

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

2SA1202

Power Amplifier Applications  
Voltage Amplifier Applications

- Suitable for driver of 30 to 35 watts audio amplifier
- Small flat package
- $P_C = 1.0$  to  $2.0$  W (mounted on a ceramic substrate)
- Complementary to 2SC2882

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

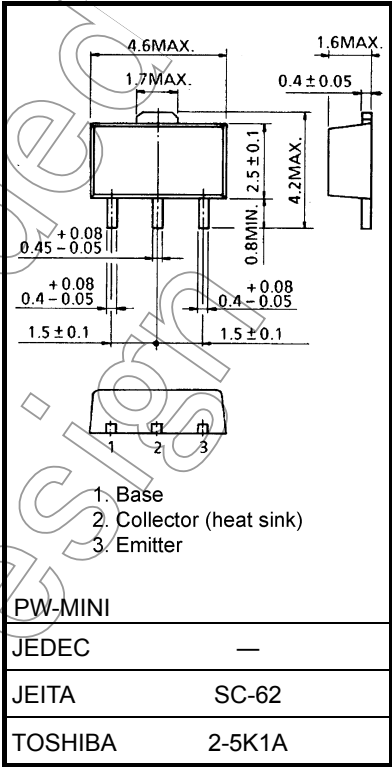
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-80	V
Collector-emitter voltage	$V_{CEO}$	-80	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-400	mA
Base current	$I_B$	-80	mA
Collector power dissipation	$P_C$	500	mW
	$P_C$ (Note 1)	1000	
Junction temperature	$T_j$	150	$^{\circ}\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^{\circ}\text{C}$

Note 1: Mounted on a ceramic substrate ( $250\text{ mm}^2 \times 0.8\text{ t}$ )

Note 2: 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).

Unit: mm



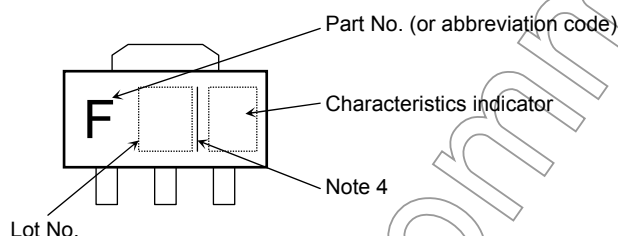
Weight: 0.05 g (typ.)

## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -80\text{ V}, I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-0.1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-80	—	—	V
DC current gain	$h_{FE(1)}$ (Note 3)	$I_E = -2\text{ mA}, I_C = -50\text{ mA}$	70	—	240	
	$h_{FE(2)}$	$V_{CE} = -2\text{ V}, I_C = -200\text{ mA}$	40	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -200\text{ mA}, I_B = -20\text{ mA}$	—	—	-0.4	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -2\text{ V}, I_C = -5\text{ mA}$	-0.55	—	-0.8	V
Transition frequency	$f_T$	$V_{CE} = -10\text{ V}, I_C = -10\text{ mA}$	—	120	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	14	—	pF

