

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC2458(L)

Audio Amplifier Applications

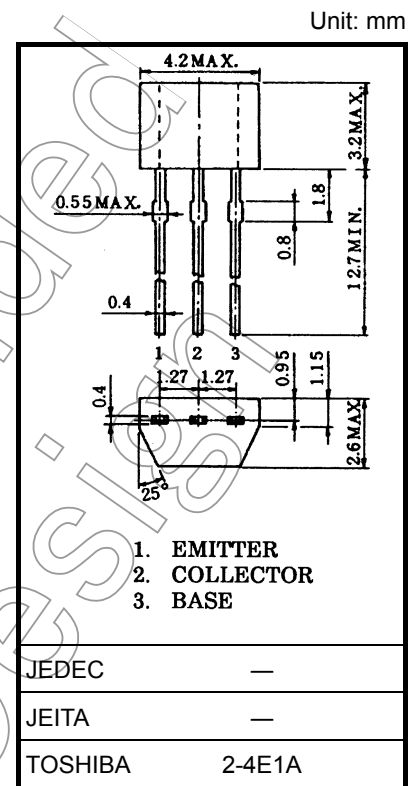
Low Noise Audio Amplifier Applications

- High current capability: $I_C = 150$ mA (max)
- High DC current gain: $h_{FE} = 70 \sim 700$
- Excellent h_{FE} linearity: $h_{FE}(I_C = 0.1 \text{ mA})/h_{FE}(I_C = 2 \text{ mA}) = 0.95$ (typ.)
- Low noise: $NF(2) = 0.2$ dB (typ.), 3 dB (max)
- Complementary to 2SA1048 (L).
- Small package.

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristics	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	150	mA
Base current	I_B	50	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-4E1A

Weight: 0.13 g (typ.)

