

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (MONOLITHIC DUAL TYPE)

# 2SA1349

LOW NOISE AUDIO AMPLIFIER APPLICATIONS

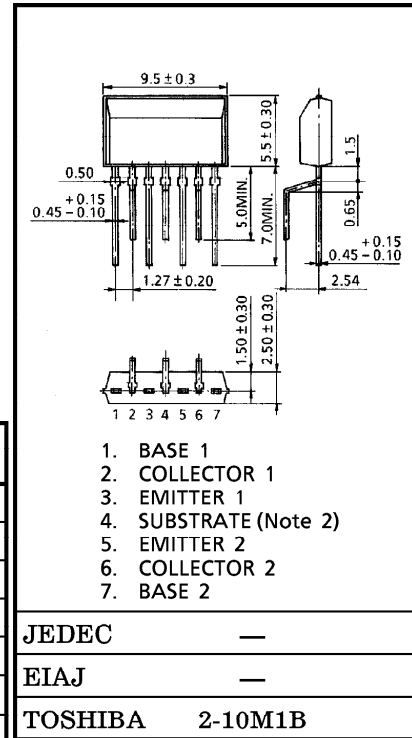
RECOMMENDED FOR CASCADE, CURRENT MIRROR CIRCUIT APPLICATIONS OF THE FIRST STAGES OF PRE, MAIN AMPLIFIERS

- 1 Chip Dual Type.
- Good Pair Characteristics.
- Low Noise :  $NF=3dB$  (Max.),  $R_g=10k\Omega$ ,  $V_{CE}=-6V$ ,  $I_C=-0.1mA$ ,  $f=1kHz$
- High Breakdown Voltage :  $V_{CEO}=-80V$  (Min.)
- Complementary to 2SC3381.

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-80	V
Collector-Emitter Voltage	$V_{CEO}$	-80	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-100	mA
Base Current	$I_B$	-20	mA
Collector Power Dissipation	$P_C$	200×2	mW
Junction Temperature	$T_j$	125	°C
Storage Temperature Range	$T_{stg}$	-55~125	°C

