TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC5000

Power Amplifier Applications

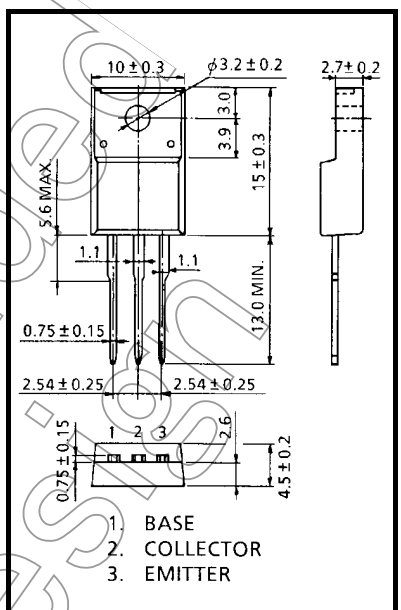
- Low collector saturation voltage: $V_{CE\ (sat)}$ = 0.4 V (max) (I_C = 5 A)

Absolute Maximum Ratings (Tc = 25°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	°C
Storage temperature range	T_{stg}	−55 to 150	°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



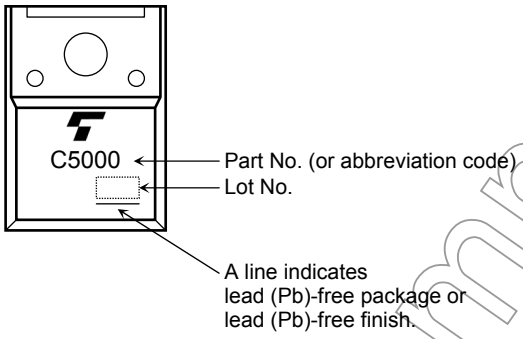
JEDEC	—
JEITA	—
TOSHIBA	2-10R1A

Weight: 1.7 g (typ.)

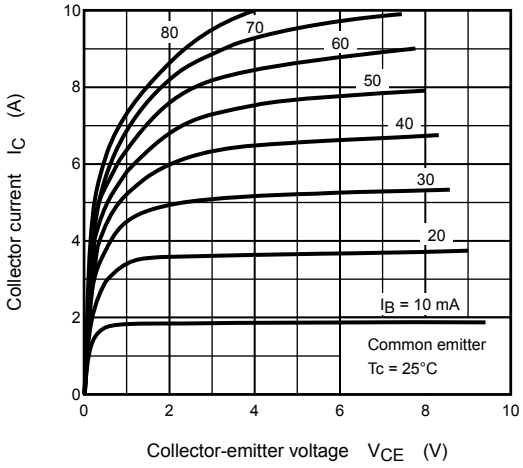
Electrical Characteristics (Tc = 25°C)

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

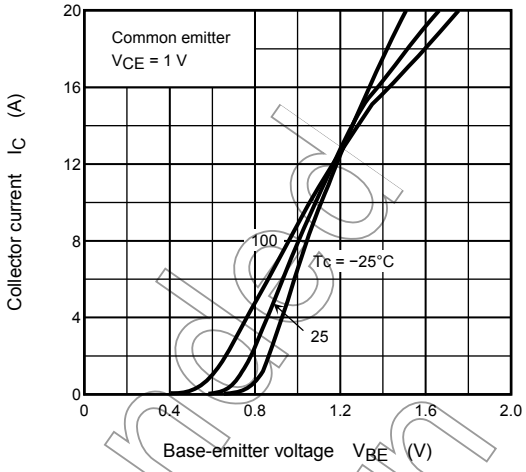
Marking



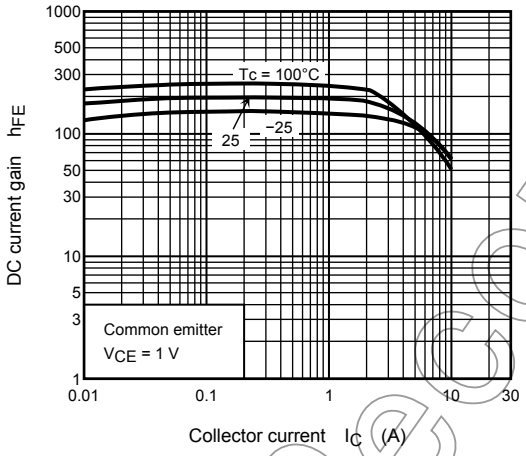
$I_C - V_{CE}$



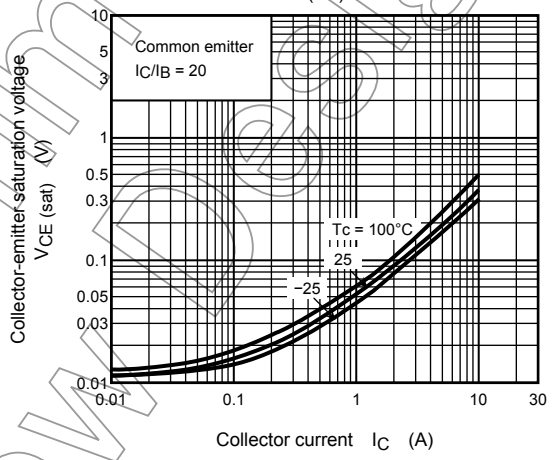
$I_C - V_{BE}$



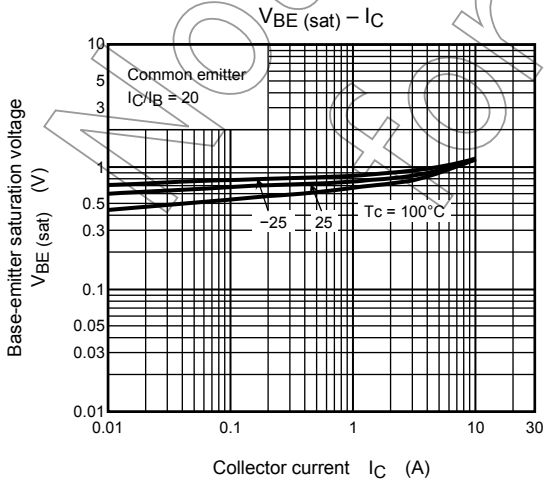
$h_{FE} - I_C$



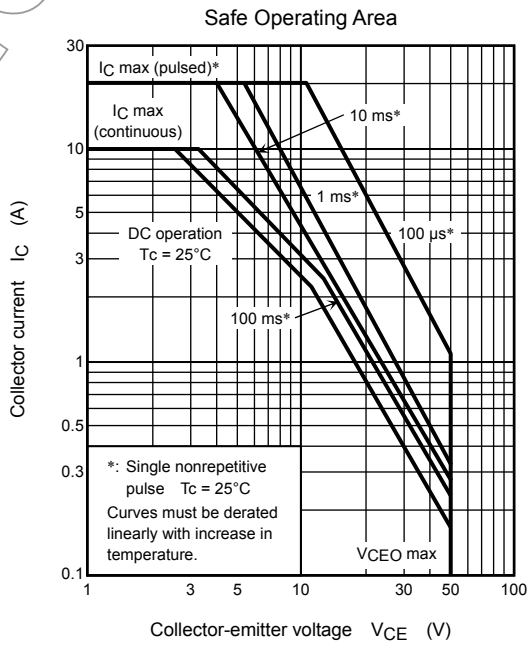
$V_{CE\ (sat)} - I_C$



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



Safe Operating Area



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