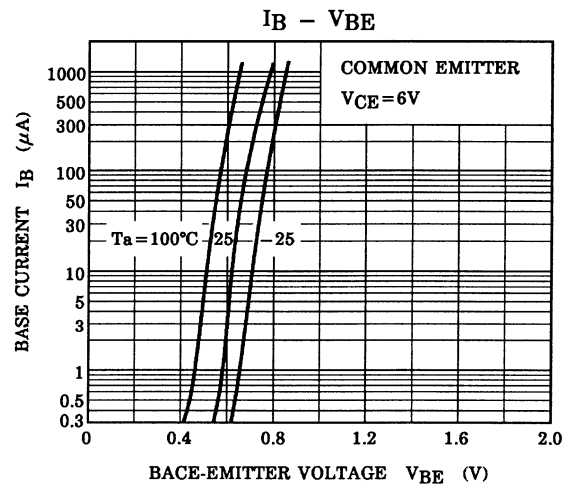
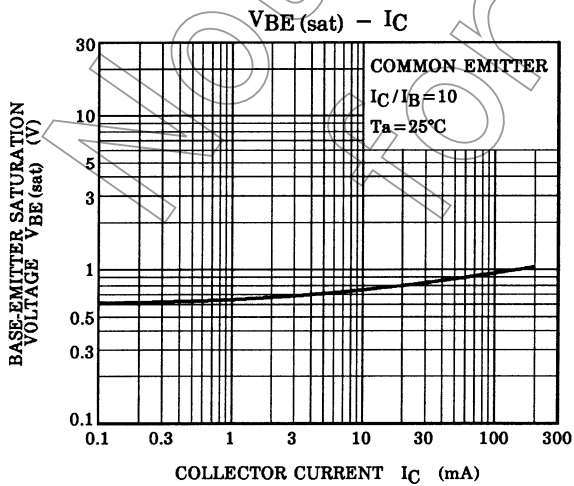
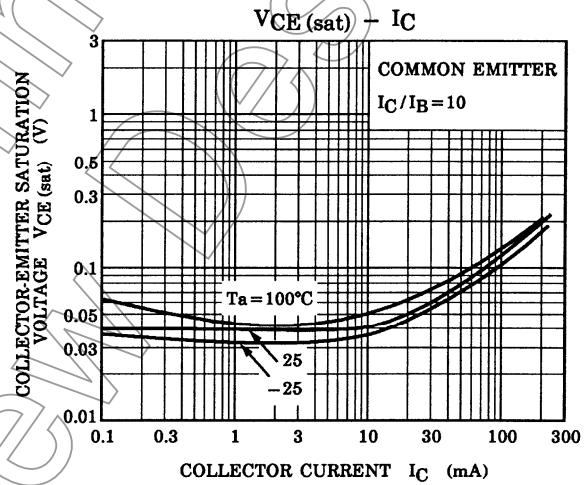
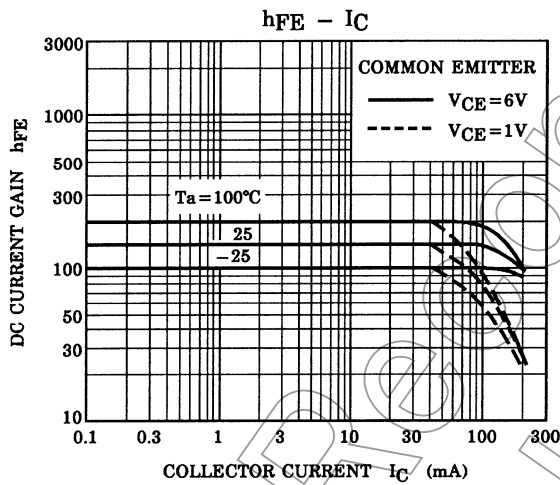
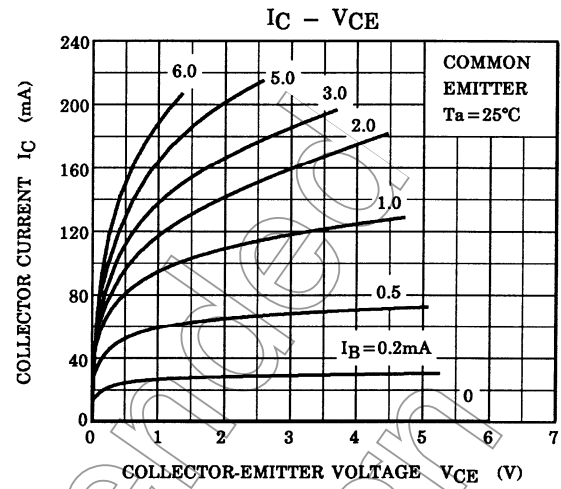
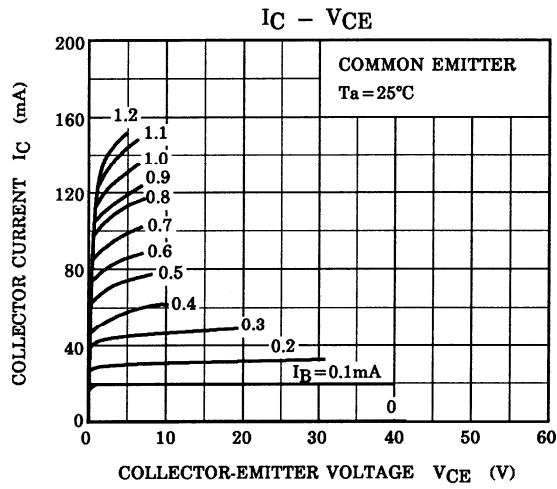
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

