

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT process)

## 2SC5356

High Voltage Switching Applications

Switching Regulator Applications

DC-DC Converter Applications

- Excellent switching times:  $t_f = 0.5 \mu s$  (max) ( $I_C = 1.2 A$ )
- High collectors breakdown voltage:  $V_{CEO} = 800 V$
- High DC current gain:  $h_{FE} = 15$  (min) ( $I_C = 0.15 A$ )

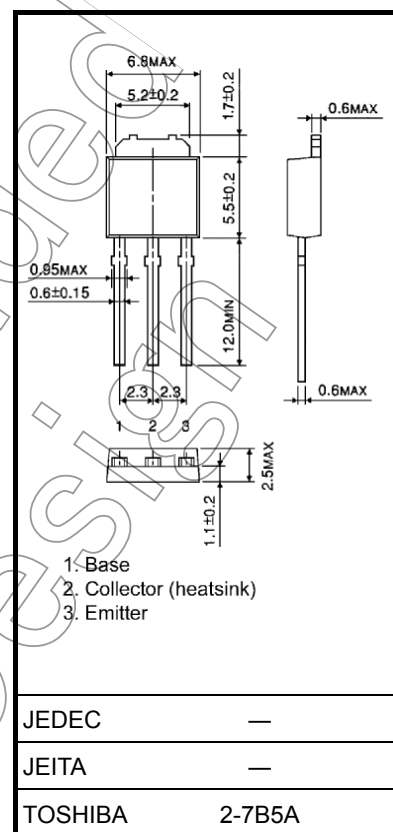
### Absolute Maximum Ratings ( $T_a = 25^\circ C$ )

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	$I_C$	3	A
	Pulse	$I_{CP}$	5	
Base current		$I_B$	1	A
Collector power dissipation	$T_a = 25^\circ C$	$P_C$	1.5	W
	$T_c = 25^\circ C$		25	
Junction temperature		$T_j$	150	$^\circ C$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ C$

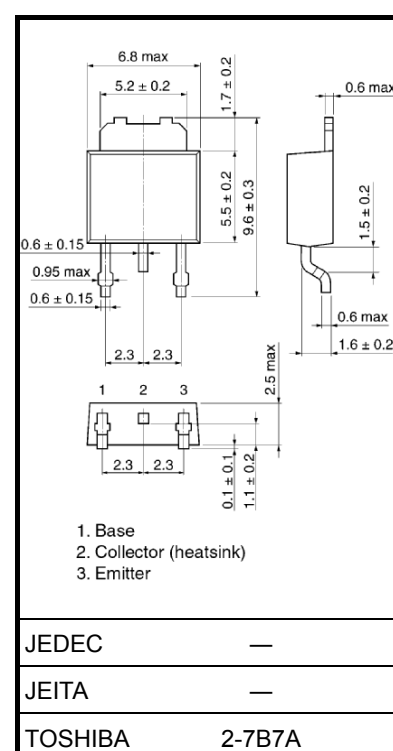
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Unit: mm

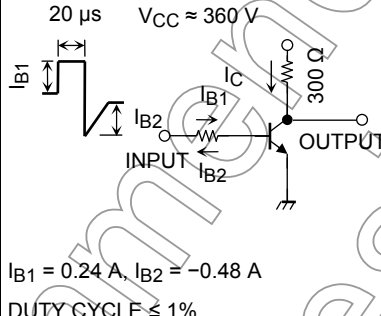


Weight: 0.36 g (typ.)

