

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT process)

2SC5172

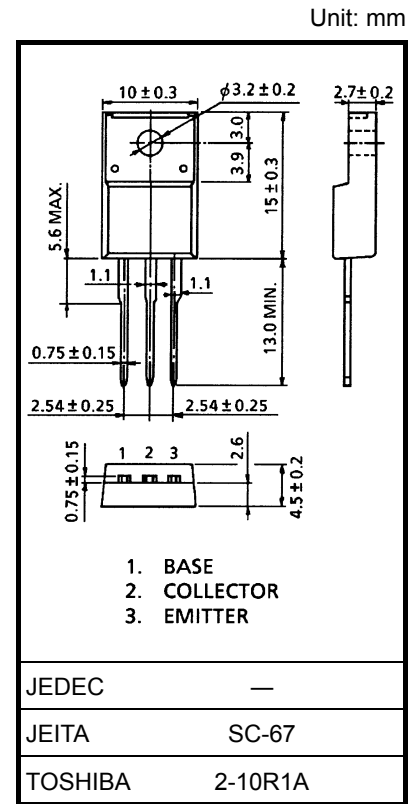
Switching Regulator and High-Voltage Switching Applications

High-Speed DC-DC Converter Applications

- Excellent switching times: $t_r = 0.5 \mu\text{s}$ (max),
 $t_f = 0.3 \mu\text{s}$ (max) at $I_C = 2 \text{ A}$
- High collector breakdown voltage: $V_{CEO} = 400 \text{ V}$

Absolute Maximum Ratings (Tc = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	600	V
Collector-emitter voltage		V_{CEO}	400	V
Emitter-base voltage		V_{EBO}	7	V
Collector current	DC	I_C	5	A
	Pulse	I_{CP}	7	
Base current		I_B	2	A
Collector power dissipation	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		25	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

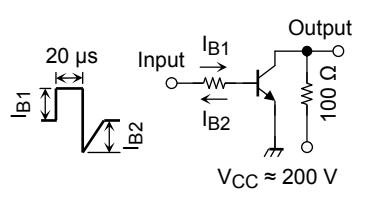


Weight: 1.7 g (typ.)

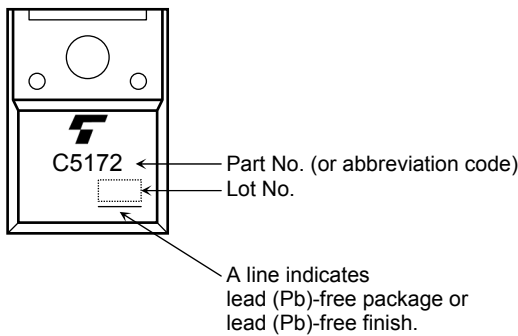
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

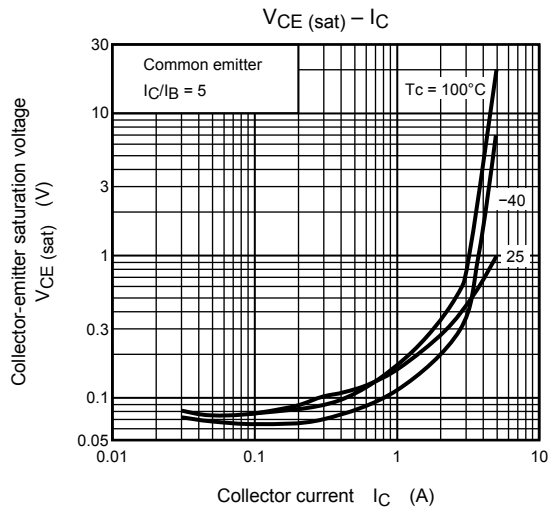
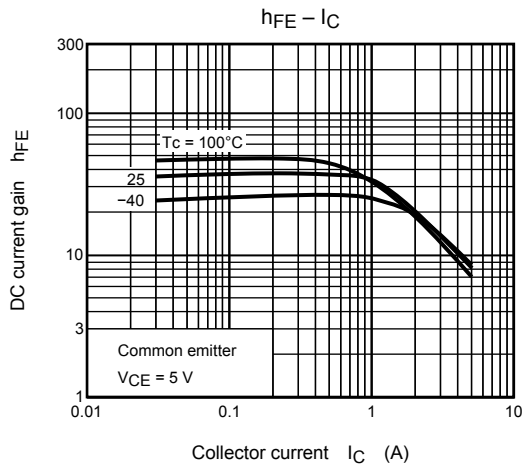
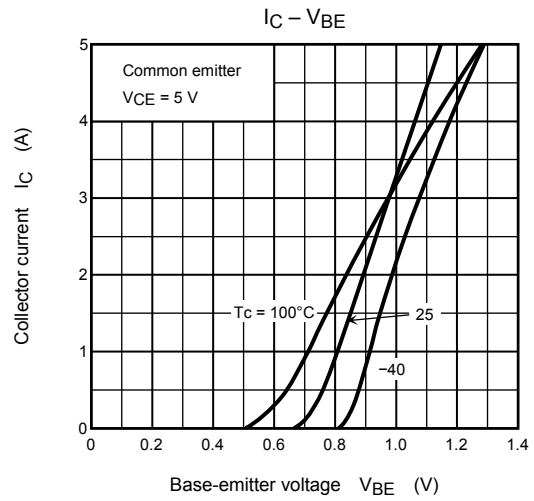
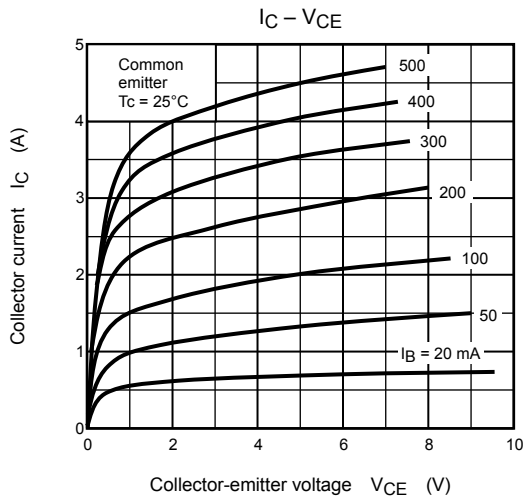
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

