

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

# HN1A07F

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

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

### 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	$I_B$	-100	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.

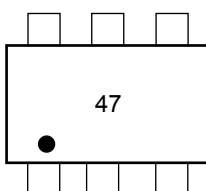
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

\*Total rating. Power dissipation per element should not exceed 200mW.

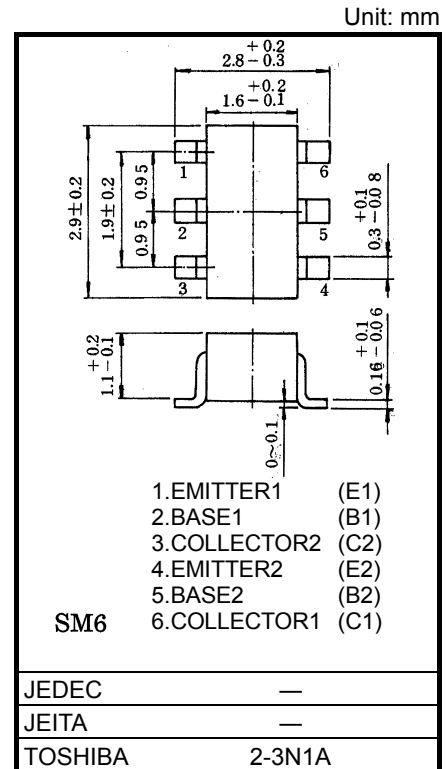
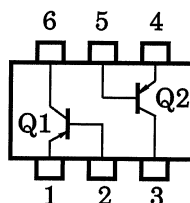
### Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -50V, I_E = 0$	—	—	-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	—	240	
	$h_{FE(2)}$	$V_{CE} = -1V, I_C = -400mA$	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	$C_{ob}$	$V_{CB} = -6V, I_E = 0, f = 1MHz$	—	13	—	pF

### Marking



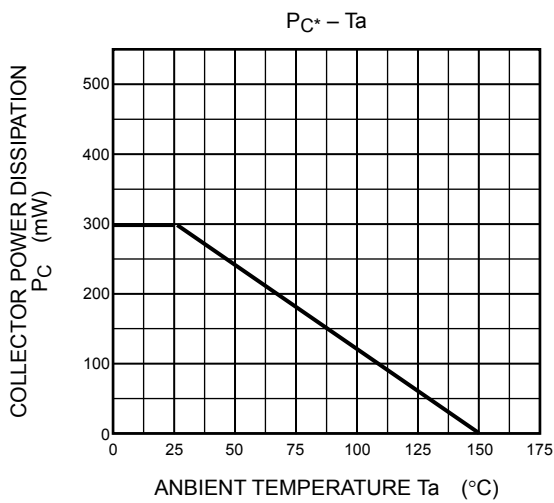
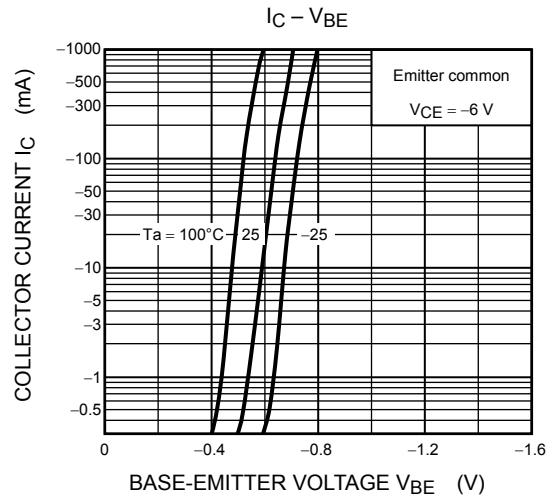
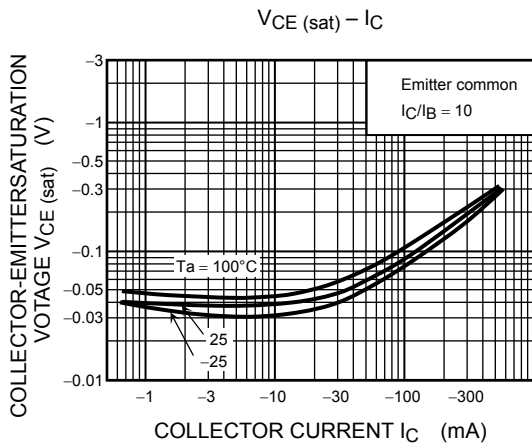
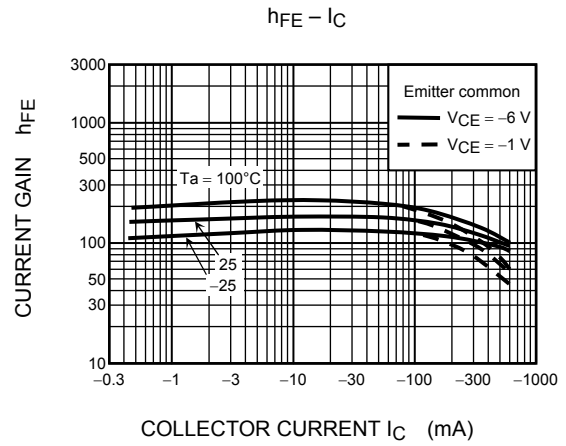
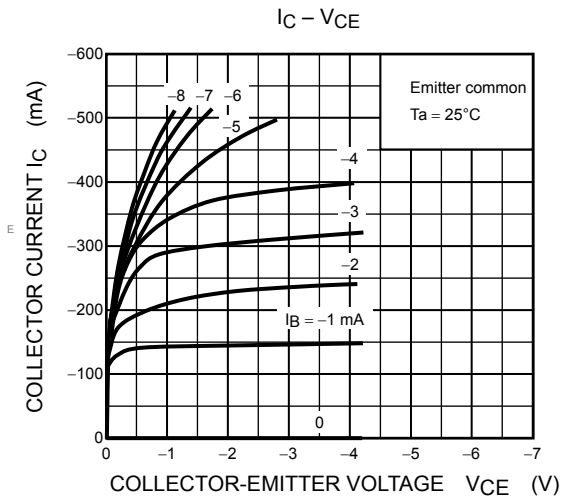
### Equivalent Circuit (Top View)



Weight: 0.015mg (typ.)

Start of commercial production  
 2002-04

(Q1,Q2 Common)



\*Total Rating.

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