

TOSHIBA Transistor Silicon NPN Epitaxial Type

# 2SC3113

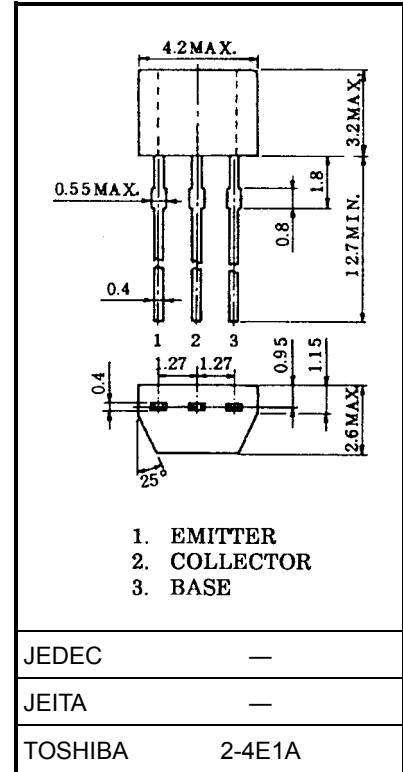
For Audio Amplifier and Switching Applications

Unit: mm

- 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

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

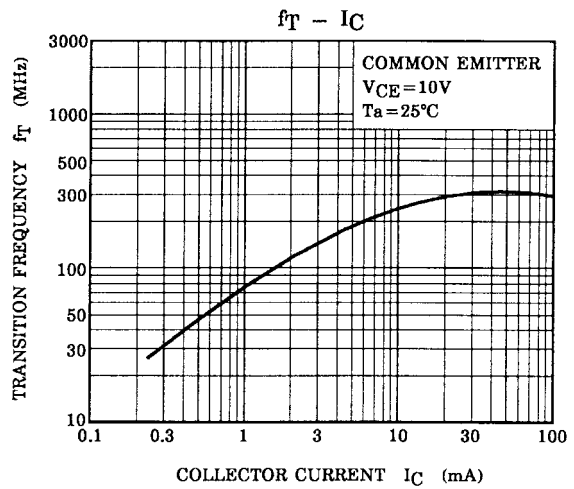
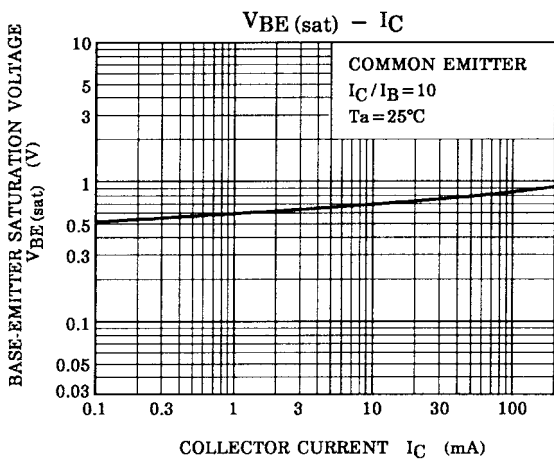
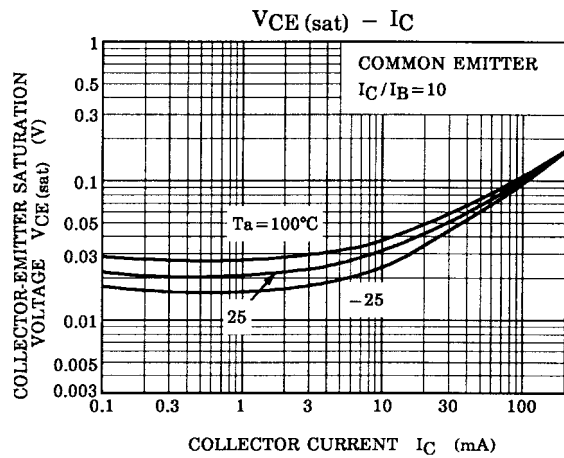
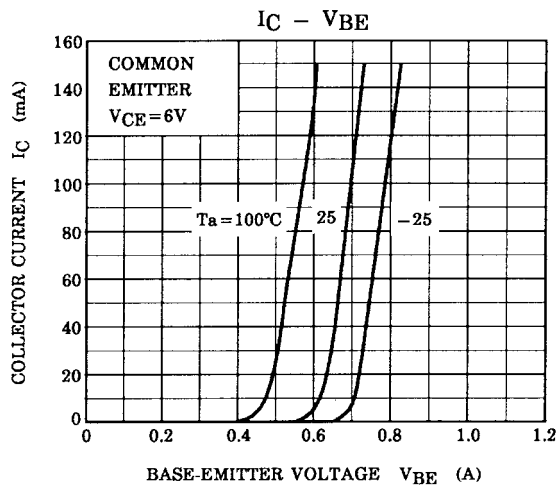
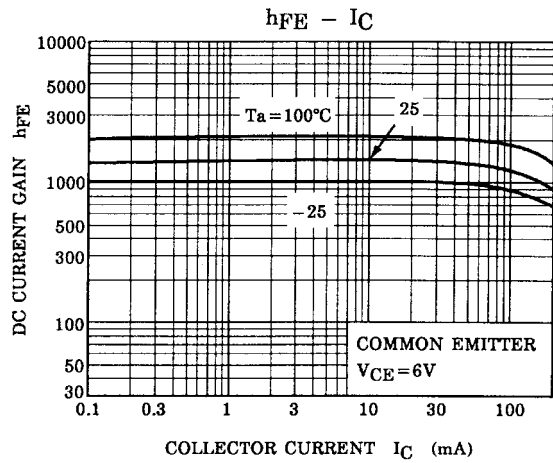
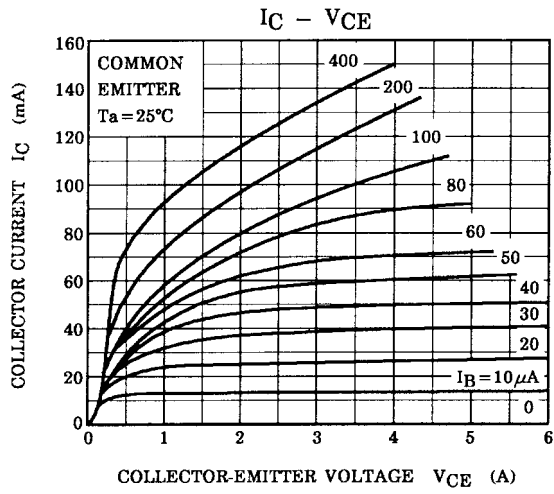
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage	$V_{CEO}$	50	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	150	mA
Base current	$I_B$	30	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$