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-10M1B

Weight : 0.37g

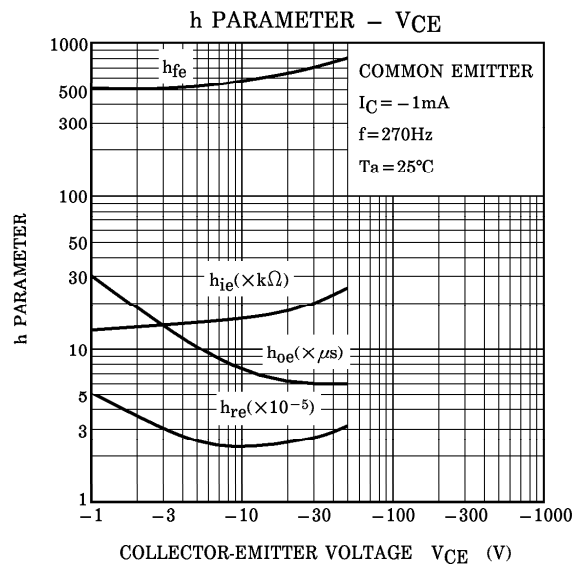
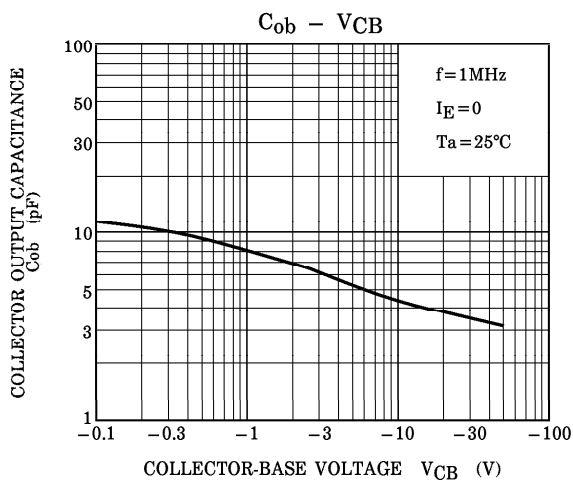
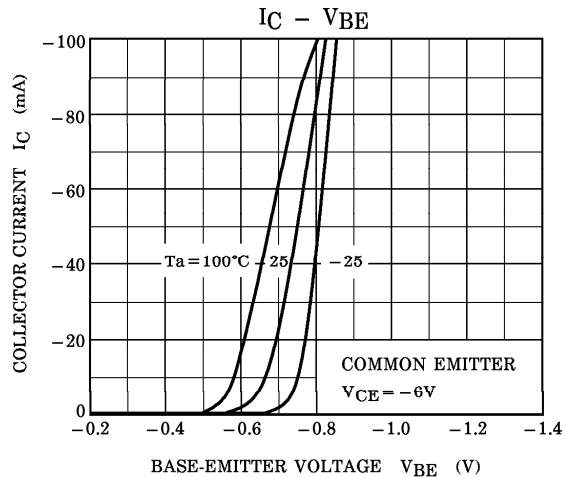
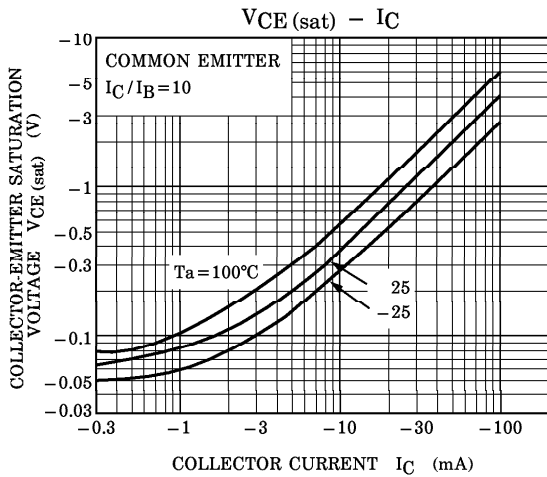
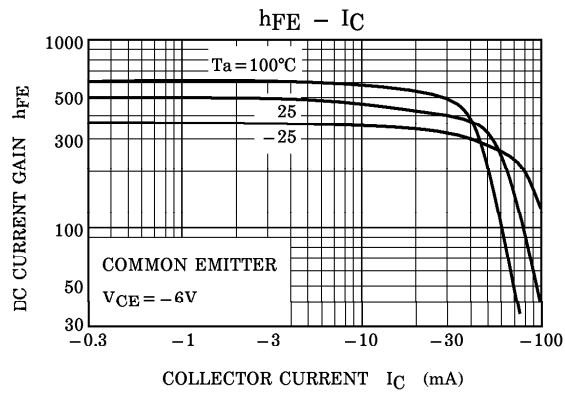
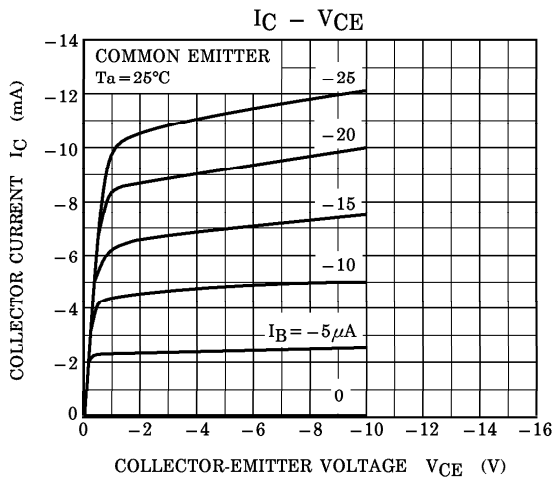
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -80V, I_E = 0$	—	—	-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 1)	$V_{CE} = -6V, I_C = -2mA$	200	—	700	
DC Current Gain Ratio	$\frac{h_{FE}(S)}{h_{FE}(L)}$	$V_{CE} = -6V, I_C = -2mA$	0.9	—	1.0	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -5mA, I_B = -0.5mA$	—	—	-0.3	V
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = -6V, I_C = -2mA$	—	-0.6	—	V
Differential Base-Emitter Voltage	$ \frac{V_{BE1} - V_{BE2}}{V_{BE1} + V_{BE2}} $	$V_{CE} = -6V, I_C = -2mA$	0	—	10	mV
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	4.2	—	pF
Noise Figure	NF	$V_{CE} = -6V, I_C = -0.1mA$ $R_G = 10k\Omega, f = 1kHz$	0	—	3	dB

Note 1 :  $h_{FE}$  Classification GR : 200~400, BL : 350~700  
2 : Use the substrate lead with open.

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