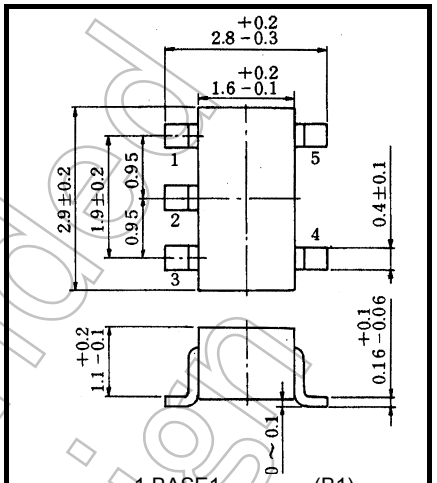
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

HN4A08J

Low Frequency Power Amplifer Applications
Power Switching Application

- High DC Current Gain : h_{FE} = 100 to 320
- Low Saturation Voltage : $V_{CE(sat)}$ = −0.4V (max)
  (I_C = −500mA , I_B = −20mA)

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-3L1A

Weight: 0.014g (typ.)

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−30	V
Collector-emitter voltage	V_{CEO}	−25	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−800	mA
Base current	I_B	−160	mA
Collector power dissipation	P_C*	300	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

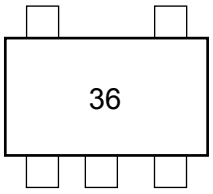
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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.

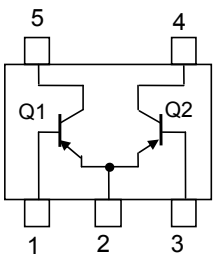
Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	—	V_{CB} = −30V, I_E = 0	—	—	−0.1	μA
Emitter cut-off current	I_{EBO}	—	V_{EB} = −5V, I_C = 0	—	—	−0.1	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	—	I_C = −10mA, I_B = 0	−25	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	—	I_E = −0.1mA, I_C = 0	−5	—	—	V
DC current gain	$h_{FE(1)}$	—	V_{CE} = −1V, I_C = −100mA	100	—	320	
	$h_{FE(2)}$	—	V_{CE} = −1V, I_C = −800mA	40	—	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	—	I_C = −500mA, I_B = −20mA	—	—	−0.4	V
Collector-emitter saturation voltage	V_{BE}	—	V_{CE} = −1V, I_C = −10mA	−0.5	—	−0.8	V
Transition frequency	f_T	—	V_{CE} = −5V, I_C = −10mA	—	120	—	MHz
Collector output capacitance	C_{ob}	—	V_{CB} = −10V, I_E = 0, f = 1MHz	—	13	—	pF

Marking

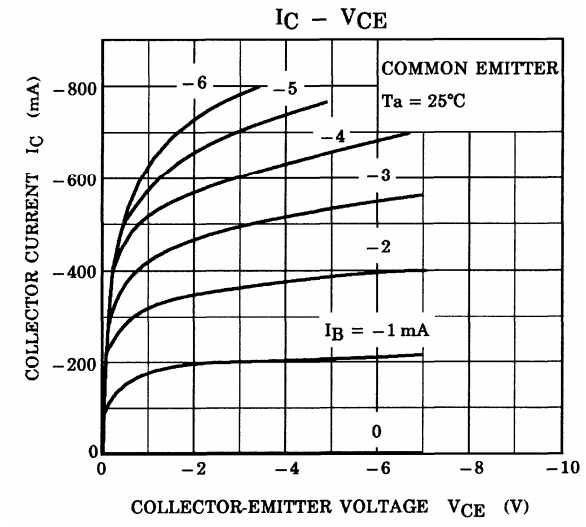


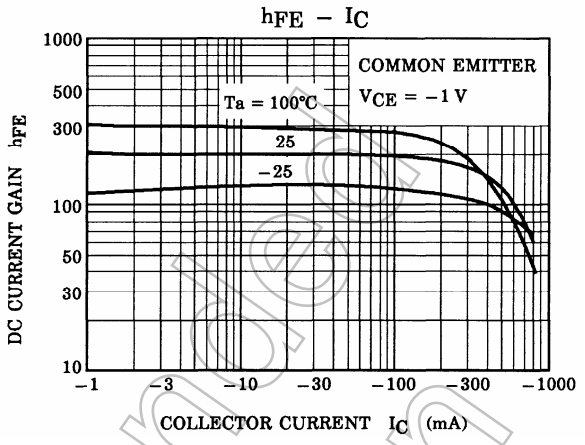
Equivalent Circuit (Top View)

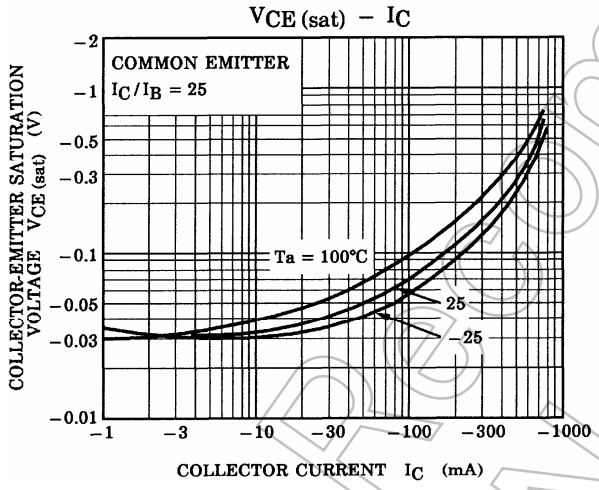


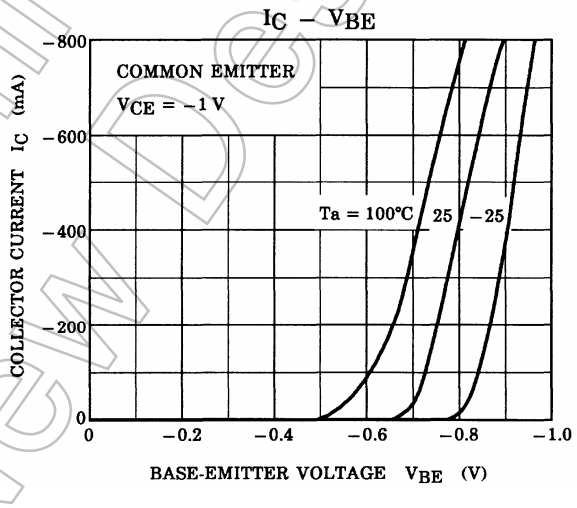
Start of commercial production
2000-09

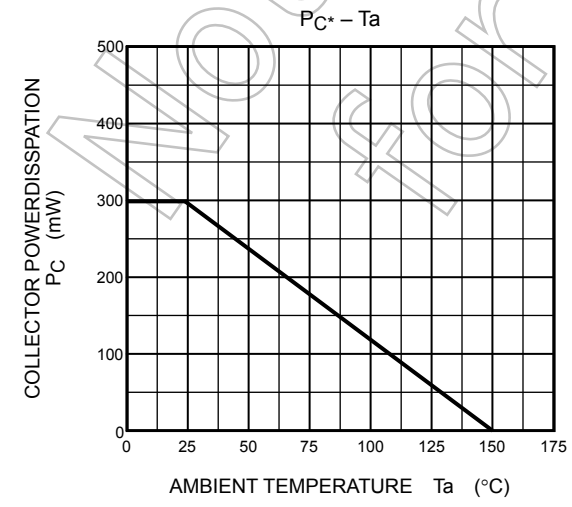
Q1,Q2 Common











*Total Rating.

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