

TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC3113

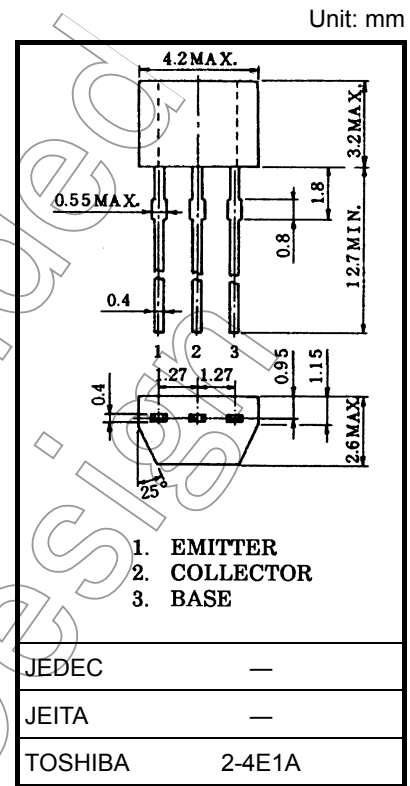
For Audio Amplifier and Switching Applications

- High DC current gain: $h_{FE} = 600\sim 3600$
- High breakdown voltage: $V_{CEO} = 50\text{ V}$
- High collector current: $I_C = 150\text{ mA (max)}$
- 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	30	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55~125	$^\circ\text{C}$

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).

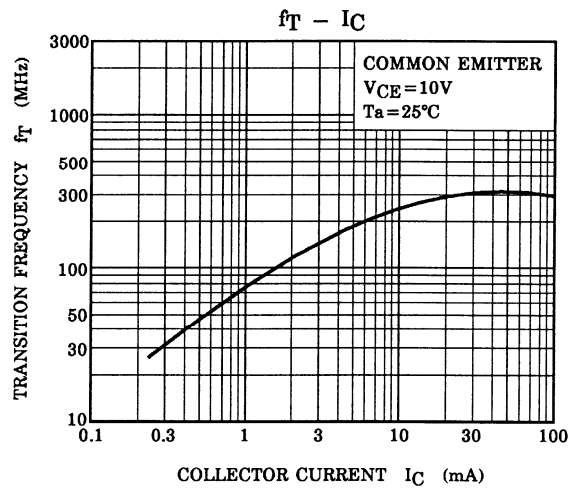
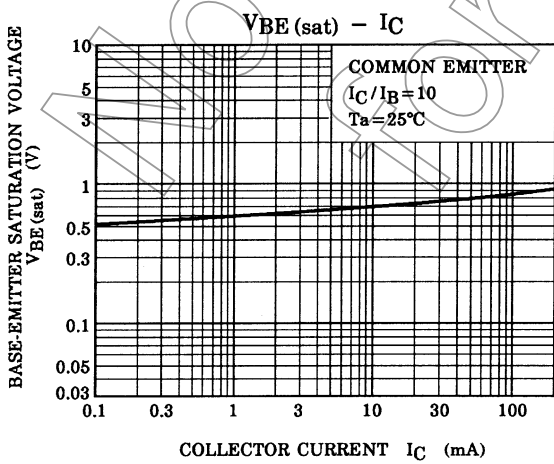
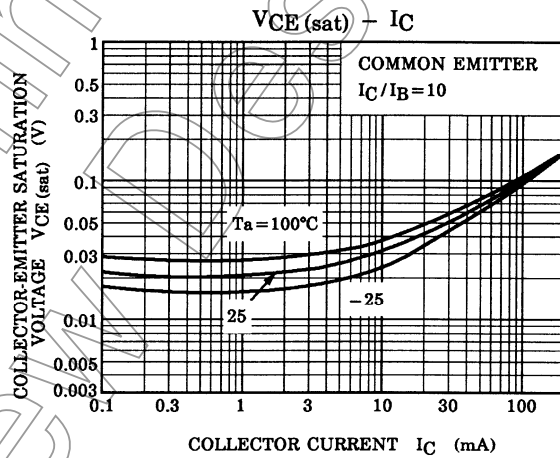
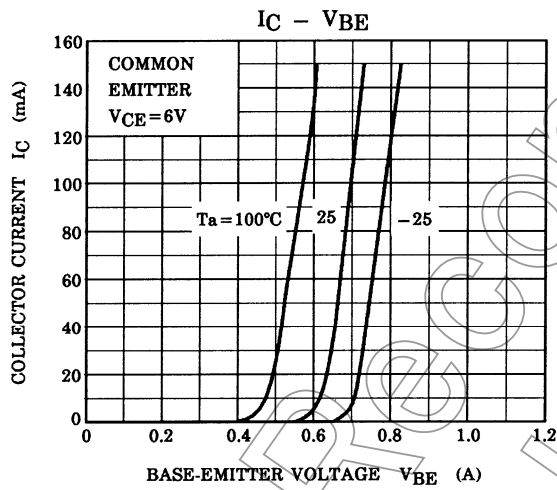
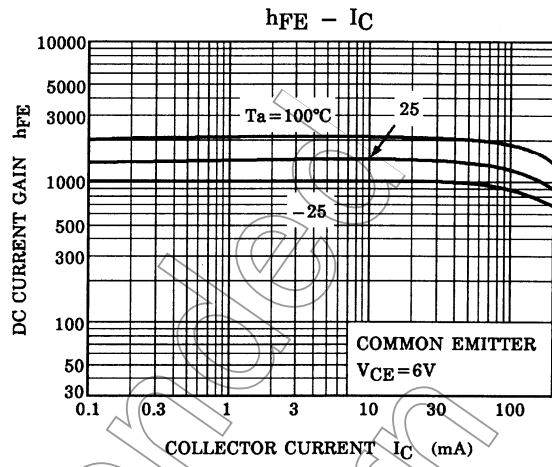
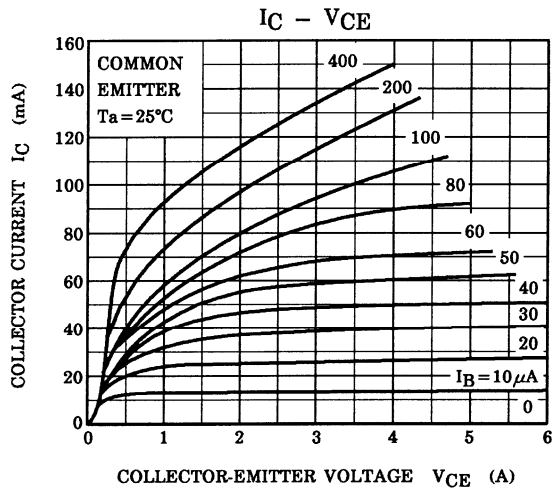


