

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT process)

## 2SC5353

Switching Regulator and High Voltage Switching Applications

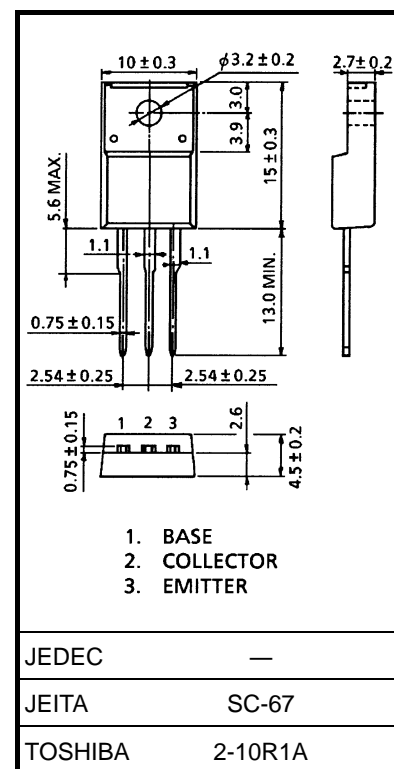
High-Speed DC-DC Converter Applications

Unit: mm

- Excellent switching times:  $t_r = 0.7 \mu s$  (max),  $t_f = 0.5 \mu s$  (max)
- High collectors breakdown voltage:  $V_{CEO} = 800 V$

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

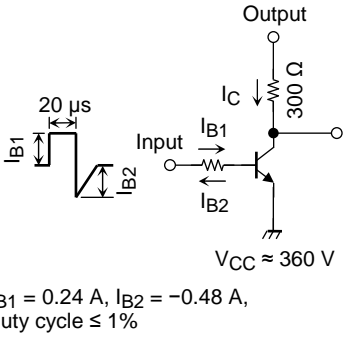
Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	900	V
Collector-emitter voltage		$V_{CEO}$	800	V
Emitter-base voltage		$V_{EBO}$	7	V
Collector current	DC	$I_C$	3	A
	Pulse	$I_{CP}$	5	
Base current		$I_B$	1	A
Collector power dissipation	$T_a = 25^\circ C$	$P_C$	2.0	W
	$T_c = 25^\circ C$		25	
Junction temperature		$T_j$	150	$^\circ C$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ C$



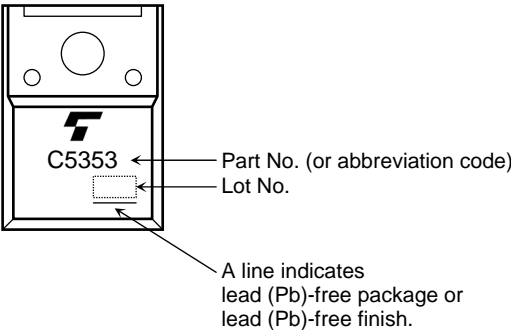
Weight: 1.7 g (typ.)

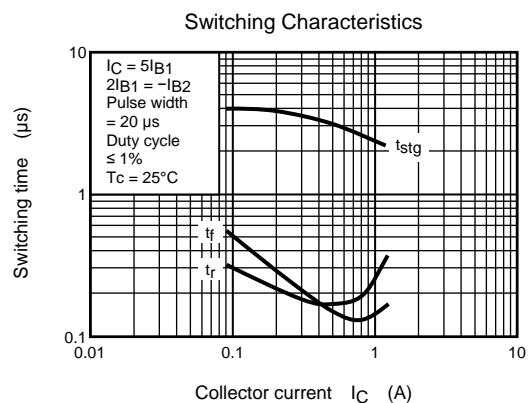
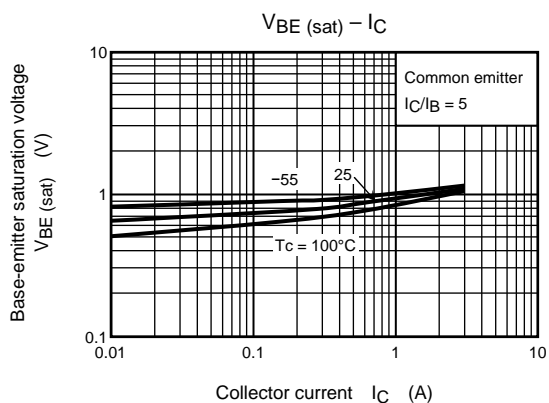
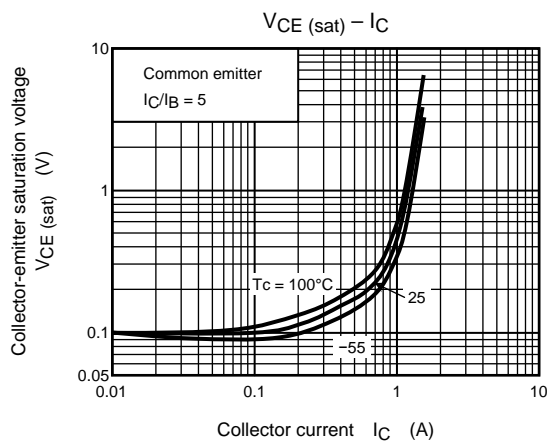
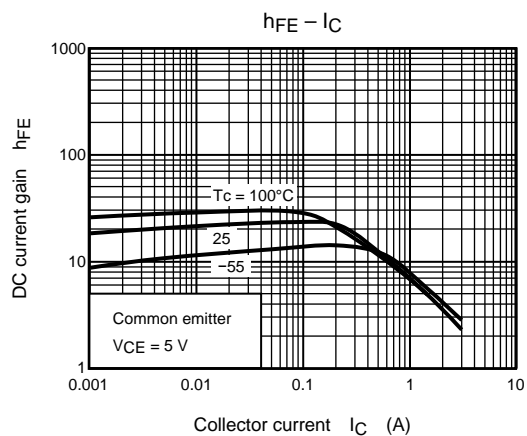
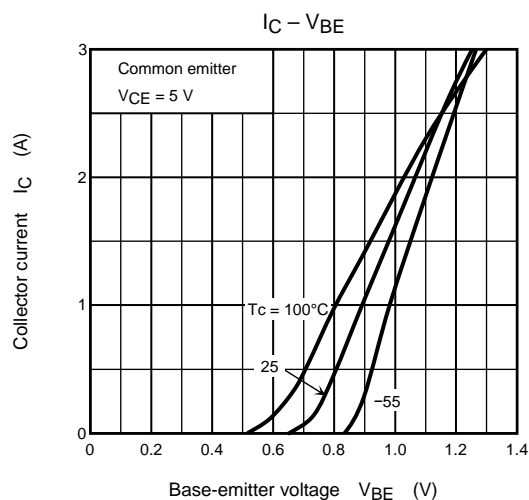
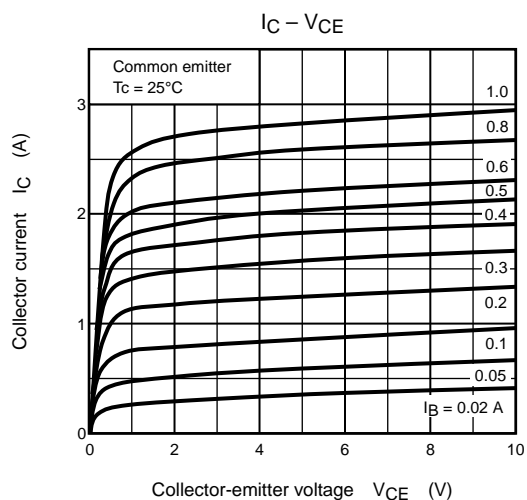
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

