

TOSHIBA Transistor Silicon NPN Triple Diffused Type

TPCP8503

High-Voltage Switching Applications

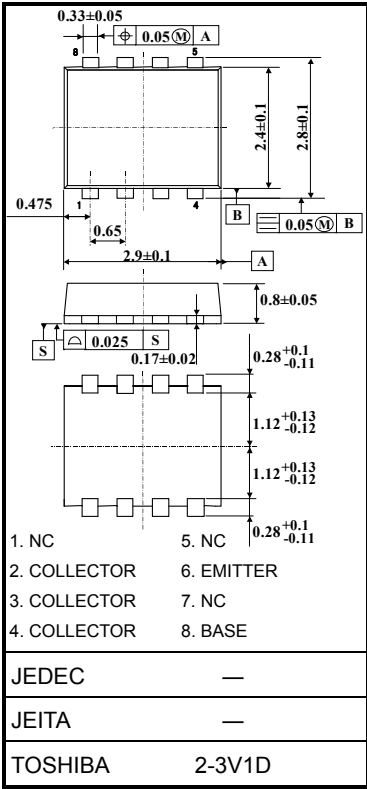
Unit: mm

- High breakdown voltage:  $V_{CEO} = 600\text{ V}$
- Low saturation voltage:  $V_{CE(sat)} = 1.0\text{ V (max)}$   
( $I_C = 20\text{ mA}$ ,  $I_B = 0.5\text{ mA}$ )

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	600	V
Collector-emitter voltage		$V_{CEO}$	600	V
Emitter-base voltage		$V_{EBO}$	7	V
Collector current (Note 1)	DC	$I_C$	50	mA
	Pulse	$I_{CP}$	100	
Base current		$I_B$	25	mA
Collector power dissipation (Note 2)	$t=10\text{s}$	$P_C$	2.2	W
	DC		1.1	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).



Weight: 0.36 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 600\text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{CEO}$	$I_C = 1\text{ mA}, I_B = 0$	600	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	80	—	—	
	$h_{FE} (2)$	$V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$	100	—	300	
Collector-emitter saturation voltage	$V_{CE} (\text{sat})$	$I_C = 20\text{ mA}, I_B = 0.5\text{ mA}$	—	—	1.0	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$	—	—	1.1	V
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	5.5	—	pF

Figure1. Circuit Configuration

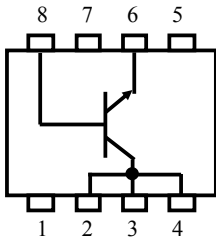
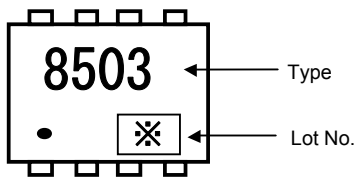


Figure2. Marking(Note 3)

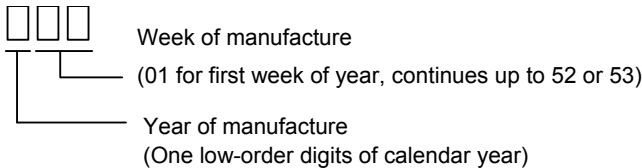


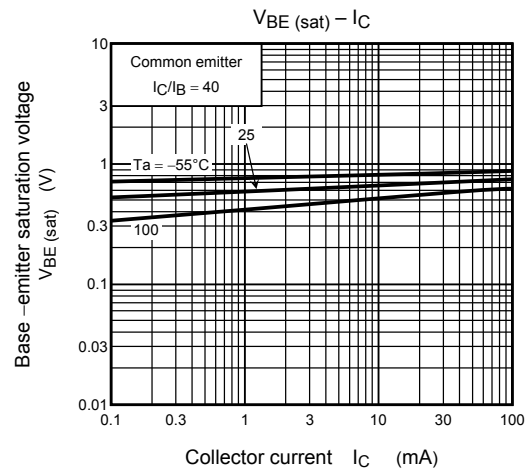
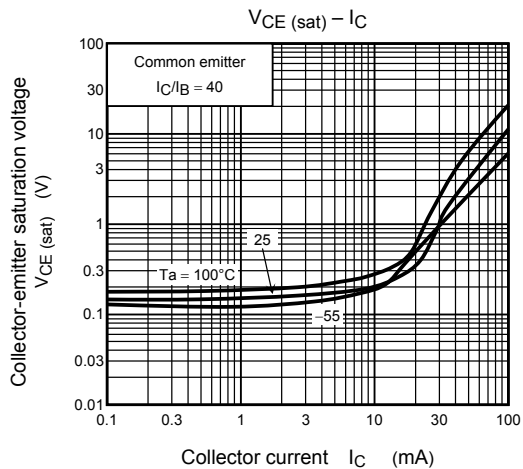
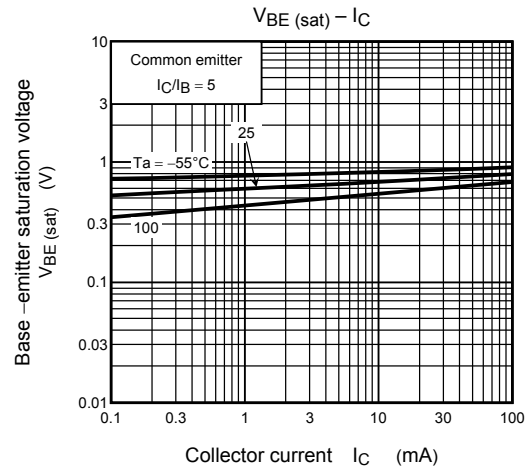
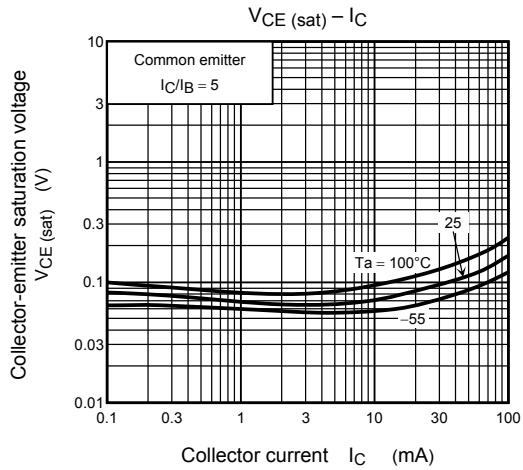
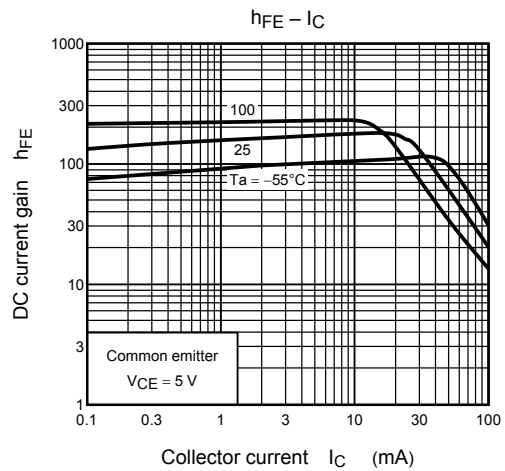
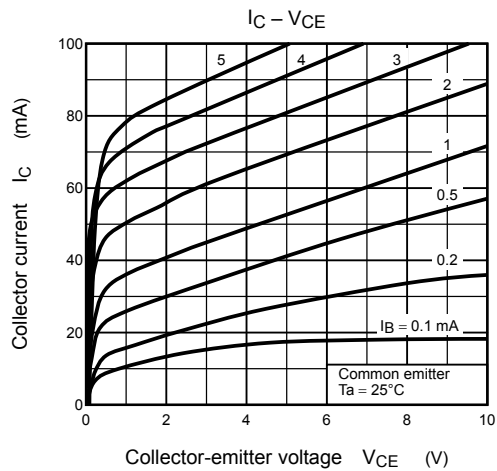
Note 1 : Please use devices on condition that the junction temperature is below 150°C.

