TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA2206

Power Amplifier Applications

Power Switching Applications

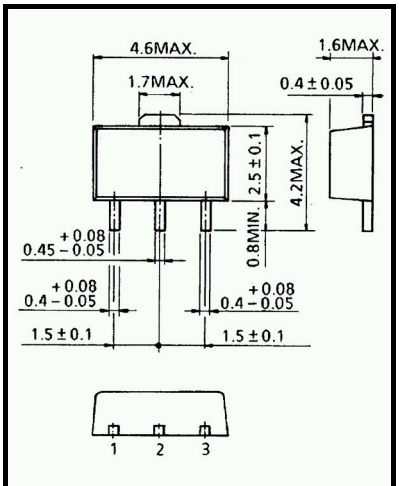
Low collector emitter saturation voltage

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

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

Complementary to 2SC6124

Unit: mm



1: BASE
2: COLLECTOR (HEAT SINK)
3: EMITTER

JEDEC	―
JEITA	SC-62
TOSHIBA	2-5K1A

Weight: 0.05 g (typ.)

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 s	P_C	2.5	W
	DC	P_C	1	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

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

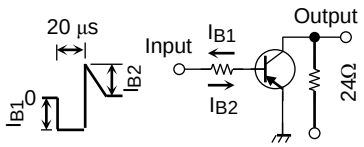
Note 2: Mounted on an FR4 board (glass-epoxy; 1.6 mm thick; Cu area, 645 mm^2)

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).

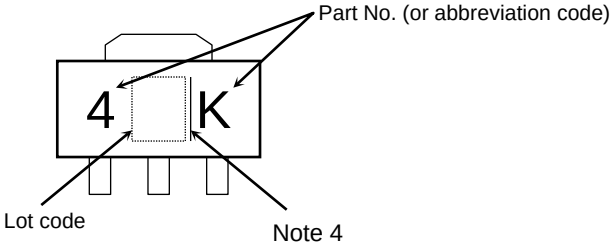
Start of commercial production
2007-03

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Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Conditions	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = -80 V, I_E = 0 A	—	—	-100	nA
Emitter cut-off current		I_{EBO}	V_{EB} = -7 V, I_C = 0 A	—	—	-100	nA
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = -10 mA, I_B = 0 A	-80	—	—	V
DC current gain		$h_{FE\ (1)}$	V_{CE} = -2 V, I_C = -1 mA	80	—	—	
		$h_{FE\ (2)}$	V_{CE} = -2 V, I_C = -0.5 A	100	—	200	
		$h_{FE\ (3)}$	V_{CE} = -2 V, I_C = -1 A	60	—	—	
Collector emitter saturation voltage		$V_{CE\ (sat)\ (1)}$	I_C = -0.5 A, I_B = -50 mA	—	—	-0.3	V
		$V_{CE\ (sat)\ (2)}$	I_C = -1 A, I_B = -100 mA	—	—	-0.5	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = -1 A, I_B = -100 mA	—	—	-1.5	V
Collector output capacitance		C_{ob}	V_{CB} = -10 V, I_E = 0 A, f = 1MHz	—	25	—	pF
Transition frequency		f_T	V_{CE} = -2 V, I_C = -500 mA	—	100	—	MHz
Switching time	Rise time	t_r	 I_{B1} = I_{B2} = 100 mA V_{CC} ≈ -24 V Duty cycle ≤ 1%	—	30	—	ns
	Storage time	t_{stg}		—	300	—	
	Fall time	t_f		—	40	—	

Marking

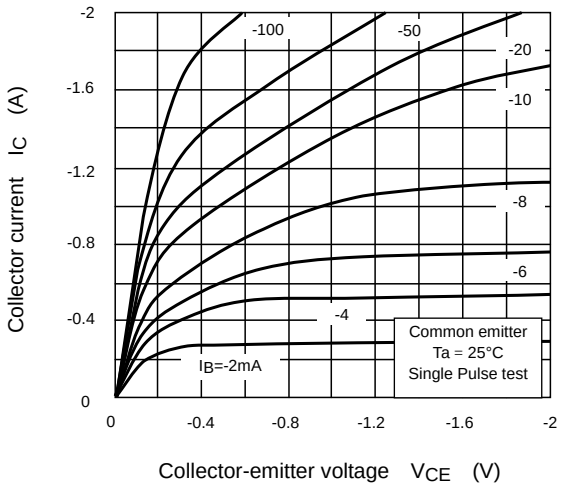


Note 4: A line beside a Lot No. identifies the indication of product Labels.
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

