

TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA2206

Power Amplifier Applications

Power Switching Applications

Low collector emitter saturation voltage

$$: V_{CE}(\text{sat}) = -0.5 \text{ V (max)} (I_C = -1\text{A})$$

High-speed switching: $t_{\text{stg}} = 300 \text{ ns}$ (typ.)

Complementary to 2SC6124

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	-80	V
Collector-emitter voltage		V_{CEO}	-80	V
Emitter-base voltage		V_{EBO}	-7	V
Collector current (Note 1)	DC	I_C	-2	A
	Pulse	I_{CP}	-4	A
Base current		I_B	-0.5	A
Collector power dissipation (Note 2)	$t = 10\text{ s}$	P_C	2.5	W
	DC	P_C	1	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to 150	$^{\circ}\text{C}$

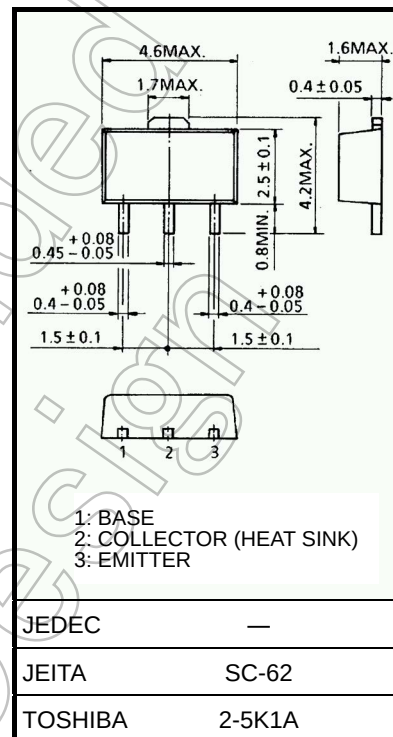
Note 1: Ensure that the junction temperature does not exceed 150°C during use of the device.

Note 2: Mounted on an FR4 board (glass-epoxy; 1.6 mm thick; Cu area, 645 mm²)

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).

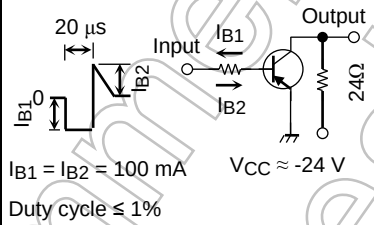
Unit: mm



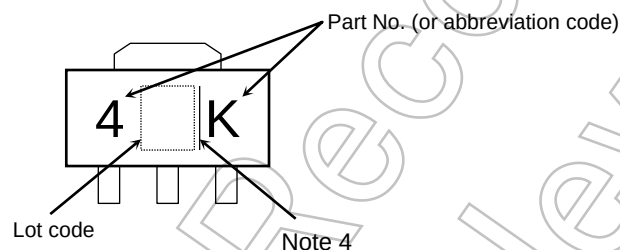
Weight: 0.05 g (typ.)

Start of commercial production
2007-03

Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Conditions	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = -80\text{ V}$, $I_E = 0\text{ A}$	—	—	-100	nA
Emitter cut-off current		I_{EBO}	$V_{EB} = -7\text{ V}$, $I_C = 0\text{ A}$	—	—	-100	nA
Collector-emitter breakdown voltage		$V_{(BR) CEO}$	$I_C = -10\text{ mA}$, $I_B = 0\text{ A}$	-80	—	—	V
DC current gain	$h_{FE} (1)$		$V_{CE} = -2\text{ V}$, $I_C = -1\text{ mA}$	80	—	—	
	$h_{FE} (2)$		$V_{CE} = -2\text{ V}$, $I_C = -0.5\text{ A}$	100	—	200	
	$h_{FE} (3)$		$V_{CE} = -2\text{ V}$, $I_C = -1\text{ A}$	60	—	—	
Collector emitter saturation voltage	$V_{CE (sat)} (1)$		$I_C = -0.5\text{ A}$, $I_B = -50\text{ mA}$	—	—	-0.3	V
	$V_{CE (sat)} (2)$		$I_C = -1\text{ A}$, $I_B = -100\text{ mA}$	—	—	-0.5	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = -1\text{ A}$, $I_B = -100\text{ mA}$	—	—	-1.5	V
Collector output capacitance		C_{ob}	$V_{CB} = -10\text{ V}$, $I_E = 0\text{ A}$, $f = 1\text{ MHz}$	—	25	—	pF
Transition frequency		f_T	$V_{CE} = -2\text{ V}$, $I_C = -500\text{ mA}$	—	100	—	MHz
Switching time	Rise time	t_r		—	30	—	ns
	Storage time	t_{stg}		—	300	—	
	Fall time	t_f		—	40	—	

Marking



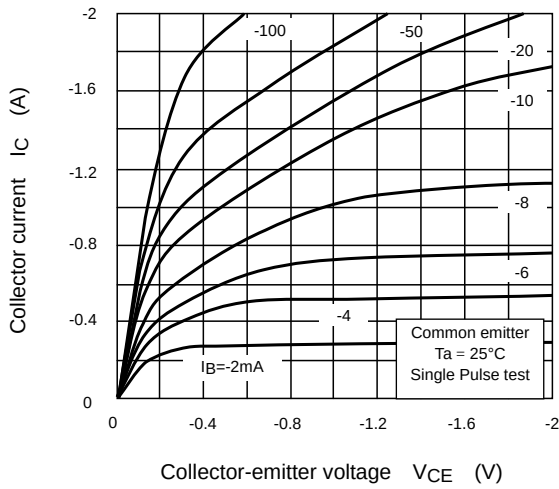
Note 4: A line beside a Lot No. identifies the indication of product Labels.

