

TOSHIBA Transistor Silicon PNP Epitaxial Type

# 2SA2206

Power Amplifier Applications  
 Power Switching Applications

Low collector emitter saturation voltage  
 :  $V_{CE(sat)} = -0.5 \text{ V (max) (IC} = -1\text{A)}$   
 High-speed switching:  $t_{stg} = 300 \text{ ns (typ.)}$   
 Complementary to 2SC6124

### Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	VCBO	-80	V
Collector-emitter voltage	VCEO	-80	V
Emitter-base voltage	VEBO	-7	V
Collector current (Note 1)	DC	IC	-2 A
	Pulse	ICP	-4 A
Base current	IB	-0.5	A
Collector power dissipation (Note 2)	t = 10 s	PC	2.5 W
	DC	PC	1 W
Junction temperature	Tj	150	°C
Storage temperature range	Tstg	-55 to 150	°C

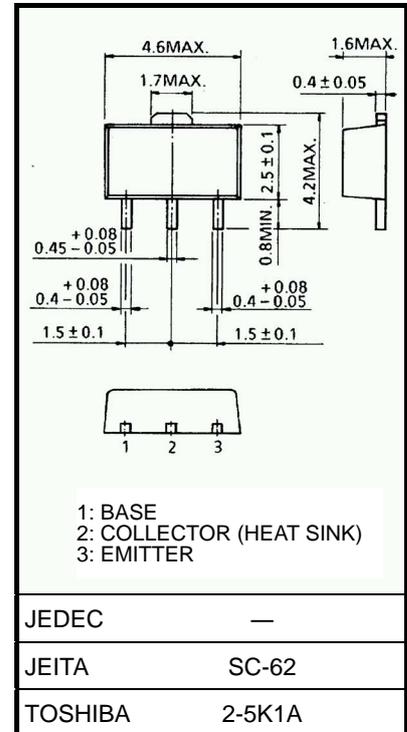
Note 1: Ensure that the junction temperature does not exceed 150°C during use of the device.

Note 2: Mounted on an FR4 board (glass-epoxy; 1.6 mm thick; Cu area, 645 mm<sup>2</sup>)

Note : 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



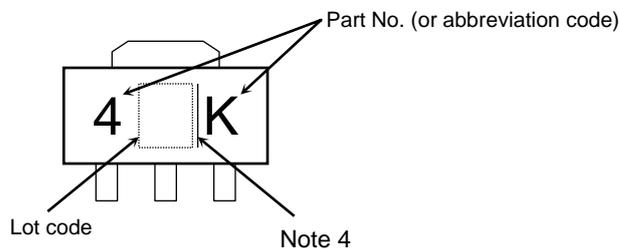
Weight: 0.05 g (typ.)

Start of commercial production  
 2007-03

## Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Conditions	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	V <sub>CB</sub> = -80 V, I <sub>E</sub> = 0 A	—	—	-100	nA
Emitter cut-off current		I <sub>EBO</sub>	V <sub>EB</sub> = -7 V, I <sub>C</sub> = 0 A	—	—	-100	nA
Collector-emitter breakdown voltage		V (BR) CEO	I <sub>C</sub> = -10 mA, I <sub>B</sub> = 0 A	-80	—	—	V
DC current gain	h <sub>FE</sub> (1)		V <sub>CE</sub> = -2 V, I <sub>C</sub> = -1 mA	80	—	—	
	h <sub>FE</sub> (2)		V <sub>CE</sub> = -2 V, I <sub>C</sub> = -0.5 A	100	—	200	
	h <sub>FE</sub> (3)		V <sub>CE</sub> = -2 V, I <sub>C</sub> = -1 A	60	—	—	
Collector emitter saturation voltage	V <sub>CE</sub> (sat) (1)		I <sub>C</sub> = -0.5 A, I <sub>B</sub> = -50 mA	—	—	-0.3	V
	V <sub>CE</sub> (sat) (2)		I <sub>C</sub> = -1 A, I <sub>B</sub> = -100 mA	—	—	-0.5	V
Base-emitter saturation voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = -1 A, I <sub>B</sub> = -100 mA	—	—	-1.5	V
Collector output capacitance		C <sub>ob</sub>	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0 A, f = 1MHz	—	25	—	pF
Transition frequency		f <sub>T</sub>	V <sub>CE</sub> = -2 V, I <sub>C</sub> = -500 mA	—	100	—	MHz
Switching time	Rise time	t <sub>r</sub>	<p>20 μs Input Output 24Ω V<sub>CC</sub> ≈ -24 V Duty cycle ≤ 1%</p>	—	30	—	ns
	Storage time	t <sub>stg</sub>		—	300	—	
	Fall time	t <sub>f</sub>		—	40	—	

