

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SA1048(L)

AUDIO FREQUENCY AMPLIFIER APPLICATIONS

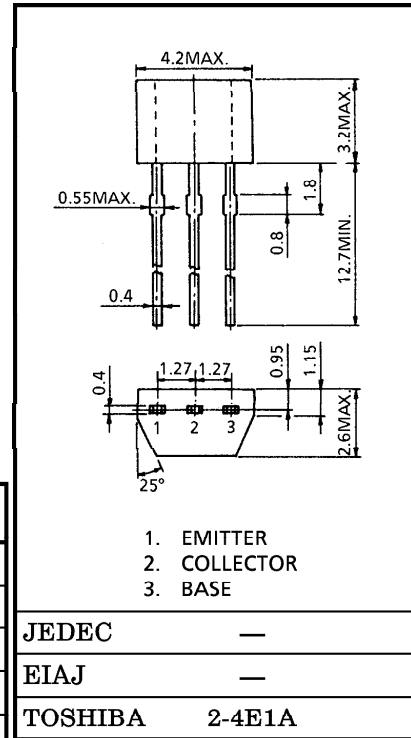
Unit in mm

LOW NOISE AUDIO FREQUENCY APPLICATIONS

- Small Package.
- High Voltage :  $V_{CEO} = -50V$  (Min.)
- High  $h_{FE}$  :  $h_{FE} = 70 \sim 400$
- Excellent  $h_{FE}$  Linearity  
:  $h_{FE}(I_C = -0.1mA) / h_{FE}(I_C = -2mA) = 0.95$  (Typ.)
- Low Noise :  $NF = 0.2dB$  (Typ.),  $3dB$  (Max.)
- Complementary to 2SC2458(L).

MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	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	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ C$



