

TOSHIBA Transistor Silicon NPN Triple Diffused Type

## 2SC5548A

High Voltage Switching Applications

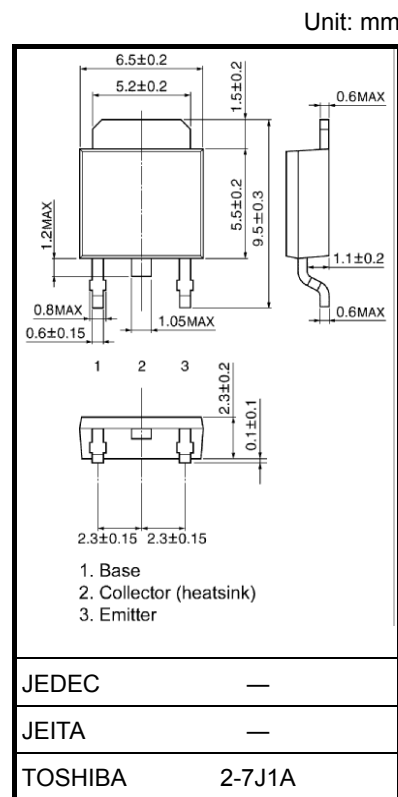
Switching Regulator Applications

DC-DC Converter Applications

- High speed switching:  $t_r = 0.5 \mu\text{s}$  (max),  $t_f = 0.3 \mu\text{s}$  (max) ( $I_C = 0.8 \text{ A}$ )
- High collector breakdown voltage:  $V_{CEO} = 400 \text{ V}$
- High DC current gain:  $h_{FE} = 40$  (min) ( $I_C = 0.2 \text{ A}$ )

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	600	V
Collector-emitter voltage		$V_{CEO}$	400	V
Emitter-base voltage		$V_{EBO}$	7	V
Collector current	DC	$I_C$	2	A
	Pulse	$I_{CP}$	4	
Base current		$I_B$	0.5	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1.0	W
	$T_c = 25^\circ\text{C}$		15	
Junction temperature		$T_j$	150	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ\text{C}$



Weight: 0.36 g (typ.)

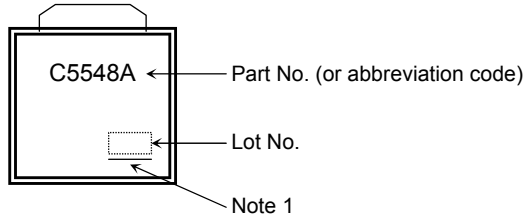
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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 (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 480\text{ V}, I_E = 0$	—	—	20	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	10	$\mu\text{A}$
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		$h_{FE} (1)$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	20	—	—	
		$h_{FE} (2)$	$V_{CE} = 5\text{ V}, I_C = 0.2\text{ A}$	40	—	100	
Collector emitter saturation voltage		$V_{CE (sat)}$	$I_C = 0.8\text{ A}, I_B = 0.1\text{ A}$	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = 0.8\text{ A}, I_B = 0.1\text{ A}$	—	—	1.3	V
Switching time	Rise time	$t_r$		—	—	0.5	$\mu\text{s}$
	Storage time	$t_{stg}$		—	—	3.0	
	Fall time	$t_f$		$I_{B1} = 0.1\text{ A}, I_{B2} = -0.2\text{ A}$ DUTY CYCLE $\leq 1\%$	—	—	