## Marking

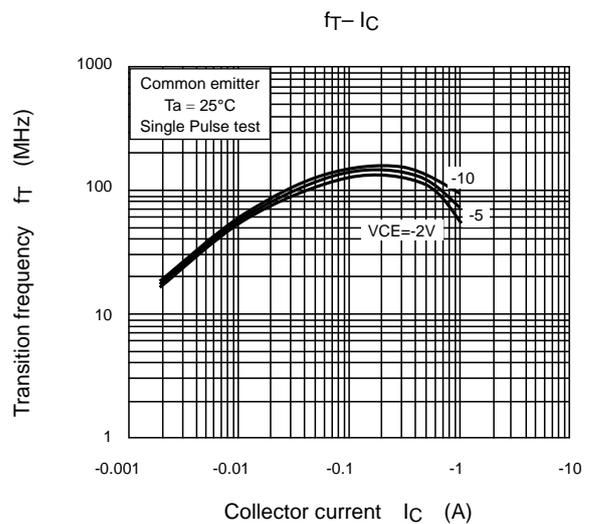
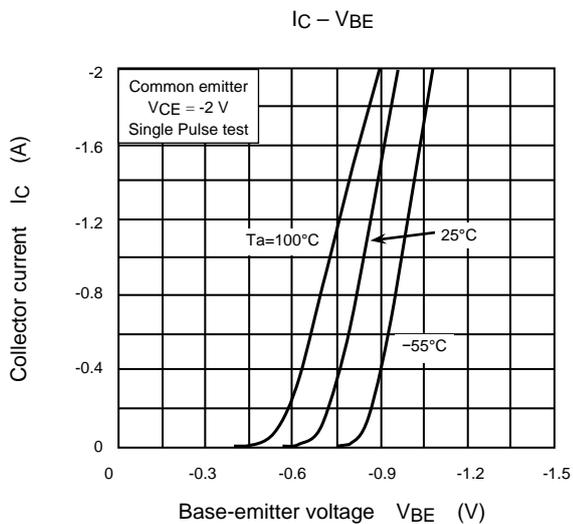
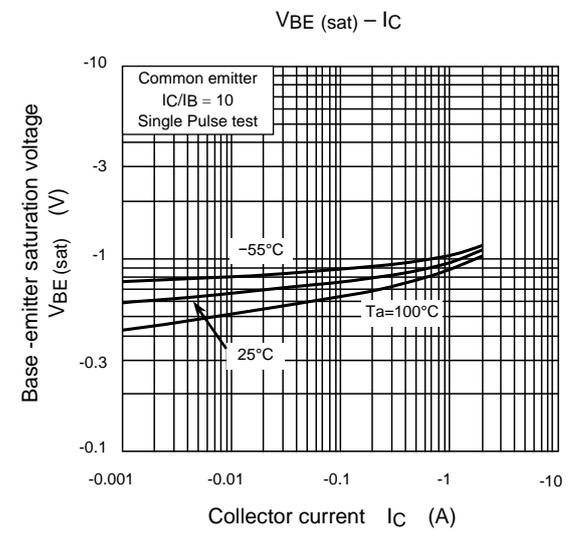
