

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

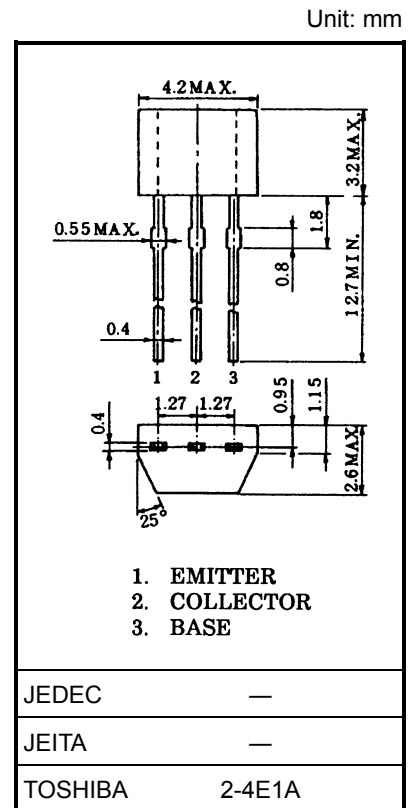
2SA1048(L)

Audio Frequency Amplifier Applications
 Low Noise Audio Frequency Applications

- Small package.
- High voltage: $V_{CEO} = -50$ V (min)
- High h_{FE} : $h_{FE} = 70\sim 400$
- 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 = 0.2dB (typ.), 3dB (max)
- Complementary to 2SC2458 (L).

Maximum Ratings (Ta = 25°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	°C
Storage temperature range	T_{stg}	-55~125	°C