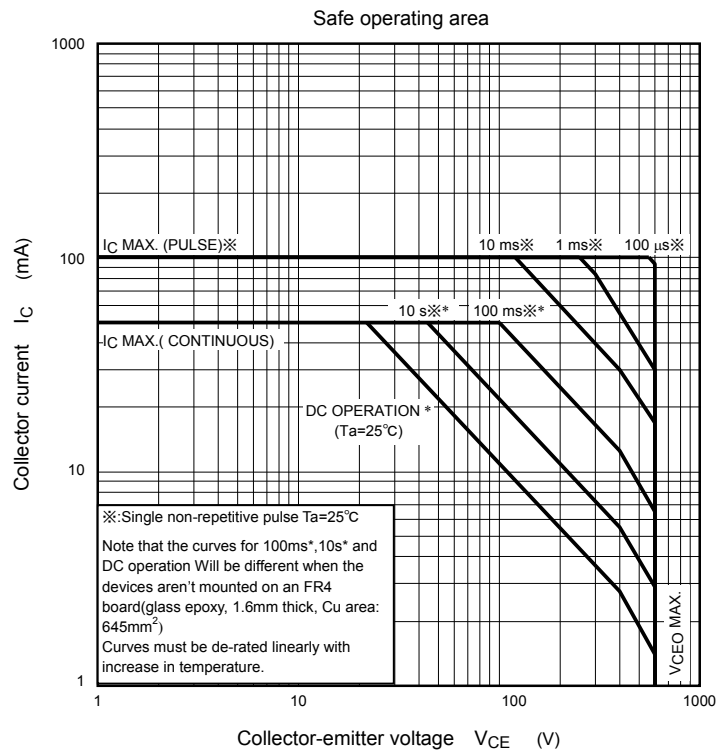
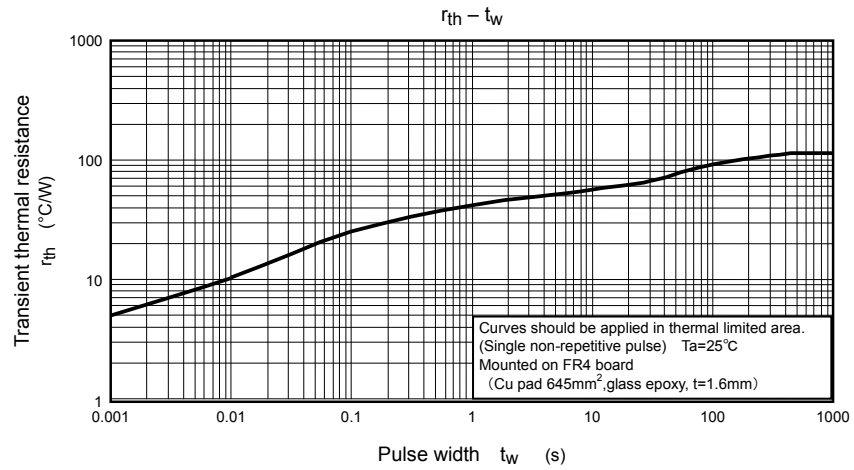
Note 2 : Mounted on FR4 board( glass epoxy, 1.6mm thick, Cu area: 645mm<sup>2</sup>)

Note 3 : ● on lower left of the marking indicates Pin 1.

※ Weekly code: (three digits)







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20070701-EN

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