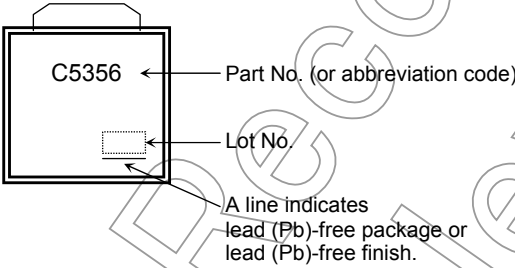


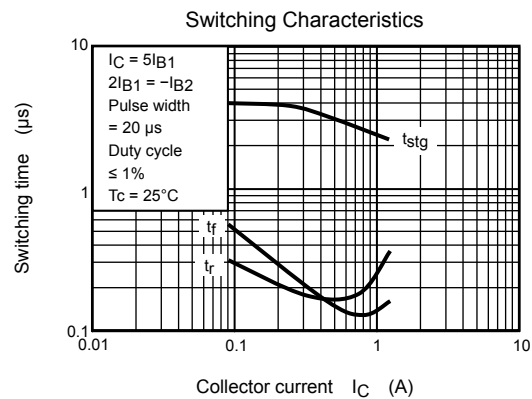
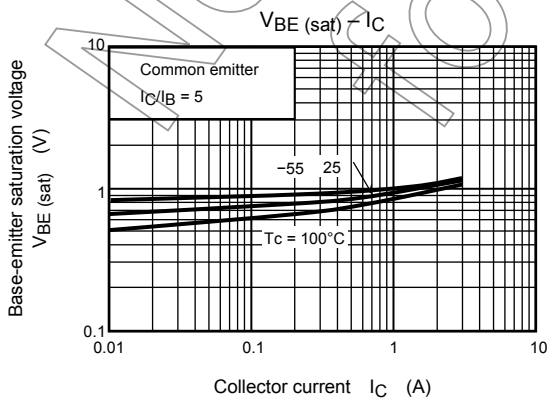
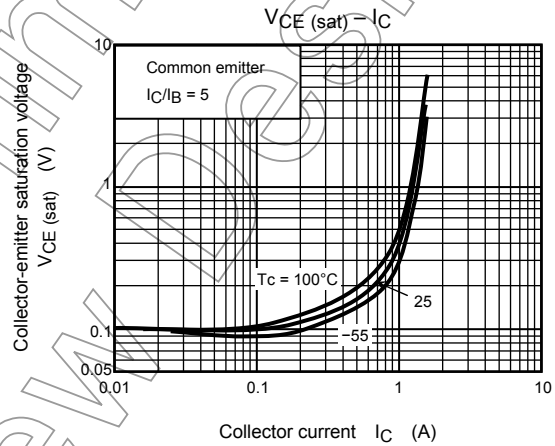
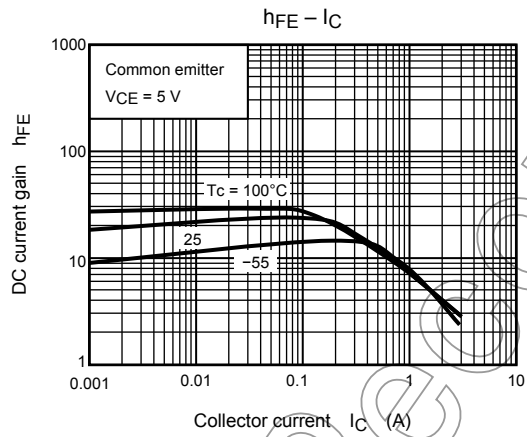
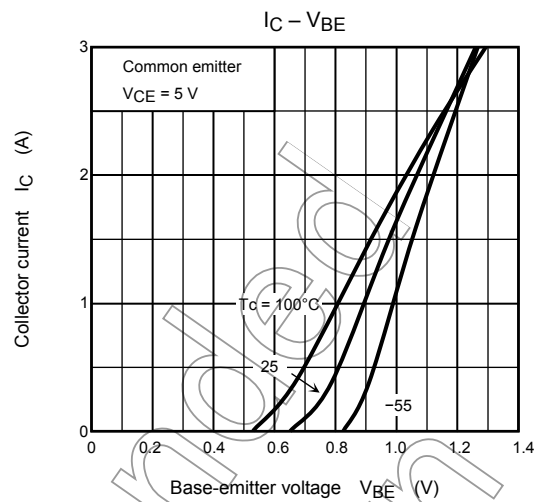
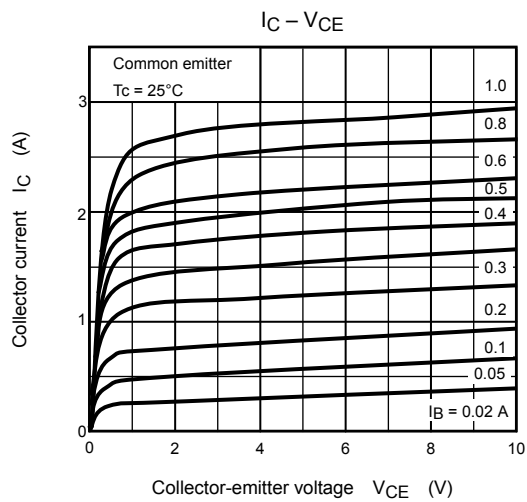
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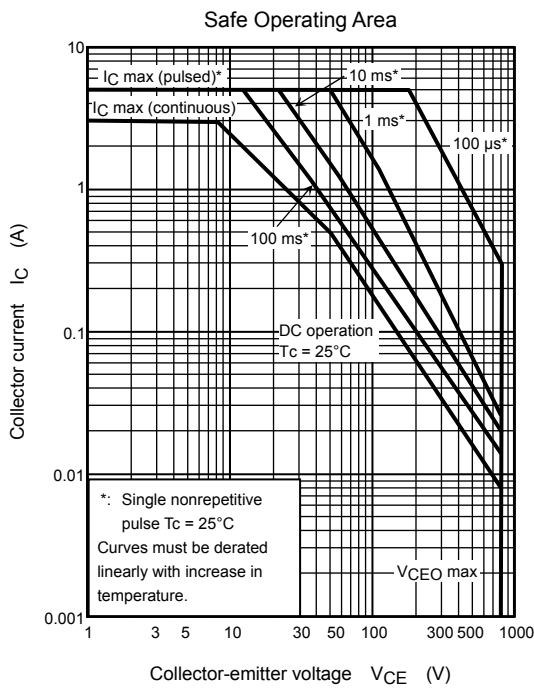
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	V <sub>CB</sub> = 720 V, I <sub>E</sub> = 0	—	—	100	μA
Emitter cut-off current		IEBO	V <sub>EB</sub> = 7 V, I <sub>C</sub> = 0	—	—	10	μA
Collector-base breakdown voltage		V <sub>(BR)</sub> CBO	I <sub>C</sub> = 1 mA, I <sub>E</sub> = 0	900	—	—	V
Collector-emitter breakdown voltage		V <sub>(BR)</sub> CEO	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	800	—	—	V
DC current gain		h <sub>FE</sub> (1)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA	10	—	—	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 0.15 A	15	—	—	
Collector-emitter saturation voltage		V <sub>CE</sub> (sat)	I <sub>C</sub> = 1.2 A, I <sub>B</sub> = 0.24 A	—	—	1.0	V
Base-emitter saturation voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = 1.2 A, I <sub>B</sub> = 0.24 A	—	—	1.3	V
Switching time	Rise time	t <sub>r</sub>	 20 μs V <sub>CC</sub> ≈ 360 V I <sub>B1</sub> , I <sub>B2</sub> , I <sub>C</sub> , 300 Ω, INPUT, OUTPUT	—	—	0.7	μs
	Storage time	t <sub>stg</sub>		—	—	4.0	
	Fall time	t <sub>f</sub>		—	—	0.5	

Marking







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