## Marking

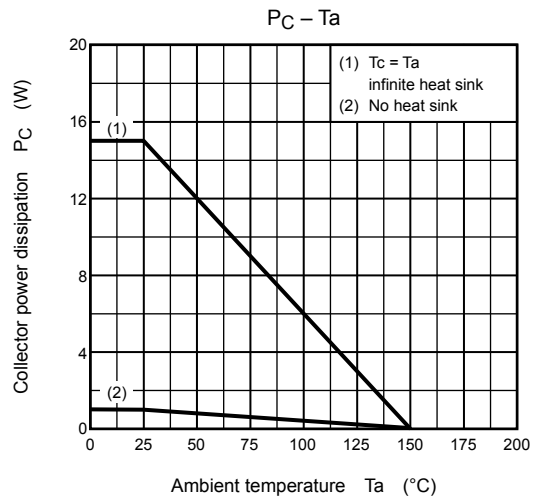
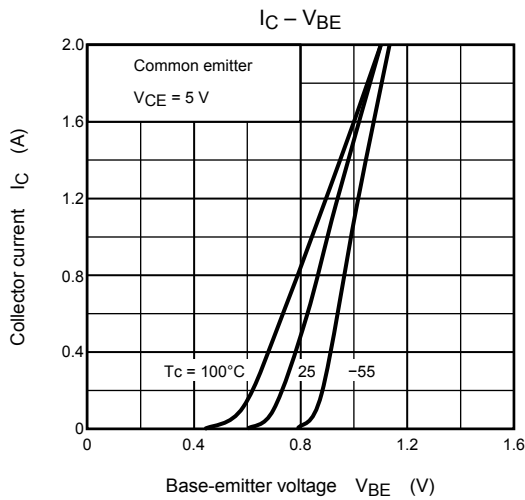
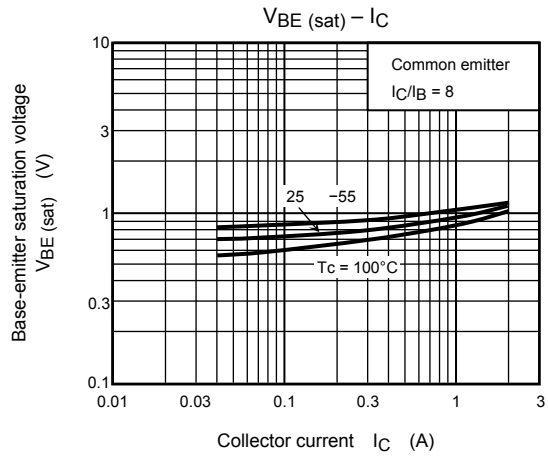
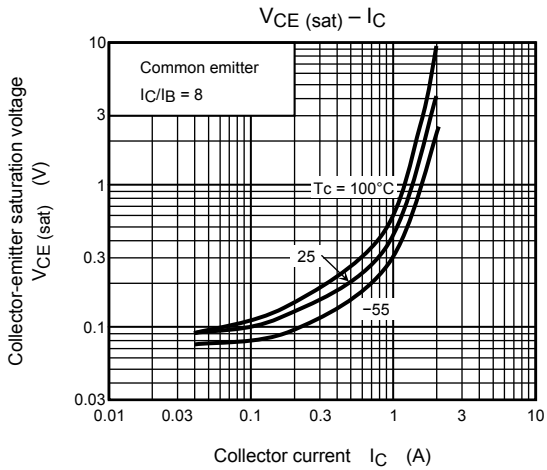
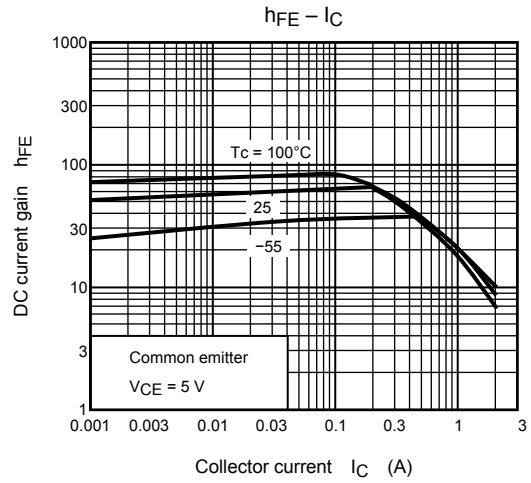
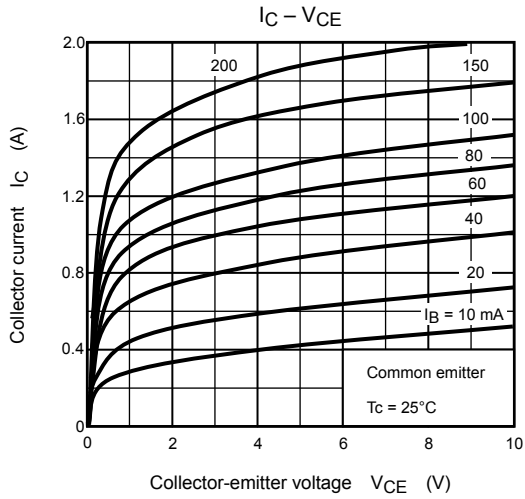


