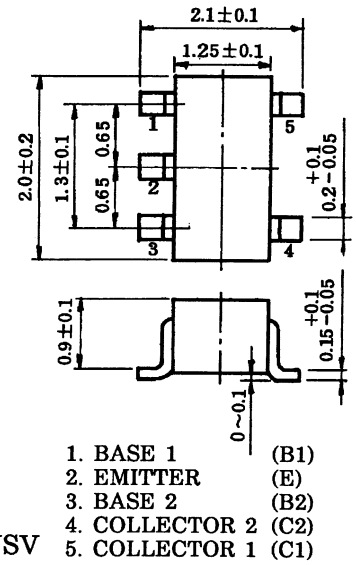
TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

2SC4944

Audio Frequency General Purpose Amplefier Applications

- Small package (dual type)
- High voltage and high current: V_{CEO} = 50 V, I_C = 150 mA (max)
- High h_{FE}: h_{FE} = 120~400
- Excellent h_{FE} linearity: h_{FE} (I_C = 0.1 mA)/h_{FE} (I_C = 2 mA) = 0.95 (typ.)
- Complementary to 2SA1873

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-2L1A

Weight: 6.2 mg (typ.)

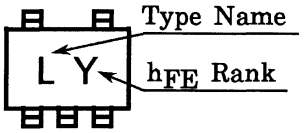
Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 common)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	150	mA
Base current	I_B	30	mA
Collector power dissipation	P_C (Note 1)	200	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

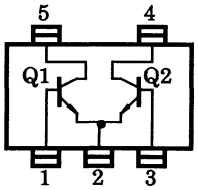
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Note 1: Total rating

Marking



Equivalent Circuit (top view)



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

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 60 V, I_E = 0	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	0.1	μA
DC current gain	h_{FE} (Note 2)	V_{CE} = 6 V, I_C = 2 mA	120	—	400	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 100 mA, I_B = 10 mA	—	0.1	0.25	V
Transition frequency	f_T	V_{CE} = 10 V, I_C = 1 mA	80	—	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	2	3.5	pF

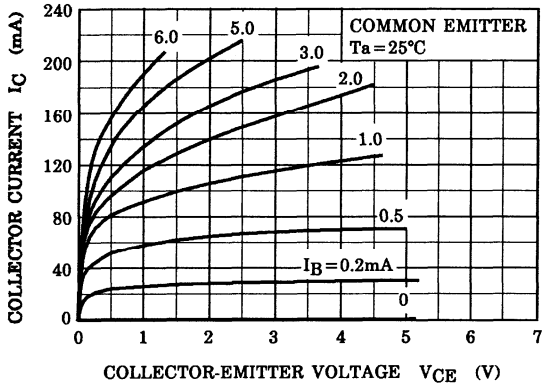
Note 2: h_{FE} classification

Y (Y): 120~240, GR (G): 200~400

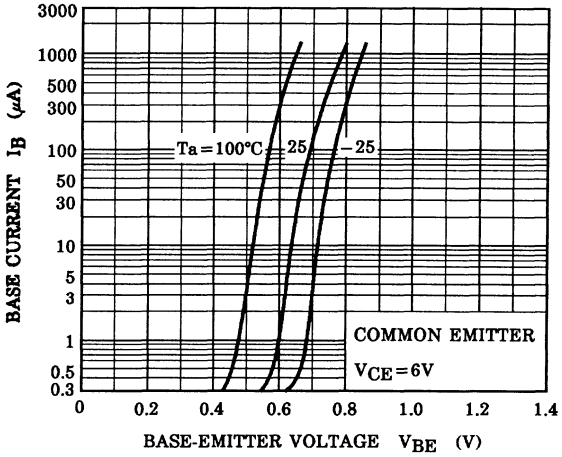
( ) Marking symbol

(Q1, Q2, common)

