TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC5307

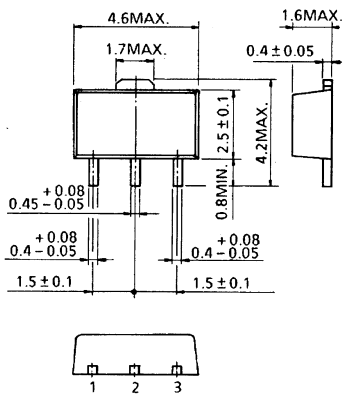
High Voltage Switching Applications

- High breakdown voltage: V_{CEO} = 400 V
- Low saturation voltage: $V_{CE\ (sat)}$ = 0.4 V (typ.)
  (I_C = 20 mA, I_B = 0.5 mA)

Absolute Maximum Ratings (Tc = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	400	V
Collector-emitter voltage		V_{CEO}	400	V
Emitter-base voltage		V_{EBO}	7	V
Collector current	DC	I_C	50	mA
	Pulse	I_{CP}	100	
Base current		I_B	25	mA
Collector power dissipation	Ta = 25°C	P_C	500	mW
	Ta = 25°C (Note 1)		1000	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

Unit: mm



1. Base
2. Collector (heat sink)
3. Emitter

JEDEC	—
JEITA	SC-62
TOSHIBA	2-5K1A

Weight: 0.05 g (typ.)

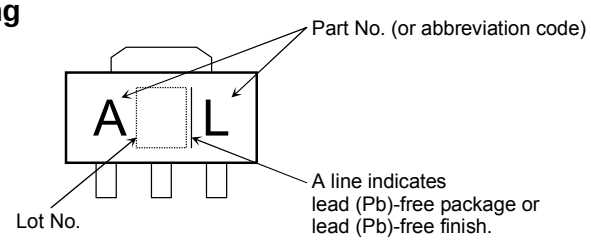
Note 1: Mounted on a ceramic substrate (250 mm^2 × 0.8 t)

Note 2: 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).

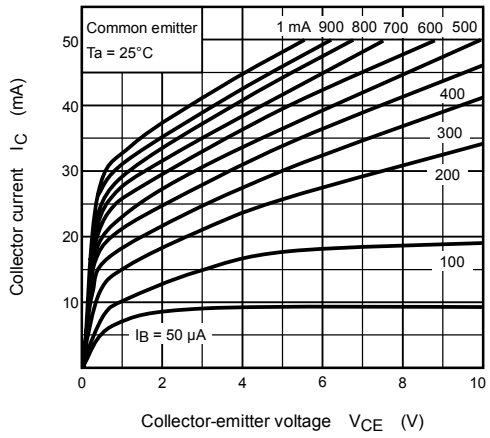
Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 400 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_{CEO}	I_C = 1 mA, I_B = 0	400	—	—	V
DC current gain	$h_{FE\ (1)}$	V_{CE} = 5 V, I_C = 1 mA	80	—	—	
	$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 20 mA	100	—	300	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 20 mA, I_B = 0.5 mA	—	0.4	1.0	V
Base-emitter saturation voltage	V_{BE}	V_{CE} = 5 V, I_C = 20 mA	—	0.7	0.85	V
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	4.0	—	pF

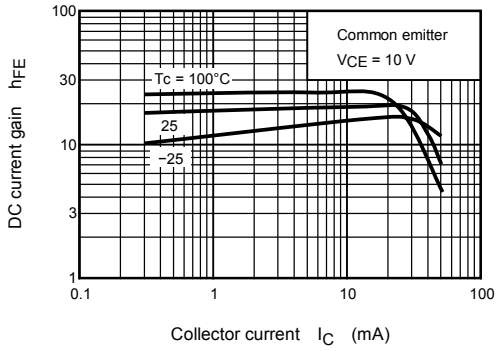
Marking



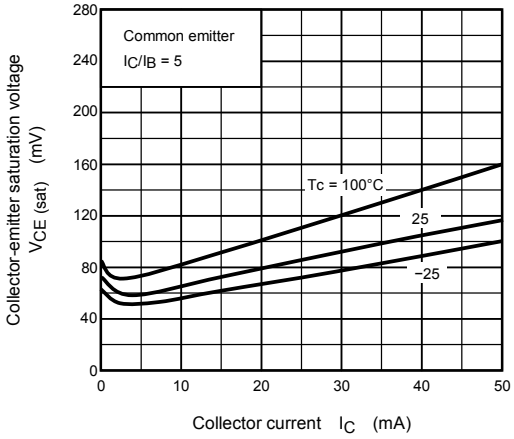
$I_C - V_{CE}$



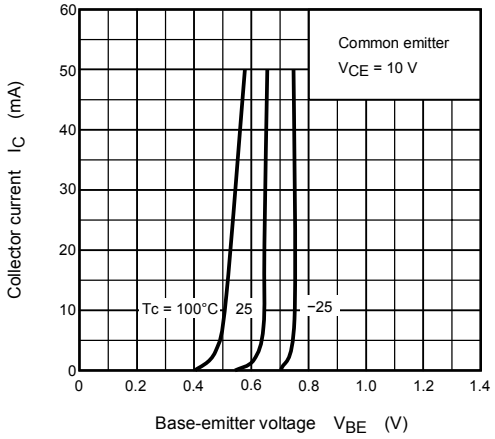
$h_{FE} - I_C$



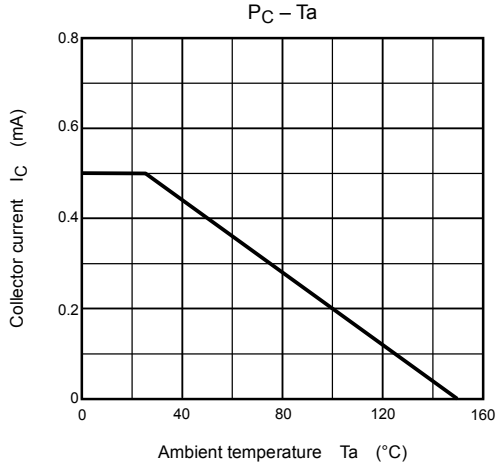
$V_{CE\ (sat)} - I_C$



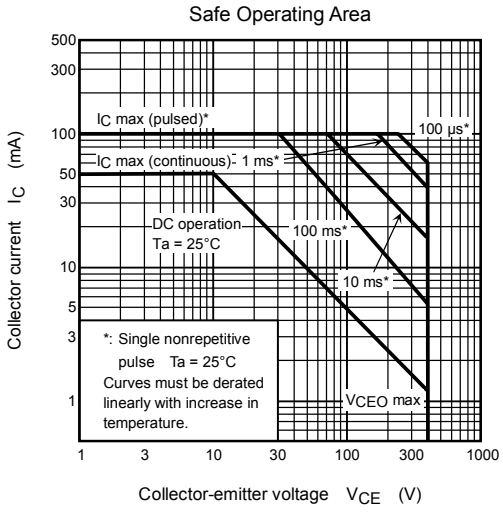
$I_C - V_{BE}$



$P_C - Ta$



Safe Operating Area



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