TOSHIBA Transistor Silicon NPN Triple Diffused Type

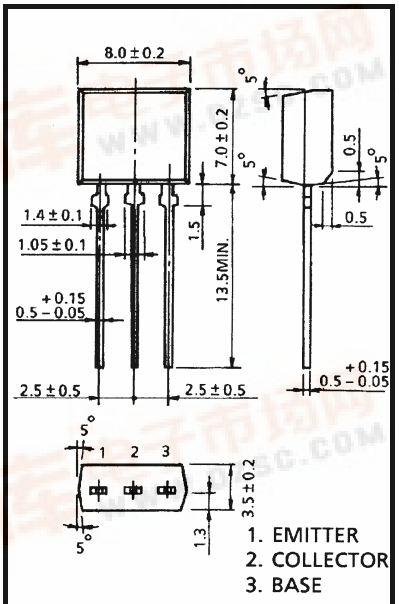
2SC5075

Industrial Applications

Switching Regulator and High-Voltage Switching Applications

High-Speed DC-DC Converter Applications

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-8M1A

Weight: 0.55 g (typ.)

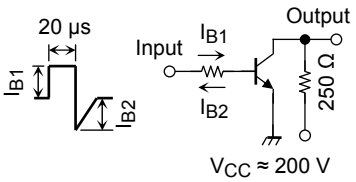
- High-speed switching: t_r = 1.0 μs (max), t_f = 1.0 μs (max)
- High breakdown voltage: V_{CEO} = 400 V

Absolute Maximum Ratings (Ta = 25°C)

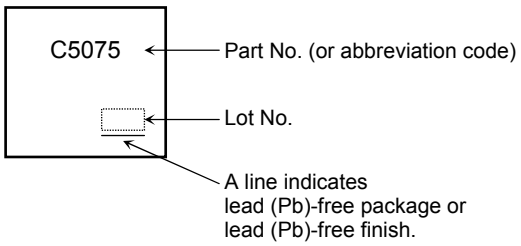
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	500	V
Collector-emitter voltage	V_{CEO}	400	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	2	A
Base current	I_B	0.5	A
Collector power dissipation	P_C	1.3	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 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).

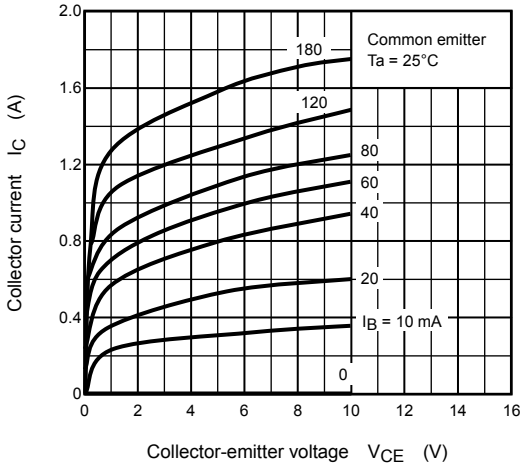
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 400 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		$V_{(BR)\ CBO}$	I_C = 1 mA, I_E = 0	500	—	—	V
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	400	—	—	V
DC current gain		h_{FE}	V_{CE} = 5 V, I_C = 0.1 A	20	—	—	
			V_{CE} = 5 V, I_C = 1 A	8	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 1 A, I_B = 0.2 A	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 1 A, I_B = 0.2 A	—	—	1.5	V
Switching time	Rise time	t_{on}	 I_{B1} = −I_{B2} = 0.08 A, duty cycle < 1%	—	—	1.0	μs
	Storage time	t_{stg}		—	—	2.5	
	Fall time	t_f		—	—	1.0	