[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

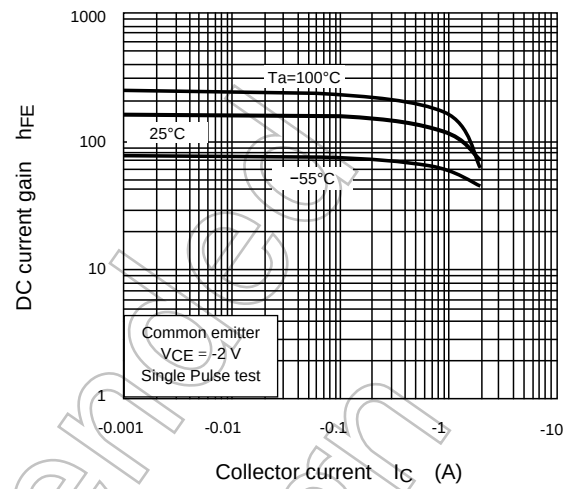
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

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.

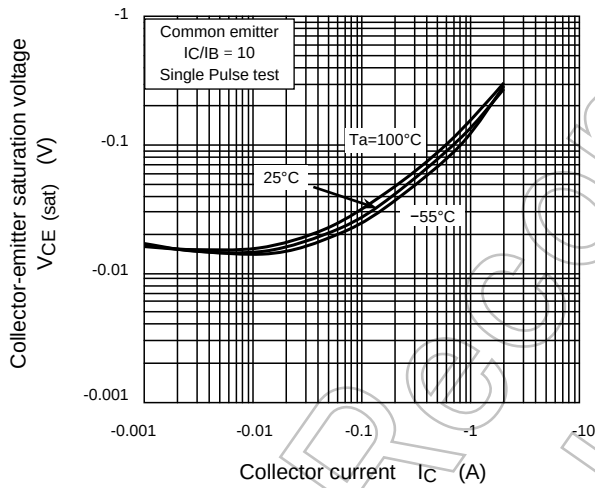
$I_C - V_{CE}$



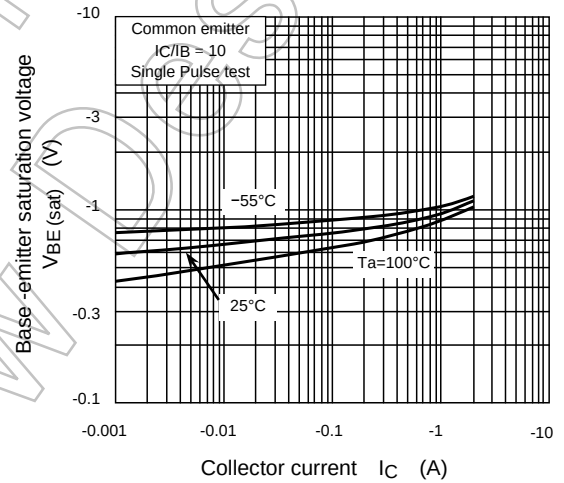
$h_{FE} - I_C$



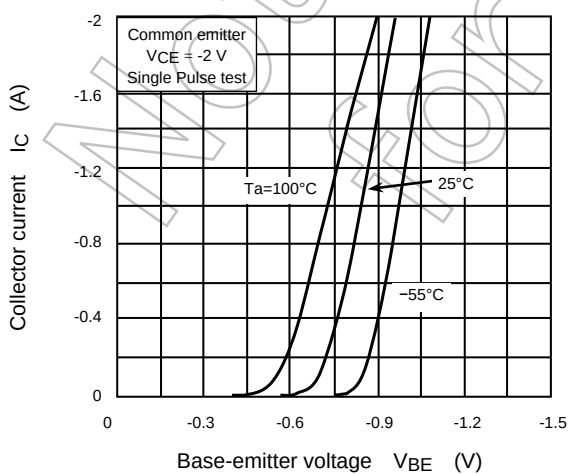