Weight : 0.13g

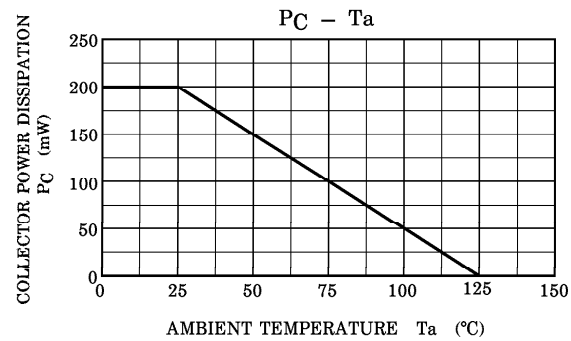
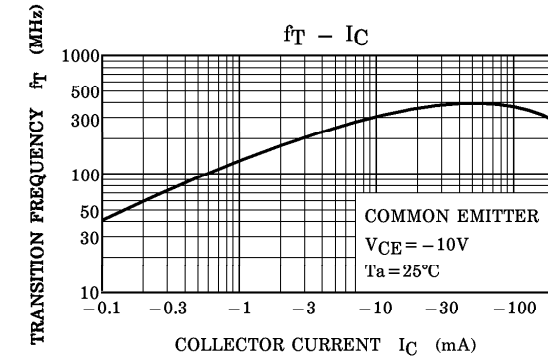
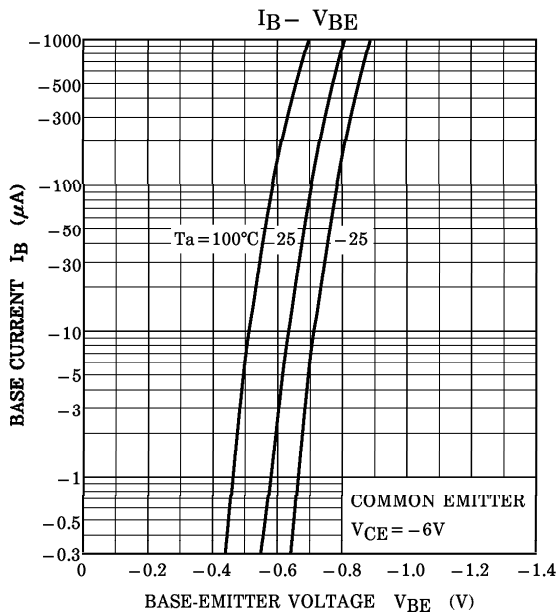
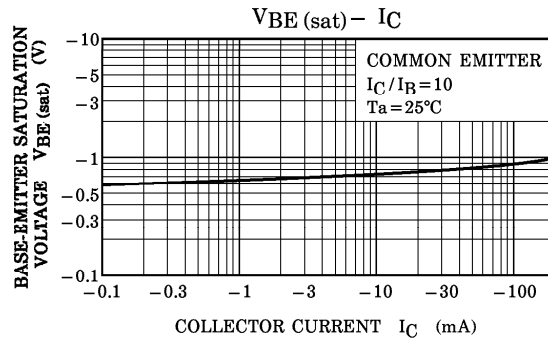
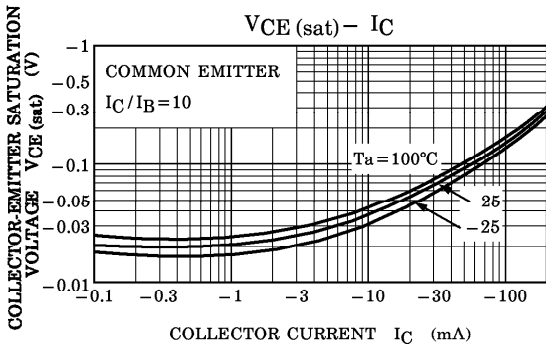
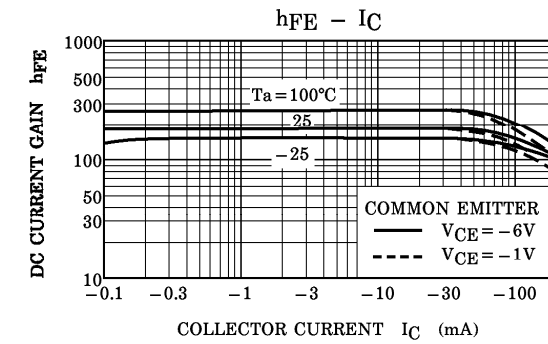
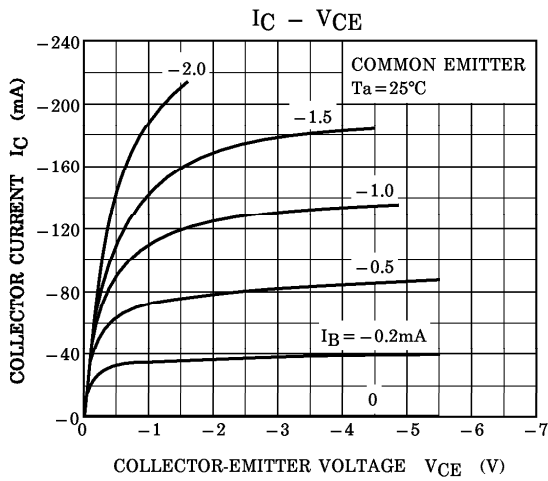
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -50V, I_E = 0$	—	—	-0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = -5V, I_C = 0$	—	—	-0.1	$\mu A$
DC Current Gain	$h_{FE}$ (Note)	$V_{CE} = -6V, I_C = -2mA$	70	—	400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100mA, I_B = -10mA$	—	-0.1	-0.3	V
Transition Frequency	$f_T$	$V_{CE} = -10V, I_C = -1mA$	80	—	—	MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	4	7	pF
Noise Figure	NF (1)	$V_{CE} = -6V, I_C = -0.1mA, f = 100Hz, R_G = 10k\Omega$	—	0.5	6	dB
	NF (2)	$V_{CE} = -6V, I_C = -0.1mA, f = 1kHz, R_G = 10k\Omega$	—	0.2	3	

Note :  $h_{FE}$  Classification 0 : 70~140, Y : 120~240, GR : 200~400

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