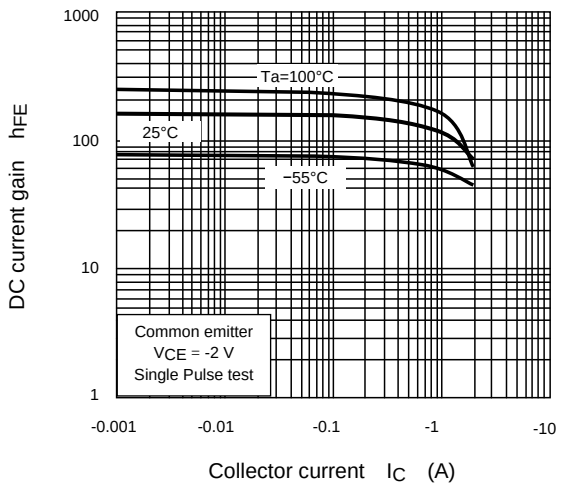
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.
The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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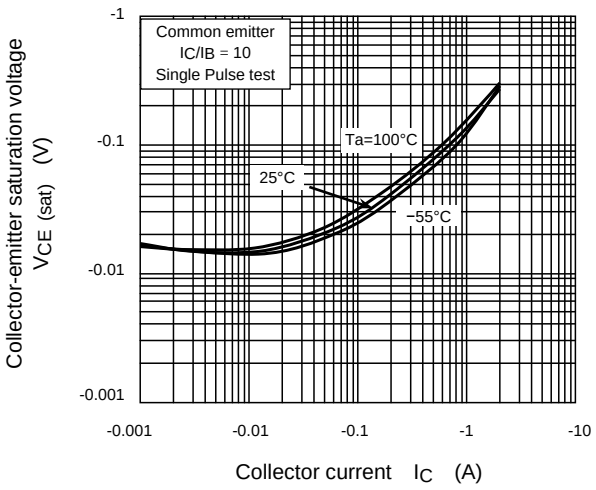
$I_C - V_{CE}$