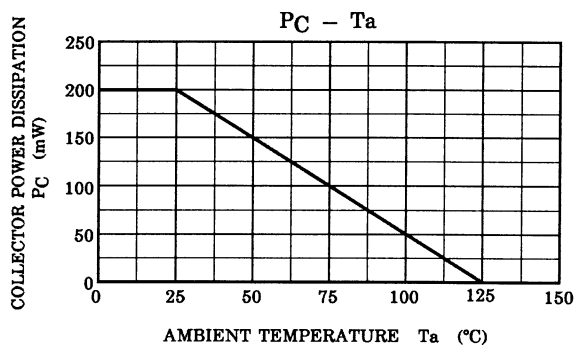
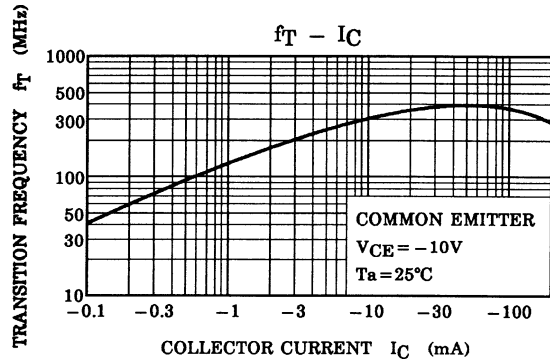
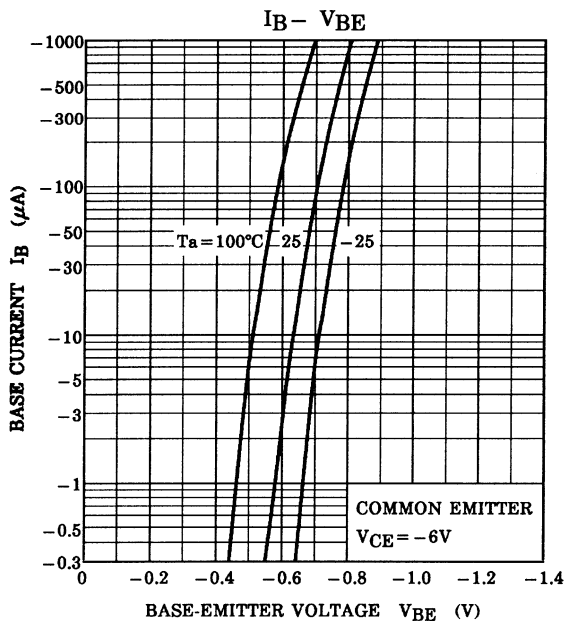
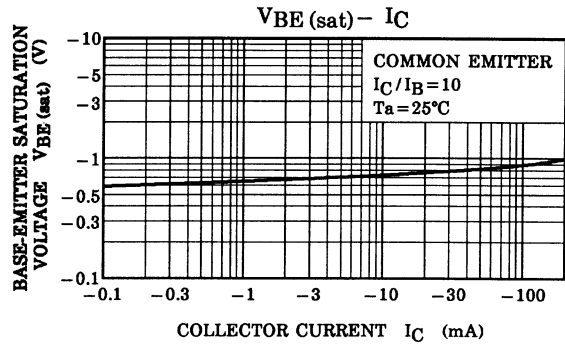
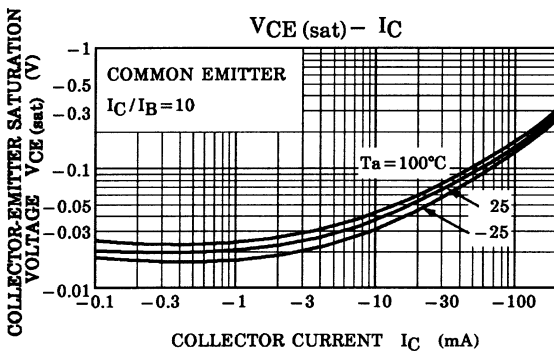
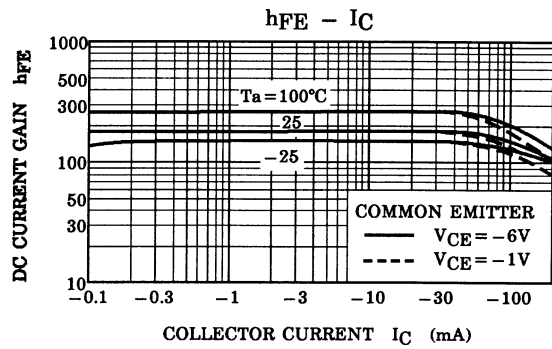
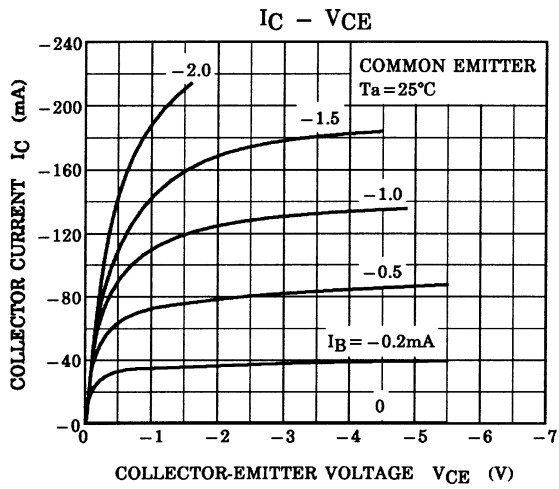


Weight: 0.13 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = -50$ V, $I_E = 0$	—	—	-0.1	μ A
Emitter cut-off current	I_{EBO}	$V_{EB} = -5$ V, $I_C = 0$	—	—	-0.1	μ A
DC current gain	h_{FE} (Note)	$V_{CE} = -6$ V, $I_C = -2$ mA	70	—	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100$ mA, $I_B = -10$ mA	—	-0.1	-0.3	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	—	4	7	pF
Noise figure	NF (1)	$V_{CE} = -6$ V, $I_C = -0.1$ mA, $f = 100$ Hz, $R_G = 10$ k Ω	—	0.5	6	dB
	NF (2)	$V_{CE} = -6$ V, $I_C = -0.1$ mA, $f = 1$ kHz, $R_G = 10$ k Ω	—	0.2	3	

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



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