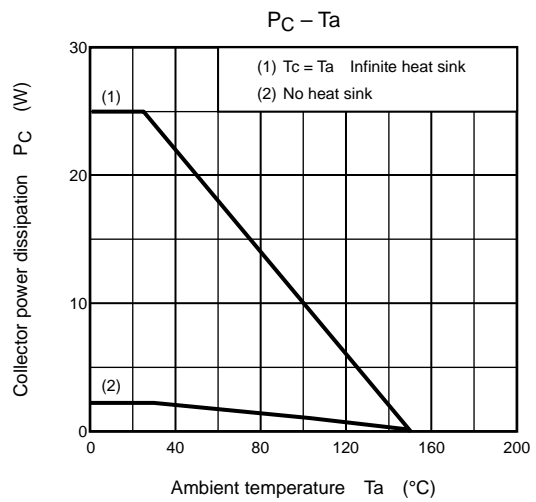
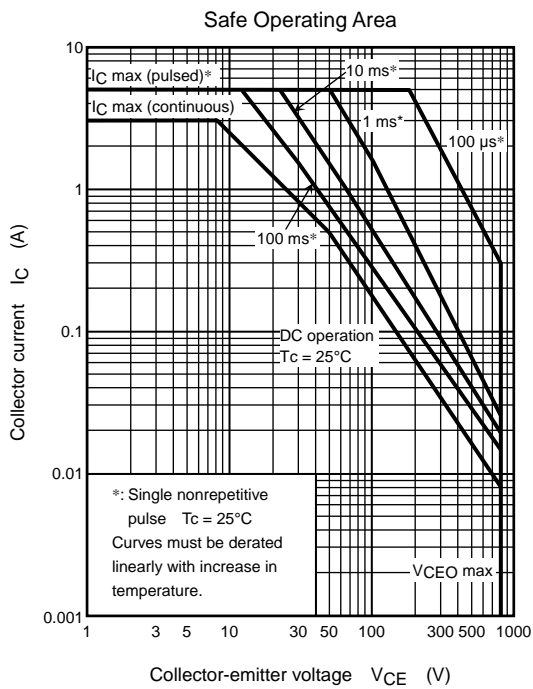
Electrical Characteristics (Tc = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 720\text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	10	$\mu\text{A}$
Collector-base breakdown voltage		$V_{(BR) CBO}$	$I_C = 1\text{ mA}, I_E = 0$	900	—	—	V
Collector-emitter breakdown voltage		$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	800	—	—	V
DC current gain		$h_{FE} (1)$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	10	—	—	
		$h_{FE} (2)$	$V_{CE} = 5\text{ V}, I_C = 0.15\text{ A}$	15	—	—	
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 1.2\text{ A}, I_B = 0.24\text{ A}$	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = 1.2\text{ A}, I_B = 0.24\text{ A}$	—	—	1.3	V
Switching time	Rise time	$t_r$	 $I_{B1} = 0.24\text{ A}, I_{B2} = -0.48\text{ A},$ duty cycle $\leq 1\%$	—	—	0.7	$\mu\text{s}$
	Storage time	$t_{stg}$		—	—	4.0	
	Fall time	$t_f$		—	—	0.5	

Marking







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