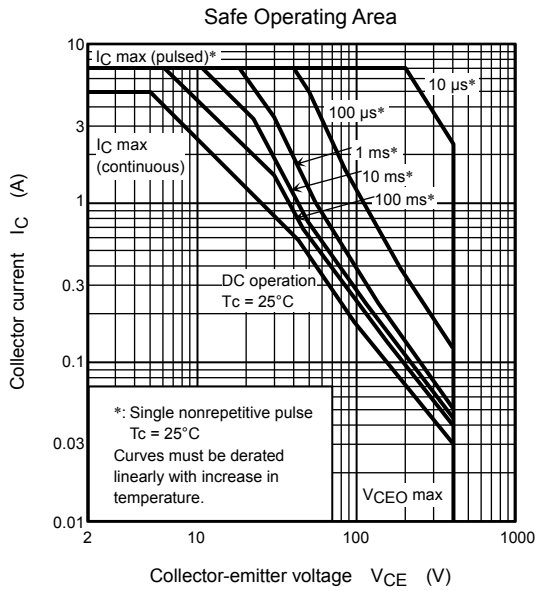
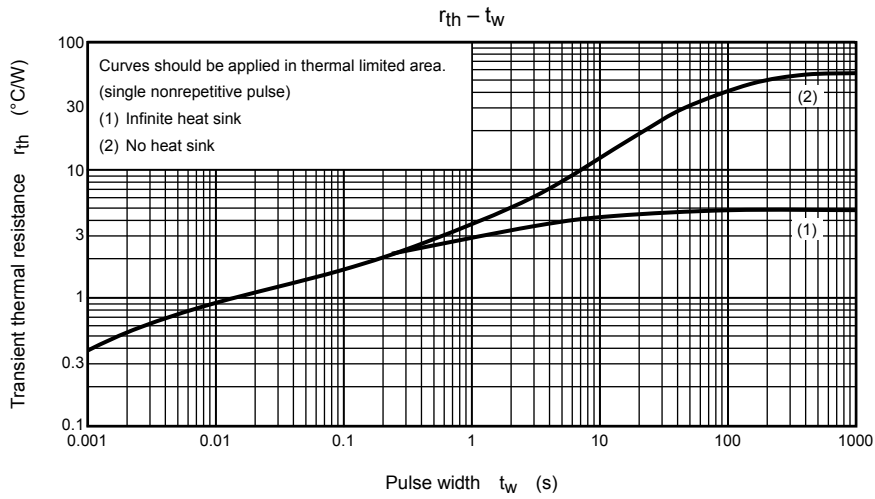
Electrical Characteristics (Tc = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 500\text{ V}, I_E = 0$	—	—	20	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	nA
Collector-base breakdown voltage		$V_{(BR) CBO}$	$I_C = 1\text{ mA}, I_E = 0$	600	—	—	V
Collector-emitter breakdown voltage		$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	400	—	—	V
DC current gain		$h_{FE} (1)$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	13	—	—	
		$h_{FE} (2)$	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	20	—	65	
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 2\text{ A}, I_B = 0.25\text{ A}$	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = 2\text{ A}, I_B = 0.25\text{ A}$	—	—	1.3	V
Switching time	Rise time	t_r		—	—	0.5	μs
	Storage time	t_{stg}		—	—	2.0	
	Fall time	t_f		$I_{B1} = 0.25\text{ A}, I_{B2} = -0.5\text{ A},$ duty cycle < 1%	—	—	

Marking







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