Note 3:  $h_{FE(1)}$  classification O: 70 to 140, Y: 120 to 240

## Marking

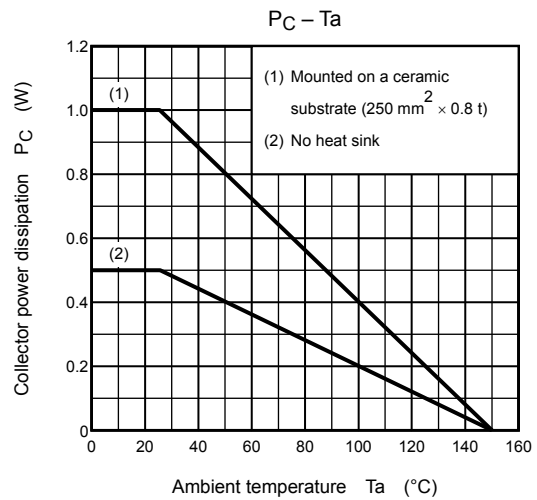
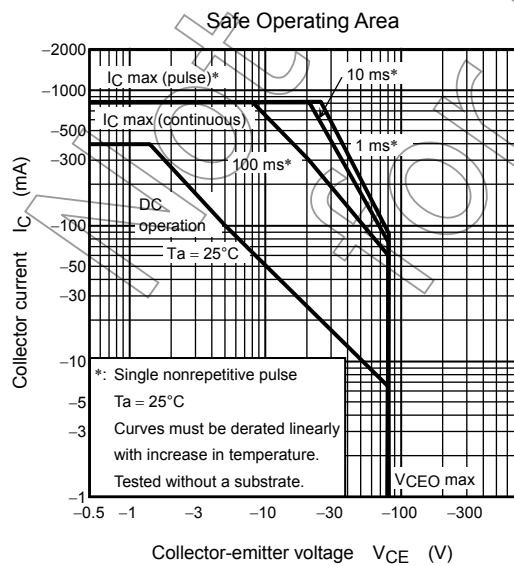
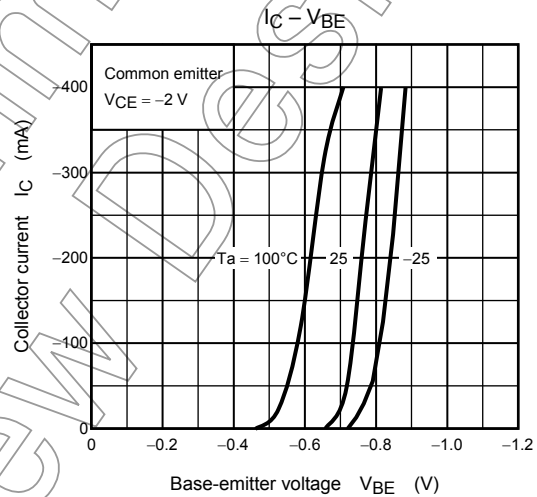
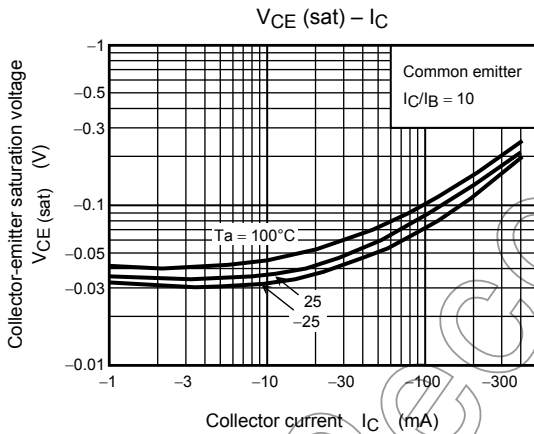
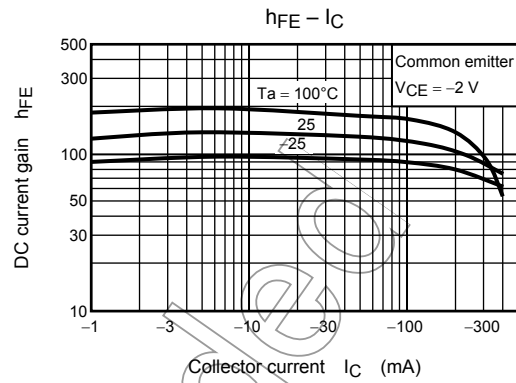
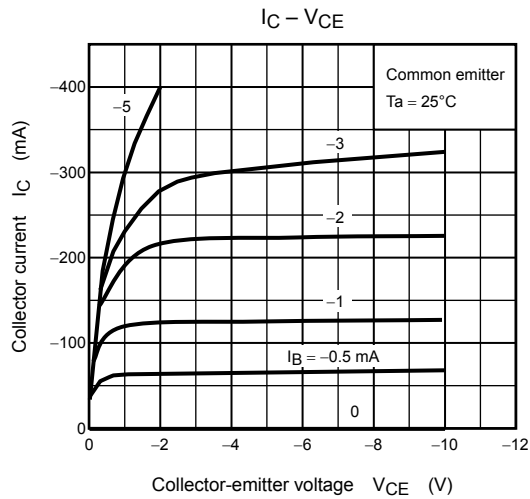


Note 4: A line beside a Lot No. identifies the indication of product Labels.

Without a line:  $[[Pb]]/INCLUDES > MCV$

With a line:  $[[G]]/RoHS COMPATIBLE$  or  $[[G]]/RoHS [[Pb]]$

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



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