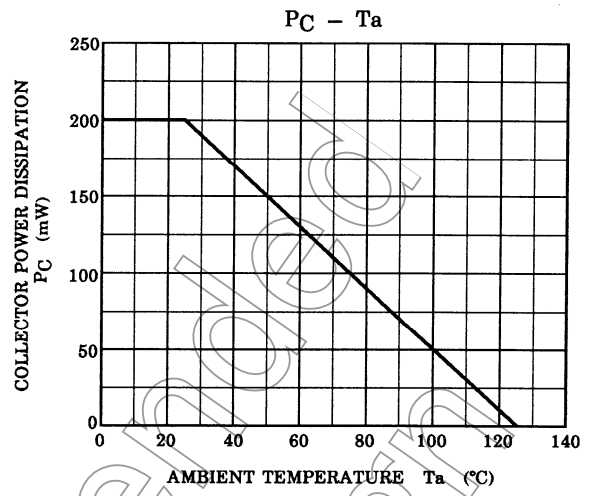
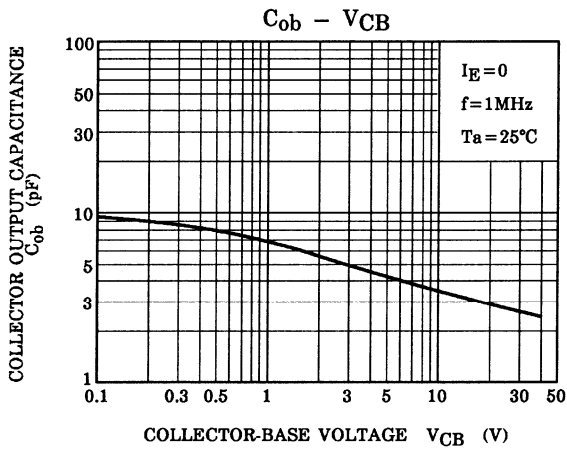
Weight: 0.13 g (typ.)

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)	$V_{CE} = 6\text{ V}, I_C = 2\text{ mA}$	600	—	3600	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100\text{ mA}, I_B = 10\text{ mA}$	—	0.12	0.25	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 10\text{ mA}$	100	250	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	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	—	dB
	NF (2)	$V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 1\text{ kHz}, R_G = 10\text{ k}\Omega$	—	0.3	—	

Note: h_{FE} classification A: 600~1800, B: 1200~3600





Not Recommended for New Designs

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