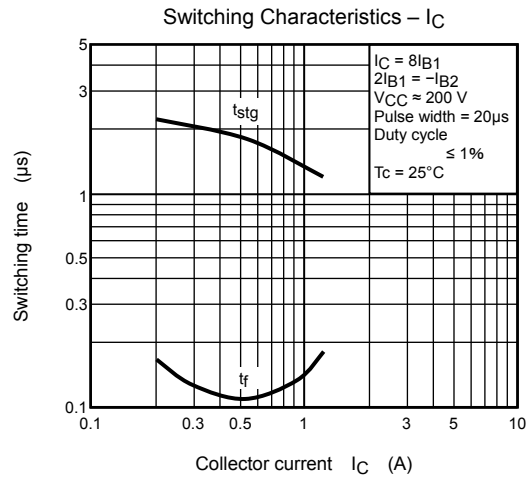
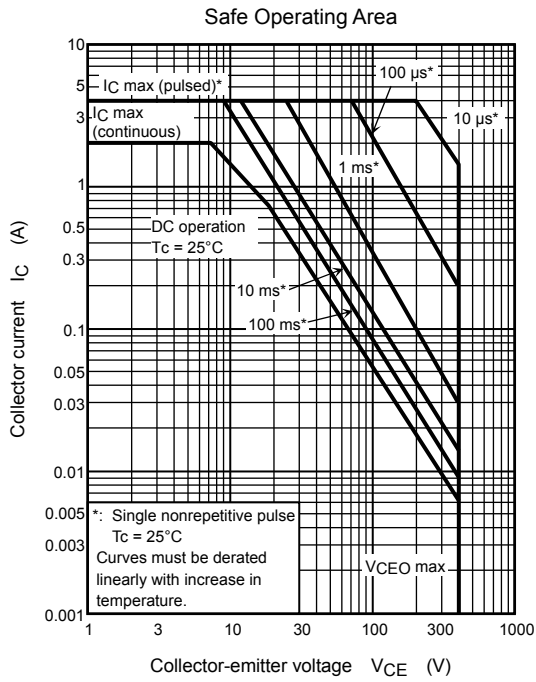
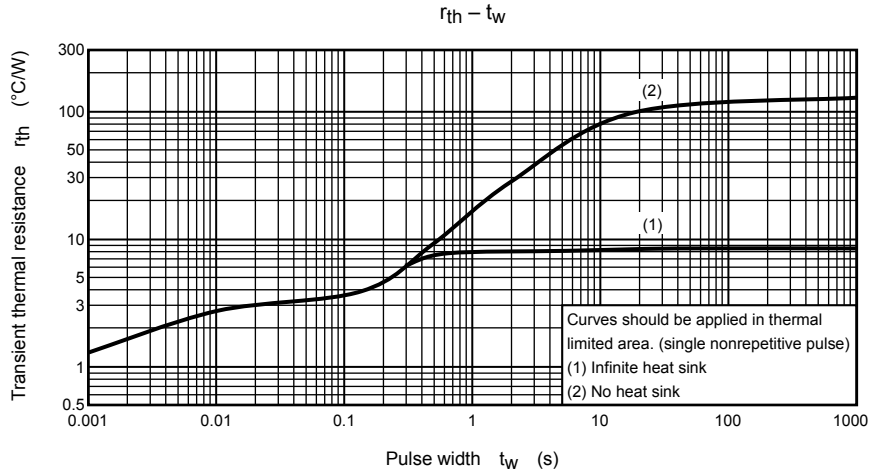
Note 1: A line under a Lot No. identifies the indication of product Labels.

Not underlined:  $[[Pb]]/INCLUDES > MCV$

Underlined:  $[[G]]/RoHS COMPATIBLE$  or  $[[G]]/RoHS [[Pb]]$

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





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