

TOSHIBA Transistor Silicon NPN Epitaxial Type

# 2SC5000

## Power Amplifier Applications

- Low collector saturation voltage:  $V_{CE(sat)} = 0.4 \text{ V (max)}$  ( $I_C = 5 \text{ A}$ )

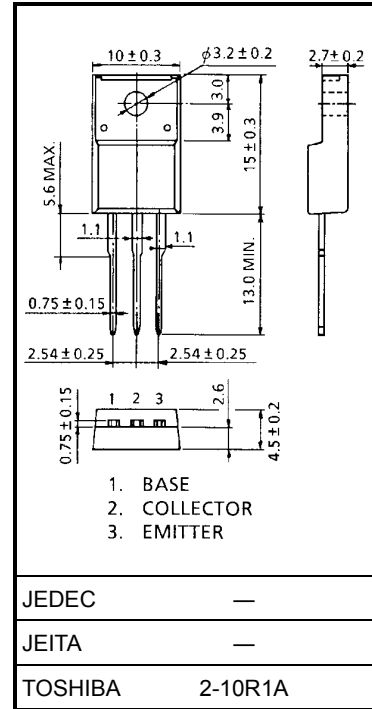
### Absolute Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	80	V
Collector-emitter voltage	$V_{CEO}$	50	V
Emitter-base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	10	A
Base current	$I_B$	1	A
Collector power dissipation	$P_C$	25	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$