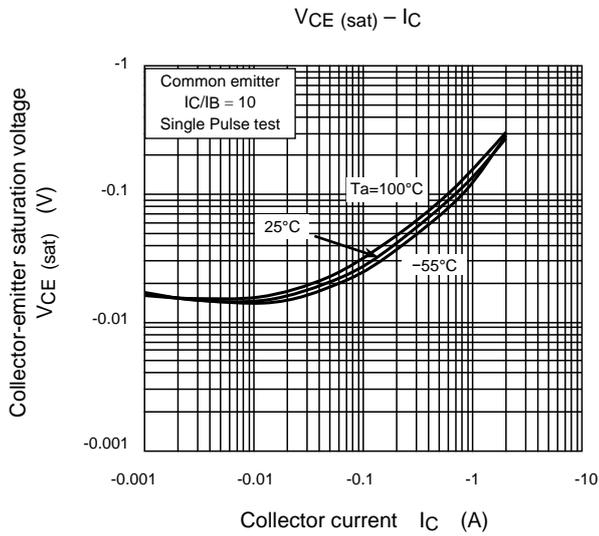
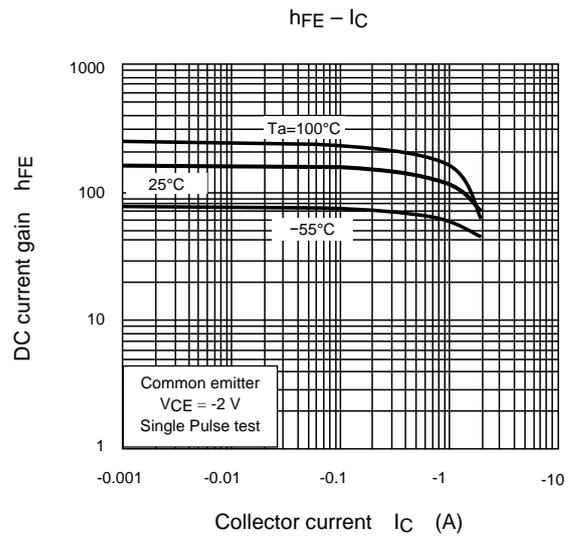
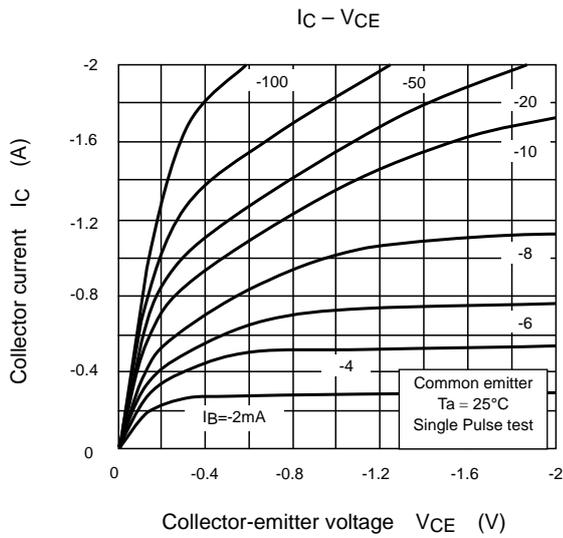