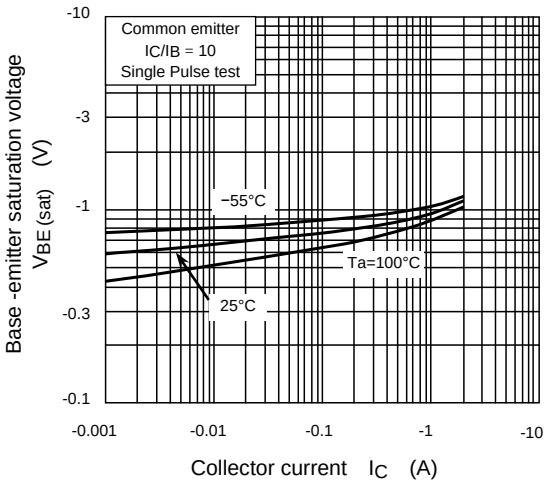
$h_{FE} - I_C$



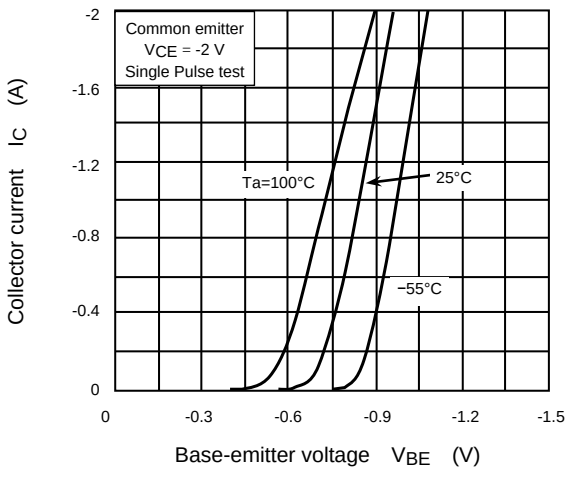
$V_{CE\ (sat)} - I_C$



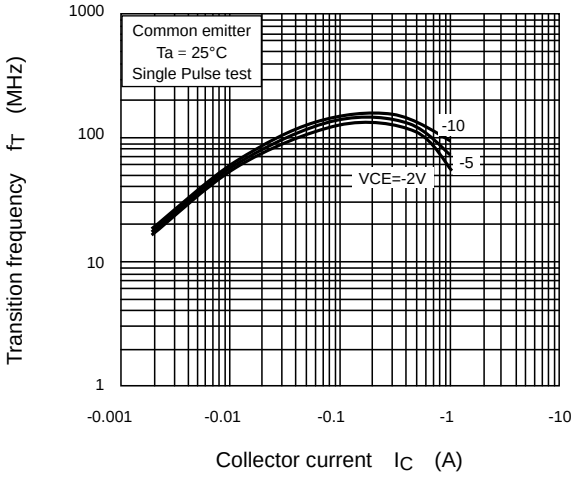
$V_{BE\ (sat)} - I_C$



$I_C - V_{BE}$

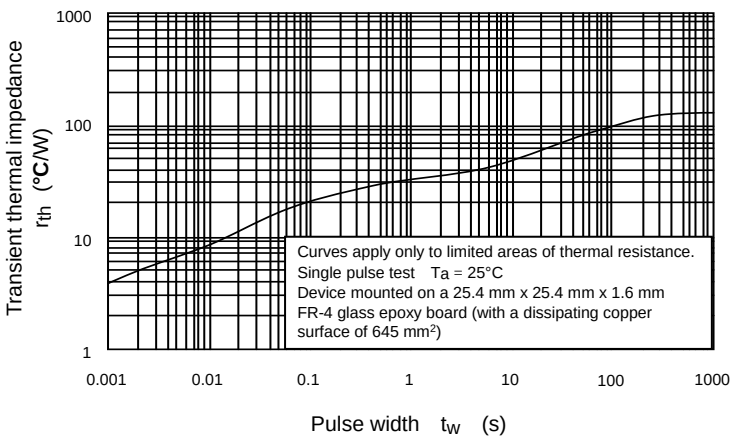


$f_T - I_C$

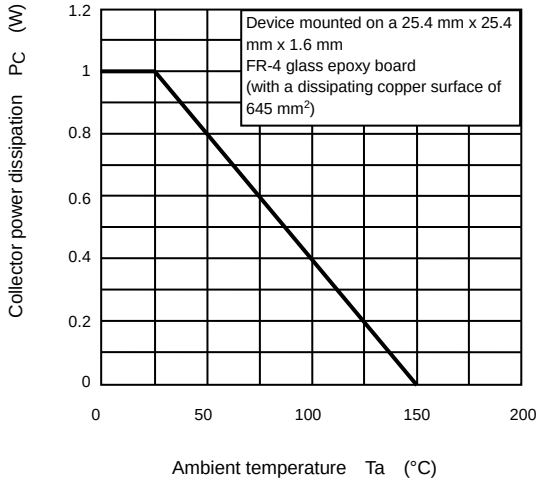


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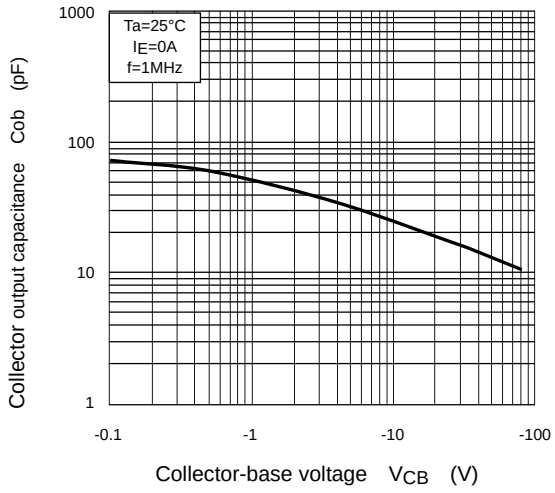
rth – tw



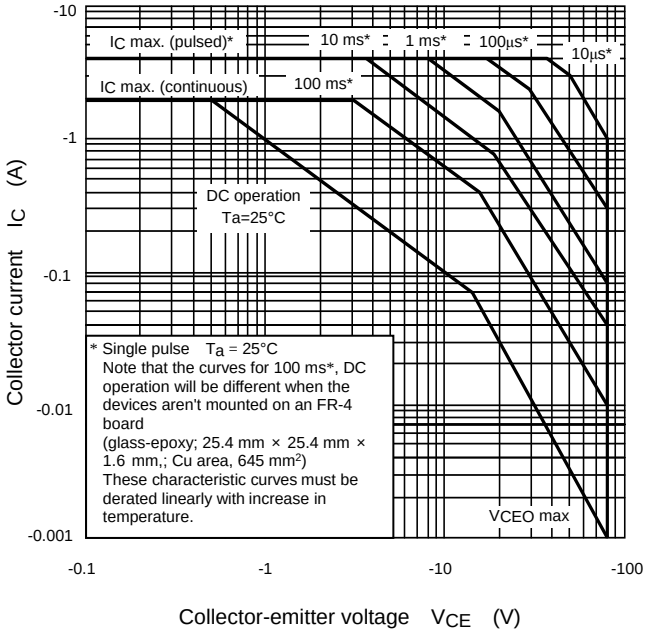
PC – Ta



Cob – VCB



Safe Operating Area



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