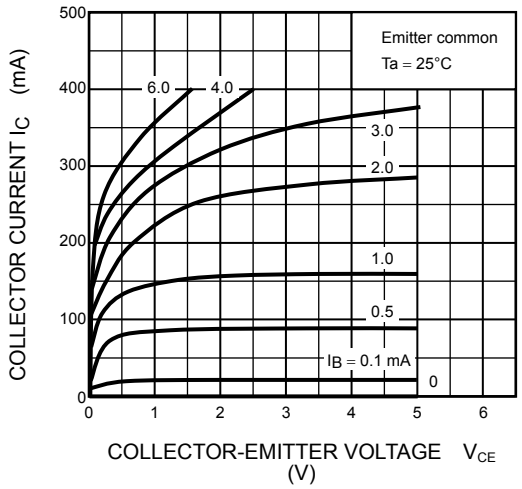
Equivalent Circuit (Top View)



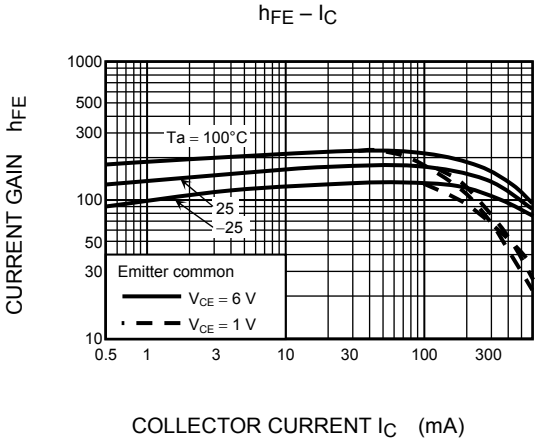
Start of commercial production
2000-12

(Q1,Q2 Common)

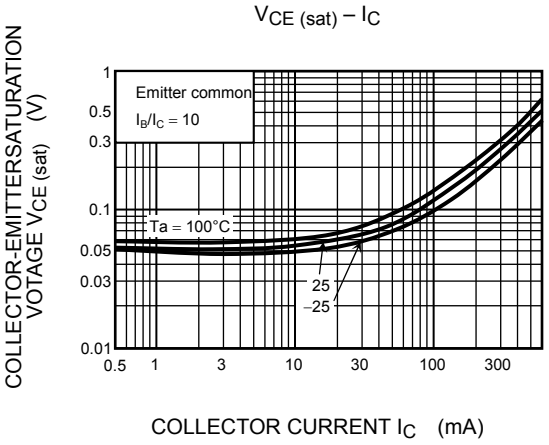
$I_C - V_{CE}$



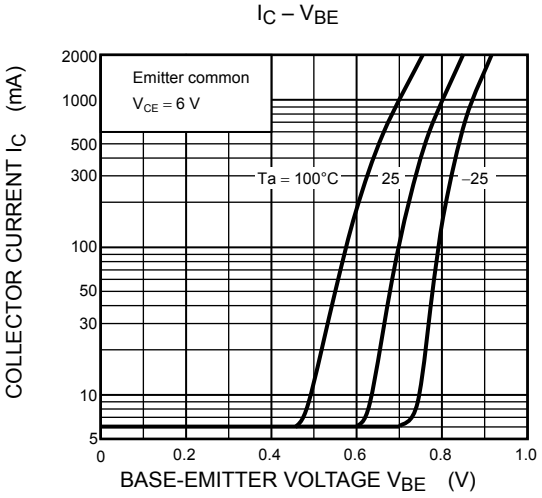
$h_{FE} - I_C$



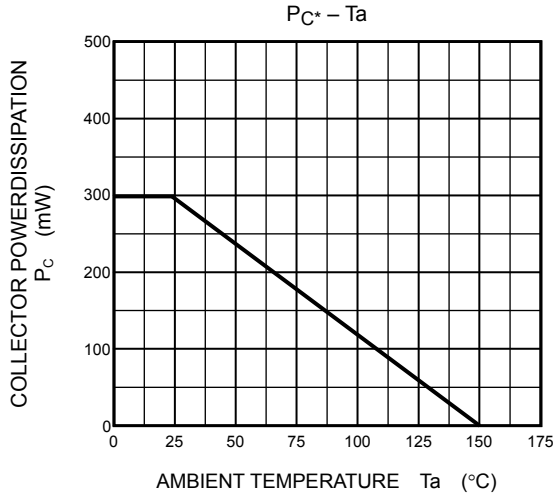
$V_{CE\ (sat)} - I_C$



$I_C - V_{BE}$



$P_{C^*} - Ta$



*Total Rating.

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