TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

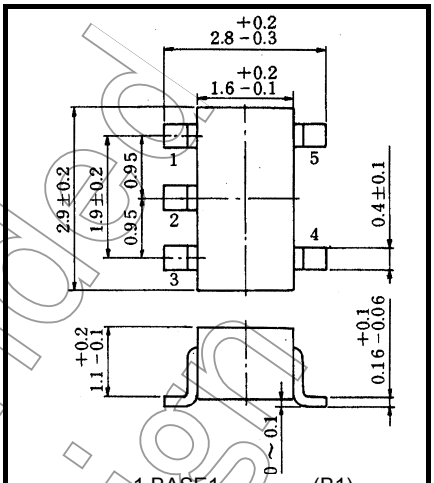
HN4C08J

Low Frequency Power Amplifer Applications

Power Switching Application

- High DC Current Gain : h_{FE} = 100~320
- Low Saturation Voltage : VCE(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}	−55~150	°C

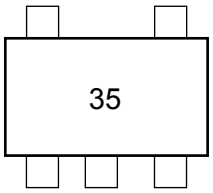
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

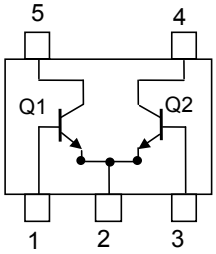
Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

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

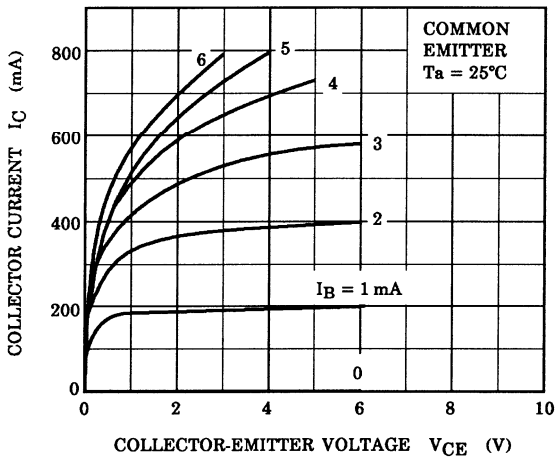


Equivalent Circuit (Top View)

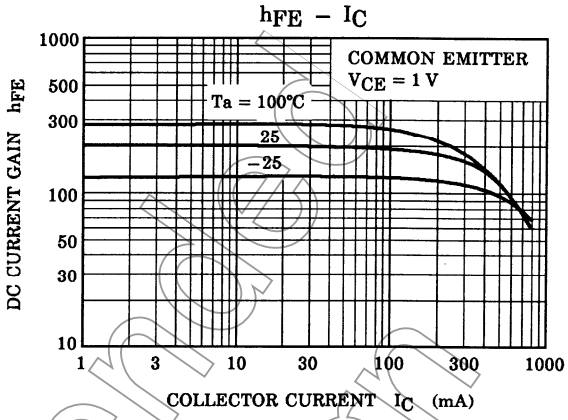


(Q1,Q2 Common)

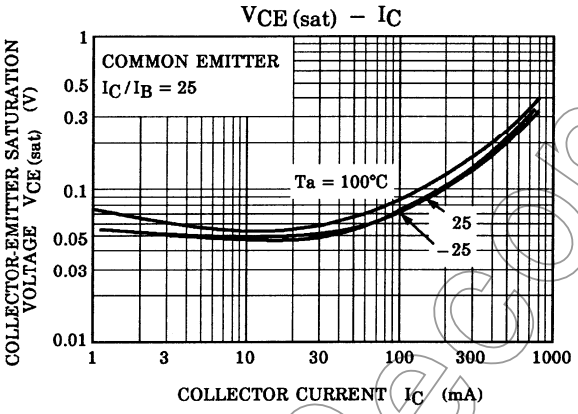
$I_C - V_{CE}$



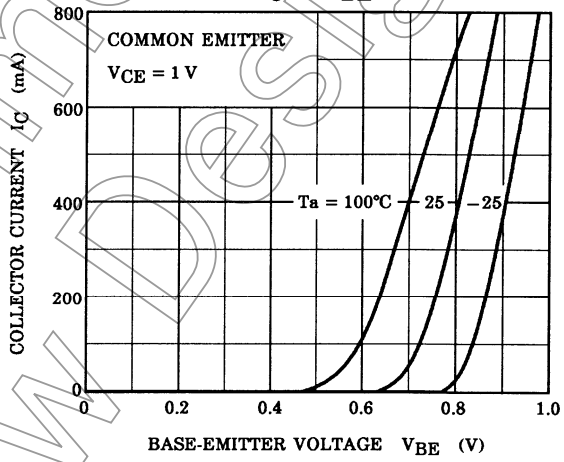
$h_{FE} - I_C$



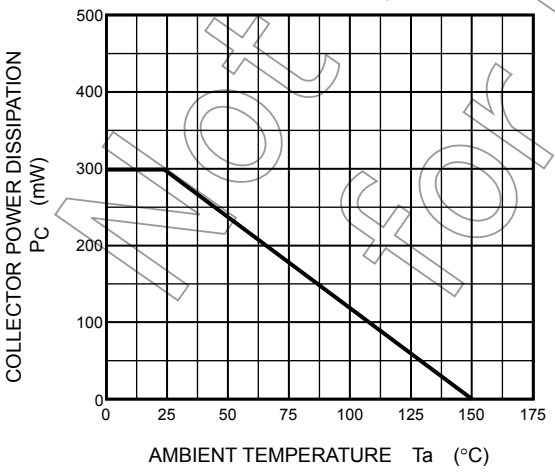
$V_{CE\,(sat)} - I_C$



$I_C - V_{BE}$



$P_{C^*} - Ta$



*: Total Rating

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