$V_{CE(sat)} - I_C$



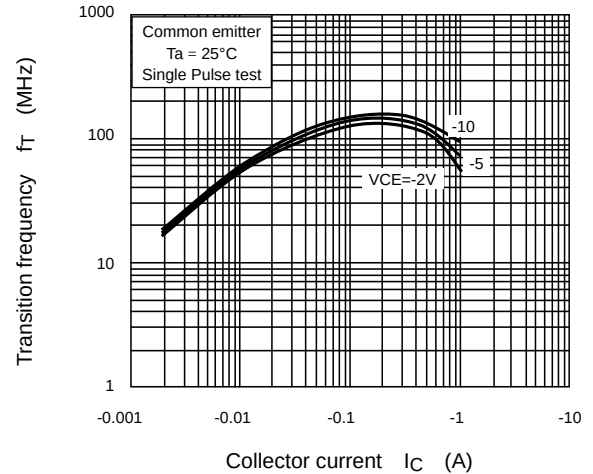
$V_{BE(sat)} - I_C$

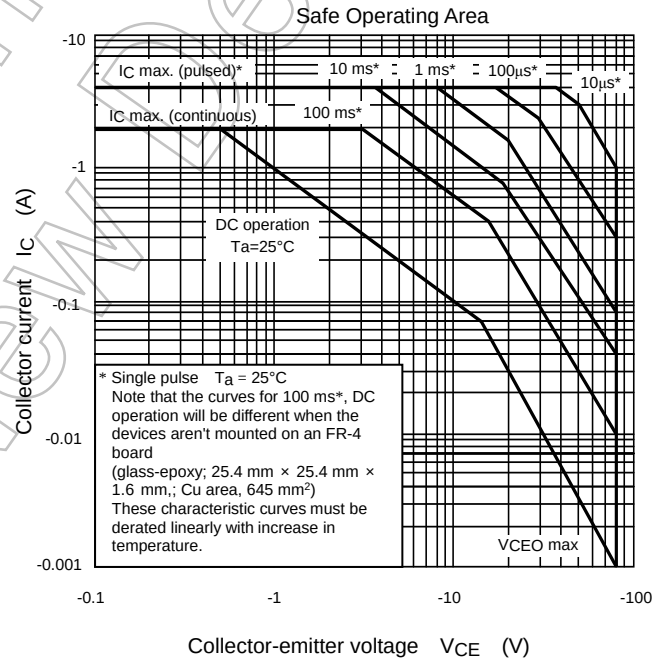
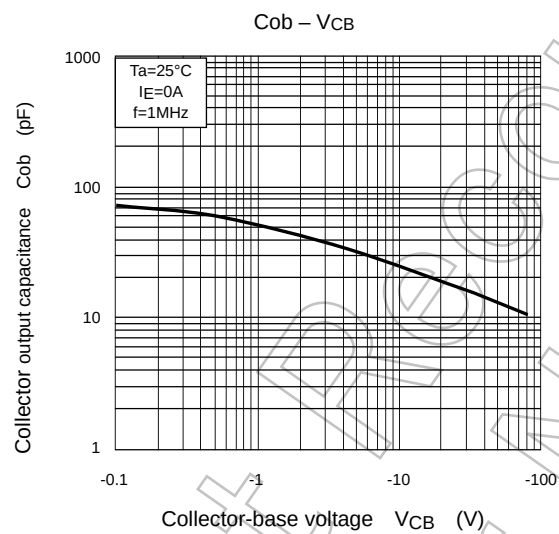
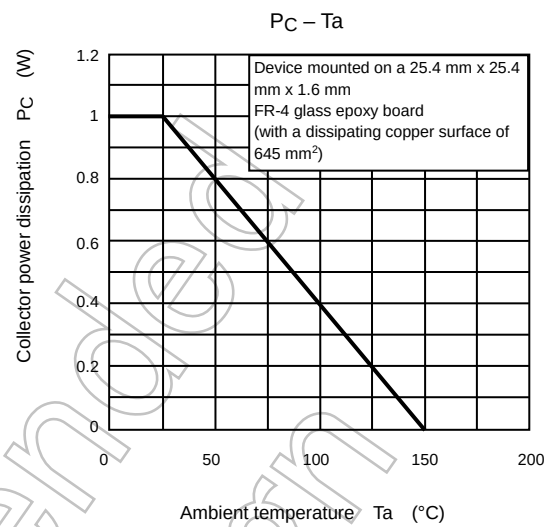
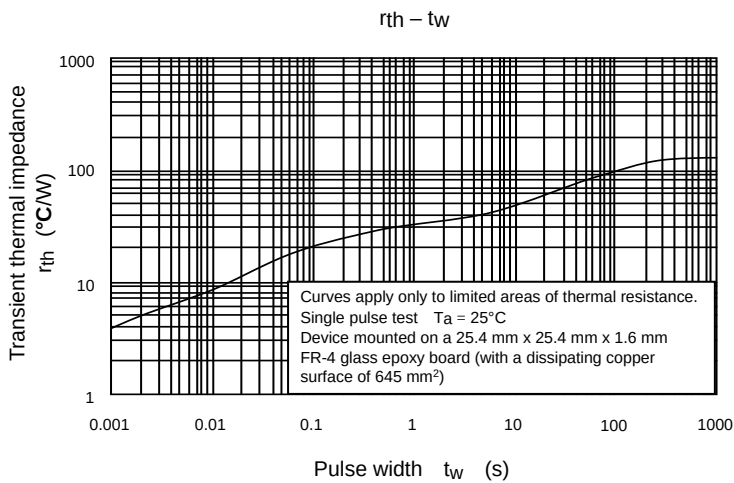


$I_C - V_{BE}$



$f_T - I_C$





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