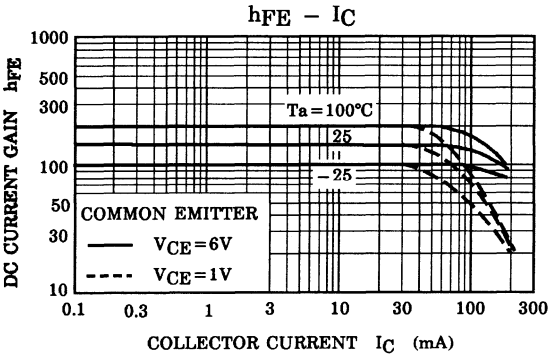
I_C – V_{CE}



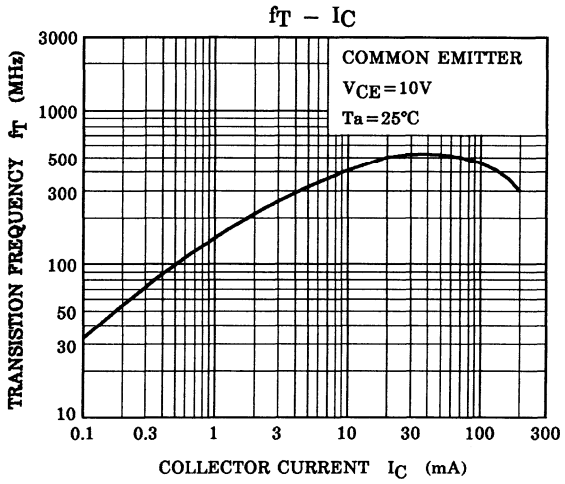
I_B – V_{BE}



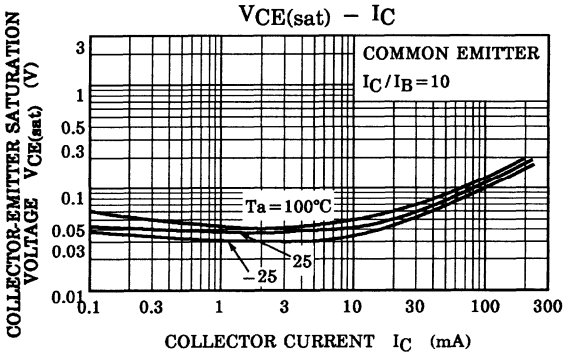
h_{FE} – I_C



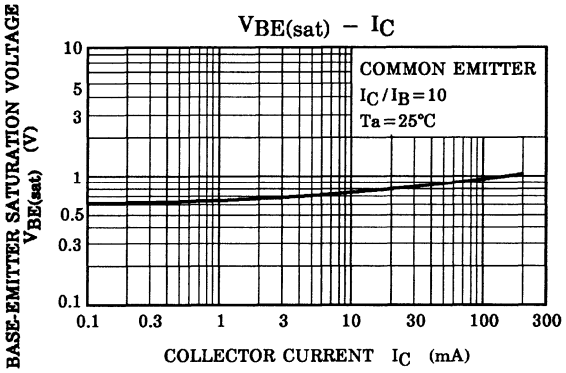
f_T – I_C



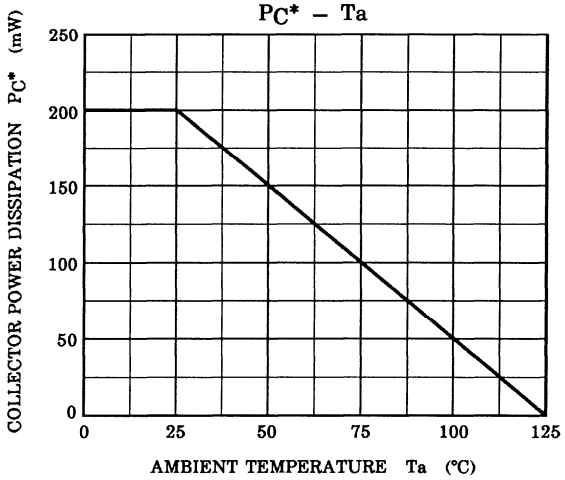
$V_{CE(sat)}$ – I_C



$V_{BE(sat)}$ – I_C



P_C* – Ta



*: Total rating

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