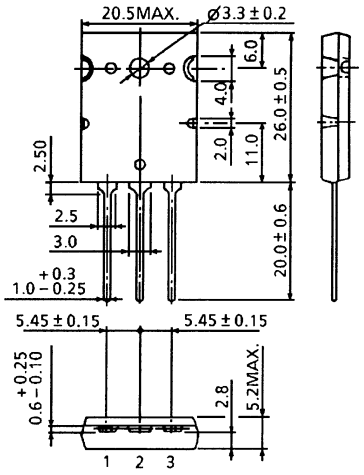
TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC3307

Industrial Applications

High-Speed and High-Voltage Switching Applications
Switching Regulator Applications
High-Speed DC-DC Converter Applications

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-21F1A

Weight: 9.75 g (typ.)

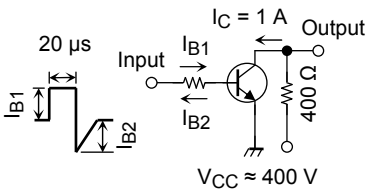
- Excellent switching times: t_r = 1.0 μs (max), t_f = 1.0 μs (max) (I_C = 5 A)
- High collector breakdown voltage: V_{CEO} = 800 V

Absolute Maximum Ratings (Tc = 25°C)

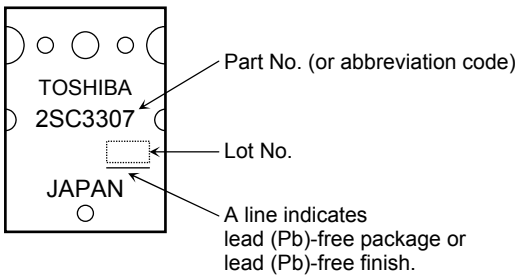
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	900	V
Collector-emitter voltage		V_{CEO}	800	V
Emitter-base voltage		V_{EBO}	7	V
Collector current	DC	I_C	10	A
	Pulse	I_{CP}	15	
Base current		I_B	3	A
Collector power dissipation (Tc = 25°C)		P_C	150	W
Junction temperature		T_j	150	°C
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).

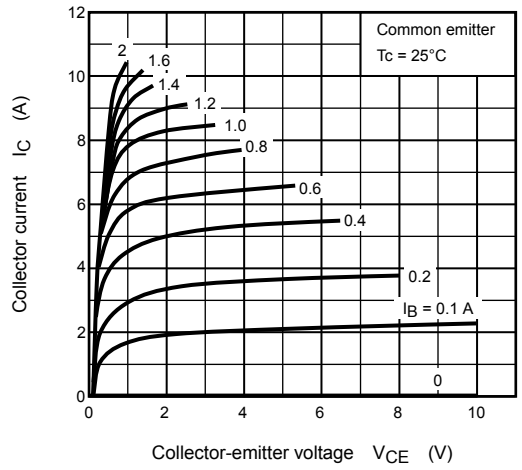
Electrical Characteristics (Tc = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 800 V, I_E = 0	—	—	100	μA
Emitter cut-off current		I_{EBO}	V_{EB} = 7 V, I_C = 0	—	—	1	mA
Collector-base breakdown voltage		$V_{(BR)\ CEO}$	I_C = 1 mA, I_E = 0	900	—	—	V
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	800	—	—	V
DC current gain		$h_{FE\ (1)}$	V_{CE} = 5 V, I_C = 10 mA	10	—	—	
		$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 5 A	10	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 5 A, I_B = 1 A	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 5 A, I_B = 1 A	—	—	1.5	V
Switching time	Rise time	t_r	 I_{B1} = −I_{B2} = 0.4 A, duty cycle ≤ 1%	—	—	1.0	μs
	Storage time	t_{stg}		—	—	3.0	
	Fall time	t_f		—	—	1.0	