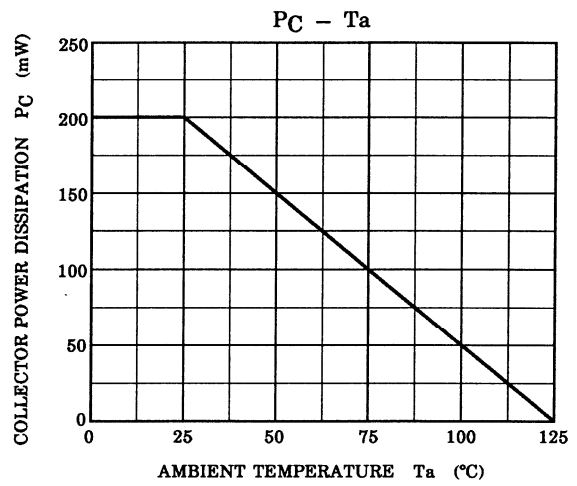
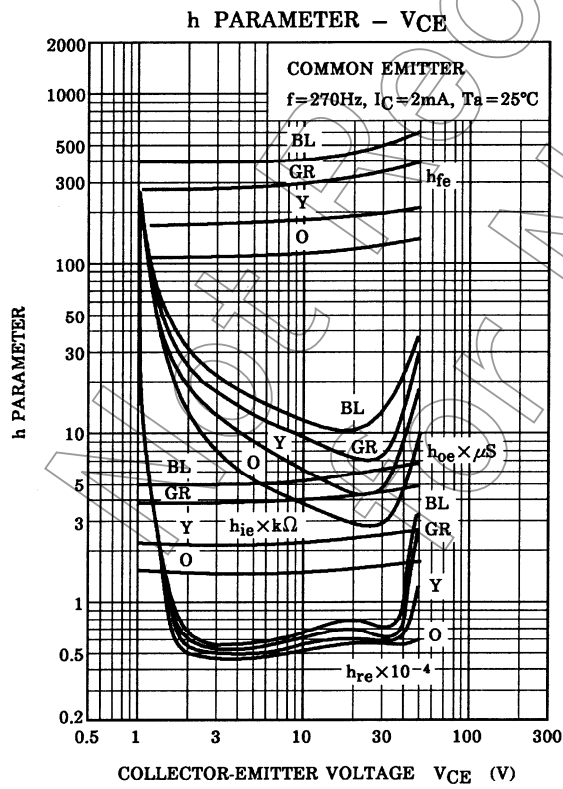
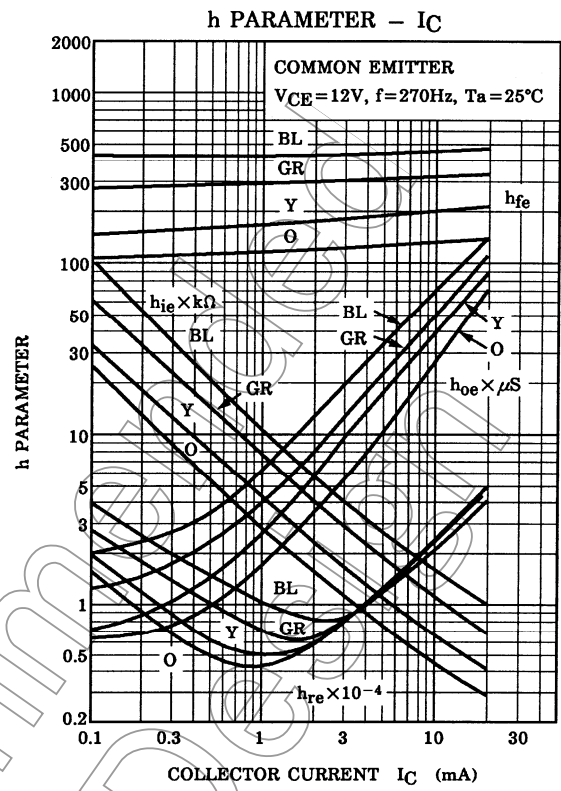
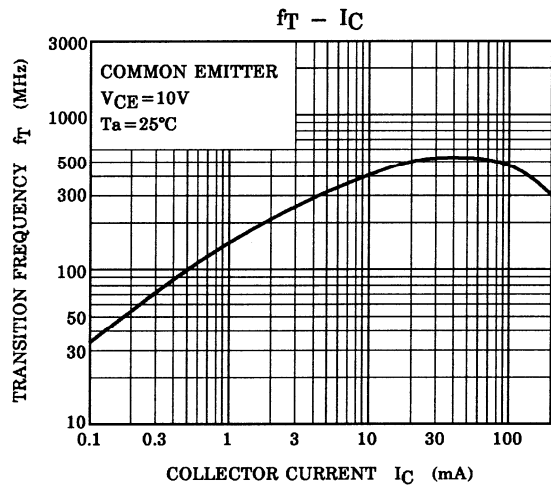
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 50 \text{ V}, I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$	—	—	0.1	μA
DC current gain	h_{FE} (Note)	$V_{CE} = 6 \text{ V}, I_C = 2 \text{ mA}$	70	—	700	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$	—	0.1	0.25	V
Transition frequency	f_T	$V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$	80	—	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	2.0	3.5	pF
Noise figure	NF (1)	$V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, f = 100 \text{ Hz}, R_G = 10 \text{ k}\Omega$	—	0.5	6	dB
	NF (2)	$V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, f = 1 \text{ kHz}, R_G = 10 \text{ k}\Omega$	—	0.2	3	

Note: h_{FE} classification O: 70~140, Y: 120~240, GR: 200~400, BL: 350~700





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