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

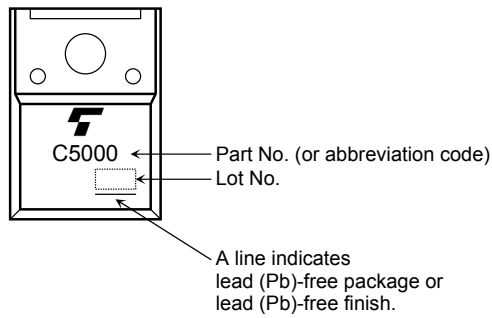


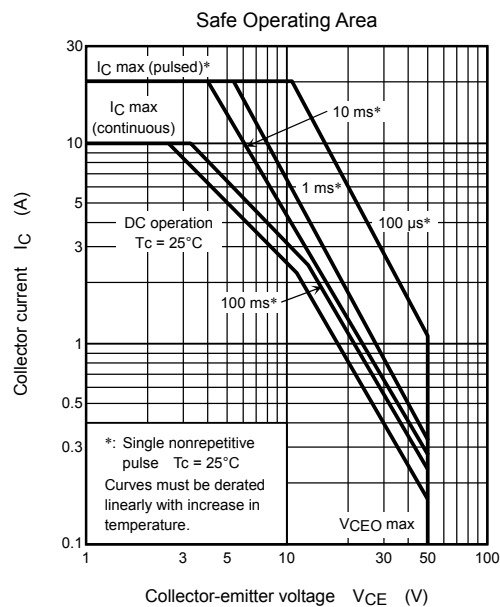
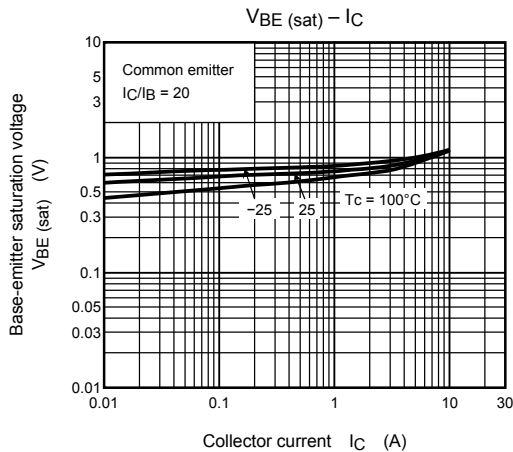
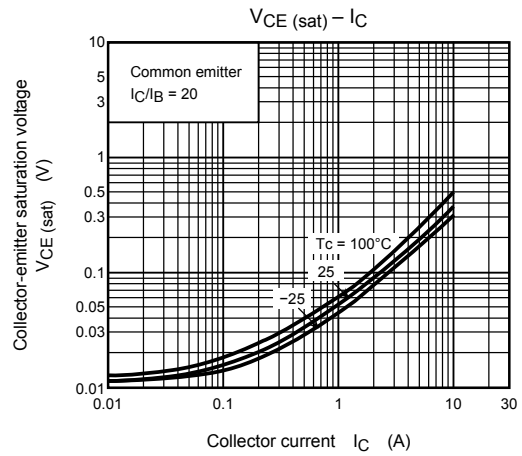
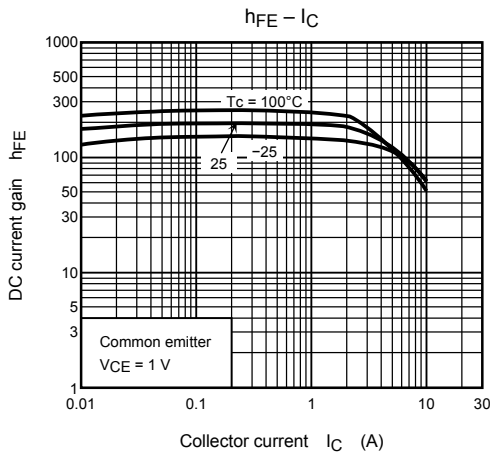
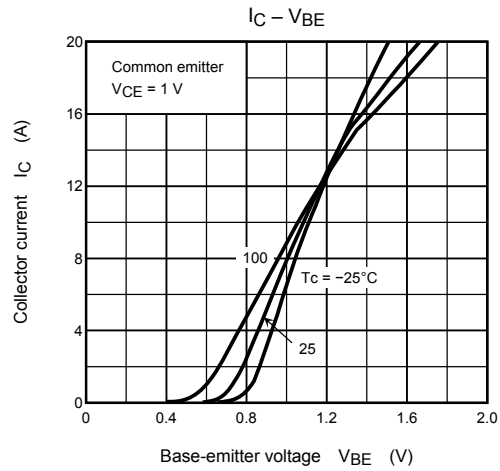
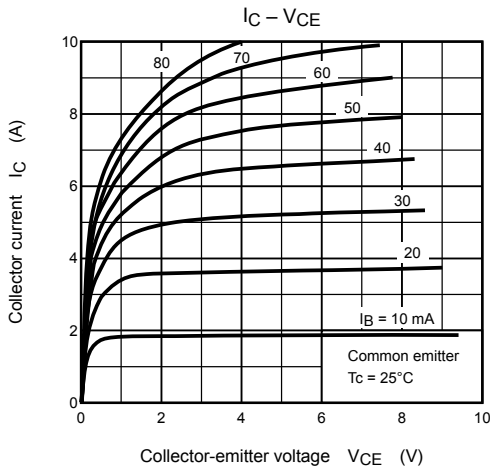
Weight: 1.7 g (typ.)

## Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	$I_{CBO}$	$V_{CB} = 70 \text{ V}, I_E = 0$	—	—	1	$\mu\text{A}$	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 7 \text{ V}, I_C = 0$	—	—	1	$\mu\text{A}$	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	50	—	—	V	
DC current gain	$h_{FE} (1)$	$V_{CE} = 1 \text{ V}, I_C = 1 \text{ A}$	120	—	400		
Saturation voltage	Collector-emitter	$V_{CE(sat)}$	$I_C = 5 \text{ A}, I_B = 0.25 \text{ A}$	—	0.19	0.4	V
	Base-emitter	$V_{BE(sat)}$	$I_C = 5 \text{ A}, I_B = 0.25 \text{ A}$	—	0.96	1.4	
Transition frequency	$f_T$	$V_{CE} = 1 \text{ V}, I_C = 1 \text{ A}$	—	90	—	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	90	—	pF	

## Marking





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