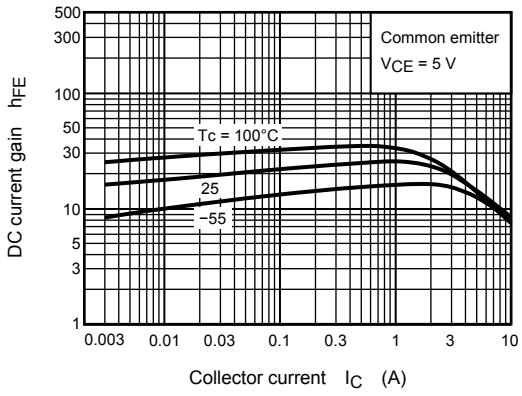
Marking



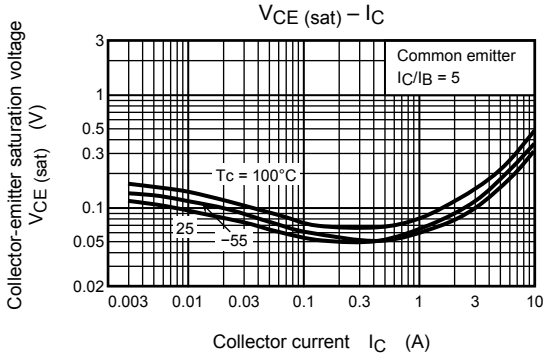
$I_C - V_{CE}$



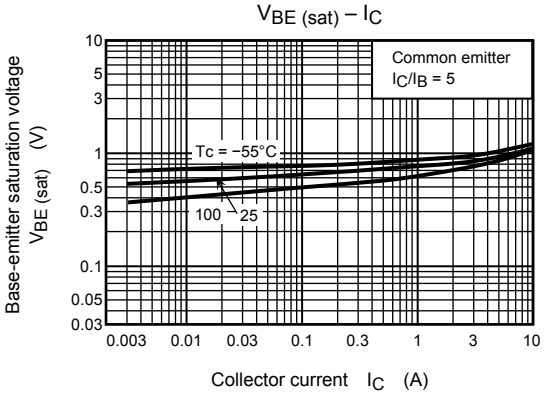
$h_{FE} - I_C$



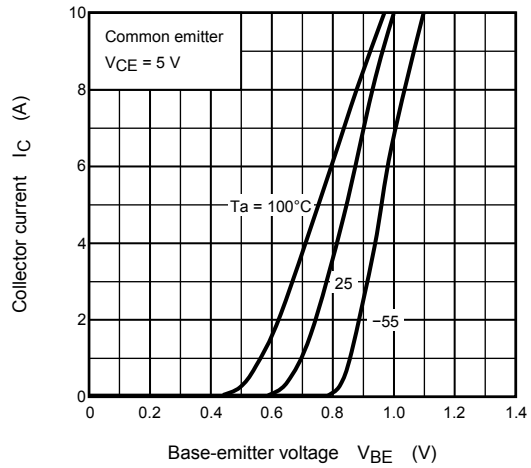
$V_{CE\ (sat)} - I_C$



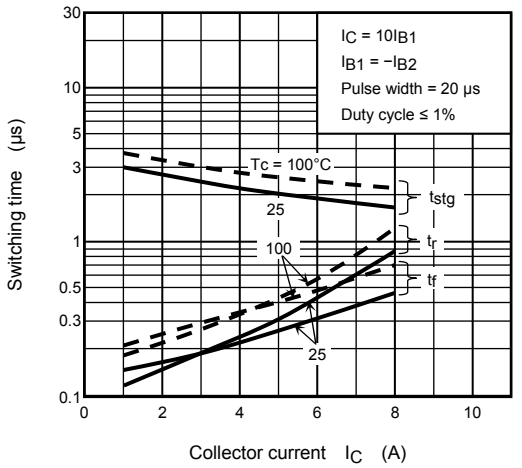
$V_{BE\ (sat)} - I_C$



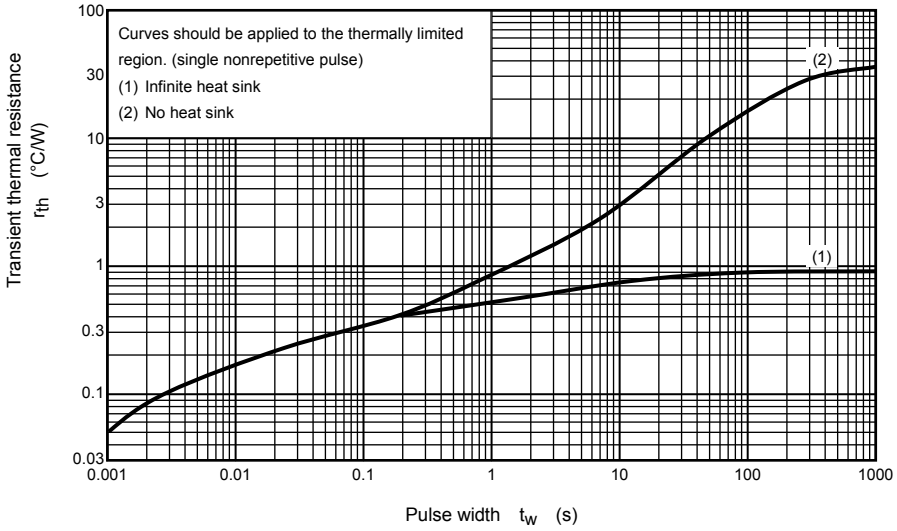
$I_C - V_{BE}$



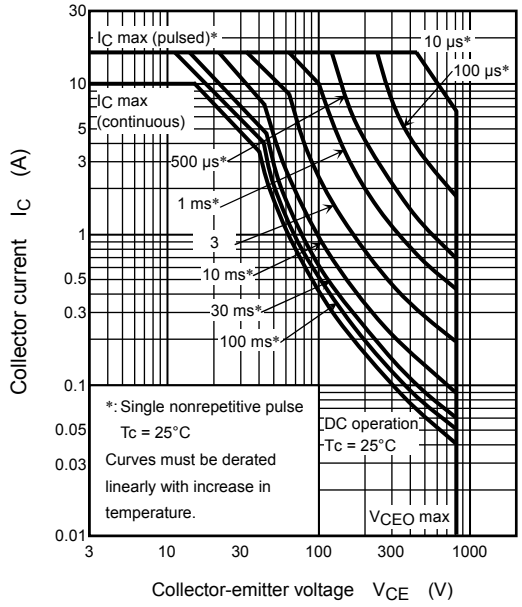
Switching Characteristics



$r_{th} - t_w$



Safe Operating Area



RESTRICTIONS ON PRODUCT USE

20070701-EN

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