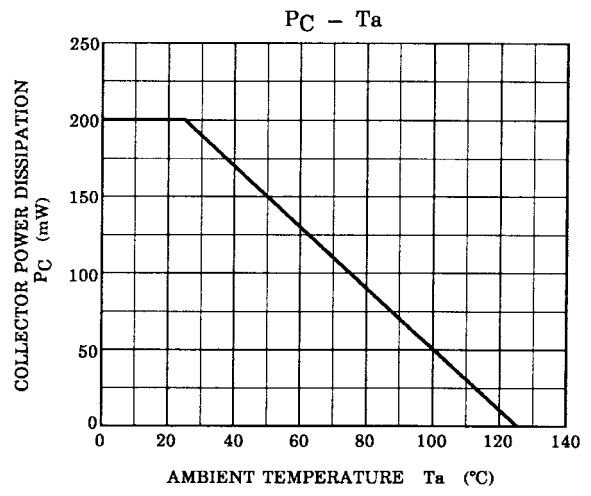
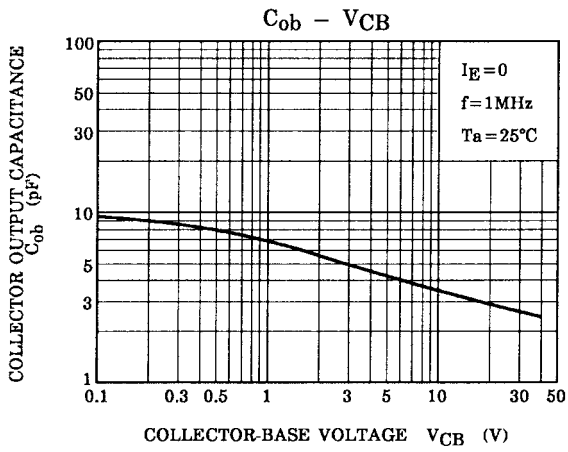


### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	0.1	$\mu\text{A}$
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





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