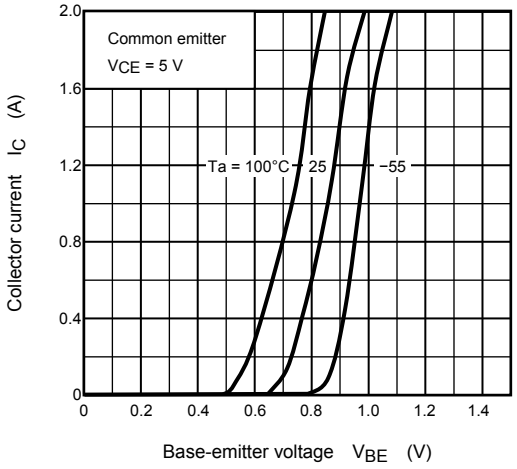
Marking



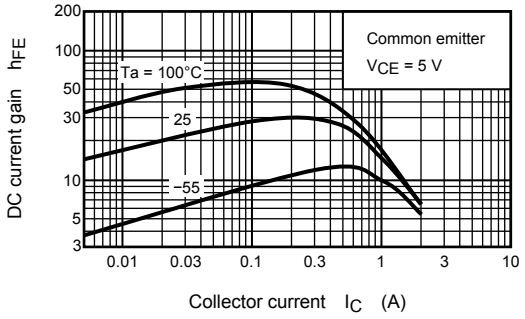
$I_C - V_{CE}$



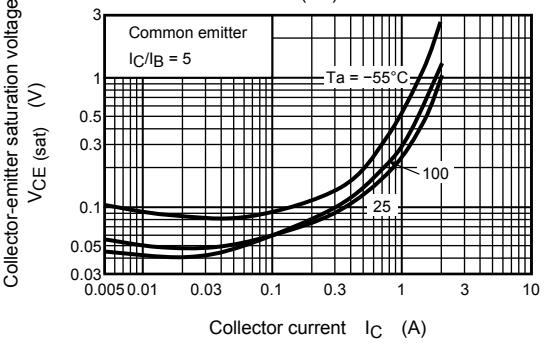
$I_C - V_{BE}$



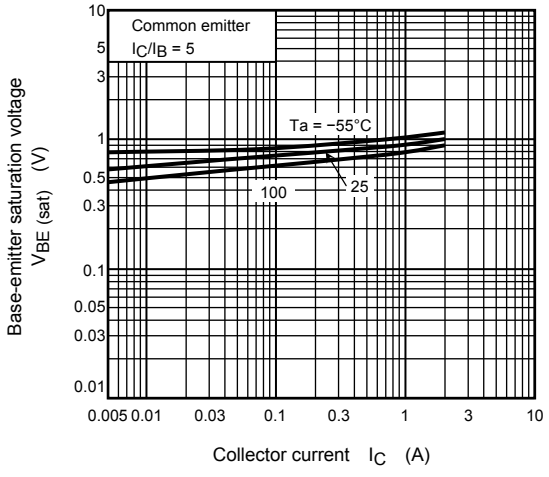
$h_{FE} - I_C$



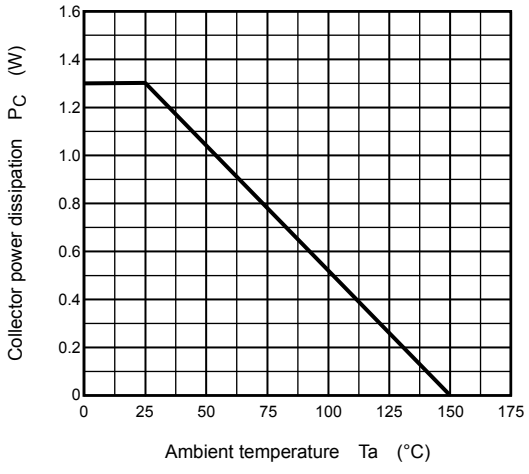
$V_{CE\ (sat)} - I_C$



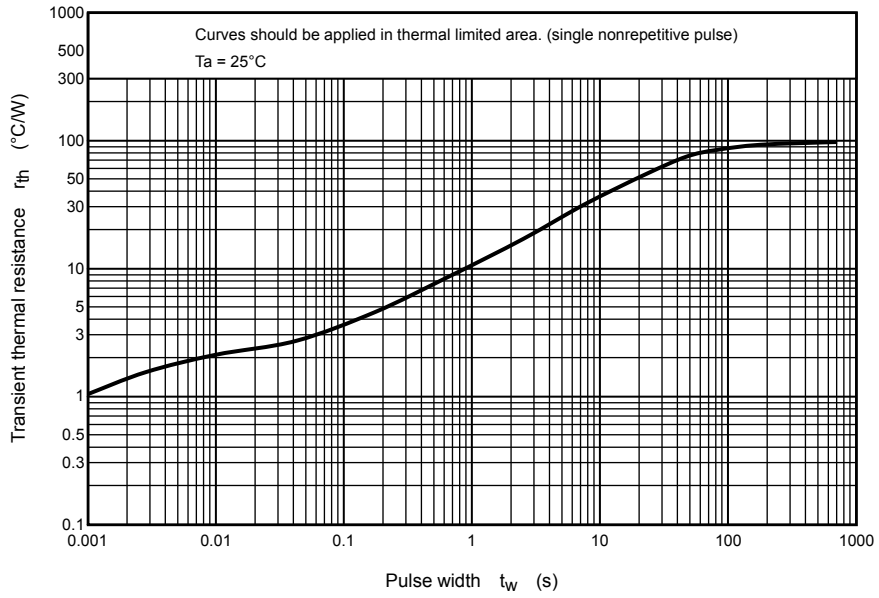
$V_{BE\ (sat)} - I_C$



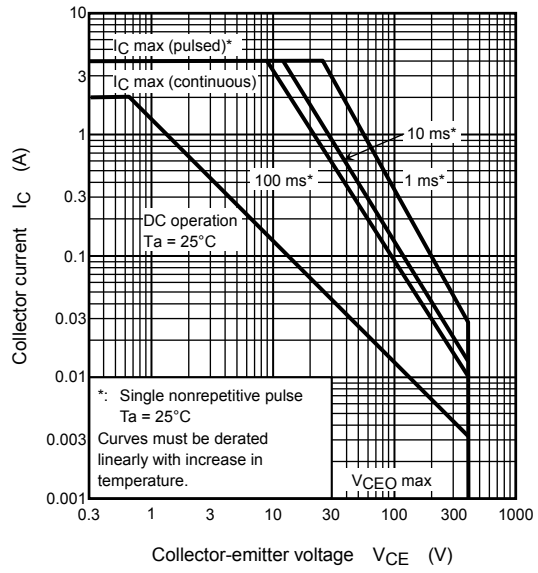
$P_C - Ta$



$r_{th} - t_w$



Safe Operating Area



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