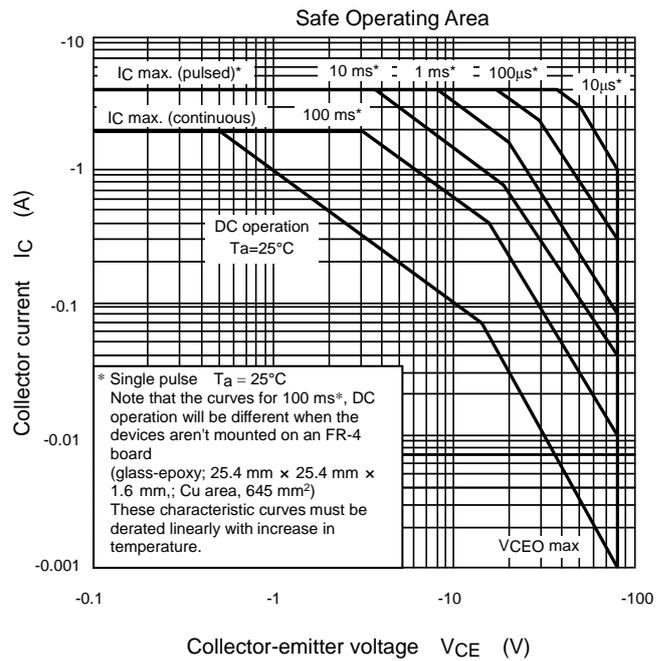
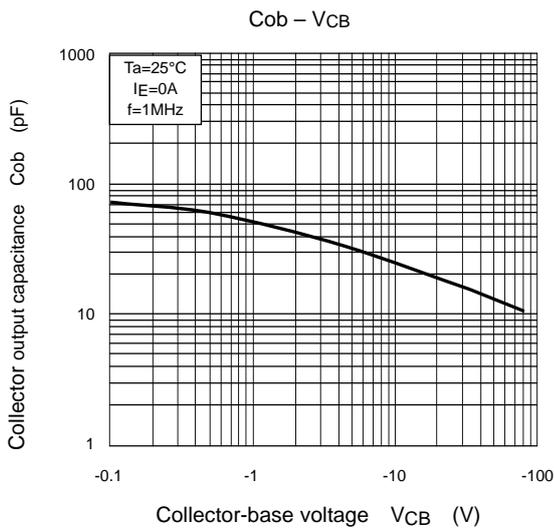
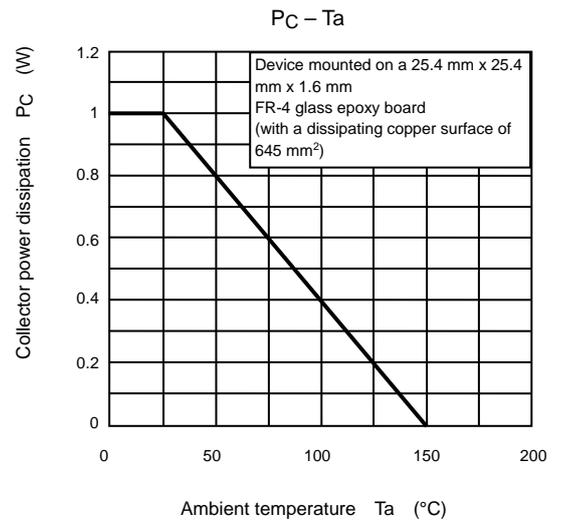
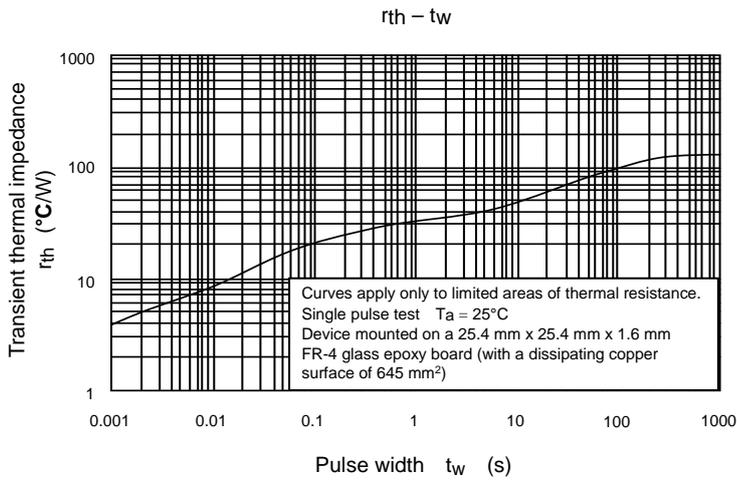
Note 4: A line beside a Lot No. identifies the indication of product Labels.

[[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 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





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