

TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC5692

High-Speed Switching Applications
DC-DC Converter Applications
Strobe Applications

- High DC current gain: $h_{FE} = 400$ to 1000 ($I_C = 0.3$ A)
- Low collector-emitter saturation voltage: $V_{CE(sat)} = 0.14$ V (max)
- High-speed switching: $t_f = 120$ ns (typ.)

Absolute Maximum Ratings (Ta = 25°C)

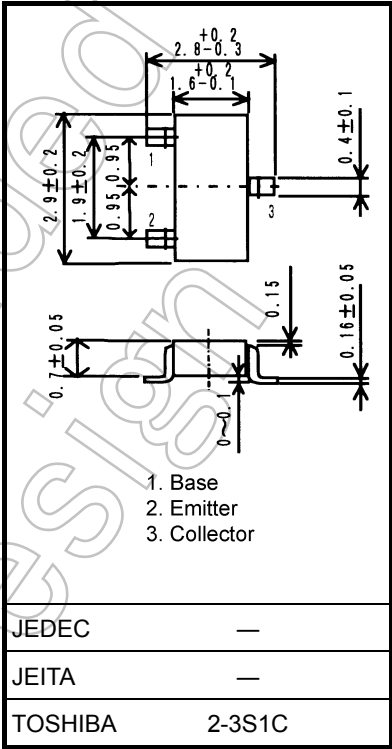
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	100	V
Collector-emitter voltage		V_{CEX}	80	V
Collector-emitter voltage		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	7	V
Collector current	DC	I_C	2.5	A
	Pulse	I_{CP}	4.0	
Base current		I_B	250	mA
Collector power dissipation	DC	P_C	625	mW
	$t = 10$ s	(Note 1)	1000	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

Note 1: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)

Note 2: 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: 0.01 g (typ.)

Start of commercial production
2000-05

Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	V _{CB} = 100 V, I _E = 0	—	—	100	nA
Emitter cut-off current		IEBO	V _{EB} = 7 V, I _C = 0	—	—	100	nA
Collector-emitter breakdown voltage		V (BR) CEO	I _C = 10 mA, I _B = 0	50	—	—	V
DC current gain		h _{FE} (1)	V _{CE} = 2 V, I _C = 0.3 A	400	—	1000	
		h _{FE} (2)	V _{CE} = 2 V, I _C = 1 A	200	—	—	
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = 1 A, I _B = 20 mA	—	—	0.14	V
Base-emitter saturation voltage		V _{BE} (sat)	I _C = 1 A, I _B = 20 mA	—	—	1.10	V
Collector output capacitance		C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	—	13	—	pF
Switching time	Rise time	t _r	See Figure 1.	—	40	—	ns
	Storage time	t _{stg}	V _{CC} ≈ 30 V, R _L = 30 Ω	—	500	—	
	Fall time	t _f	I _{B1} = -I _{B2} = 33.3 mA	—	120	—	

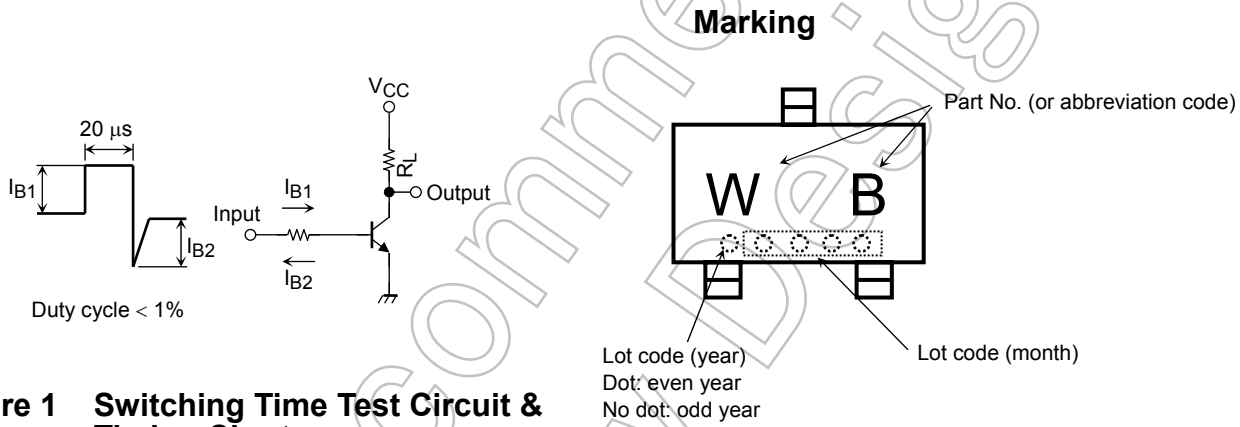
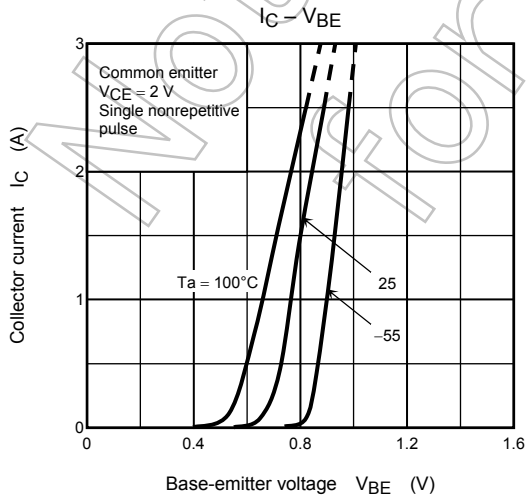
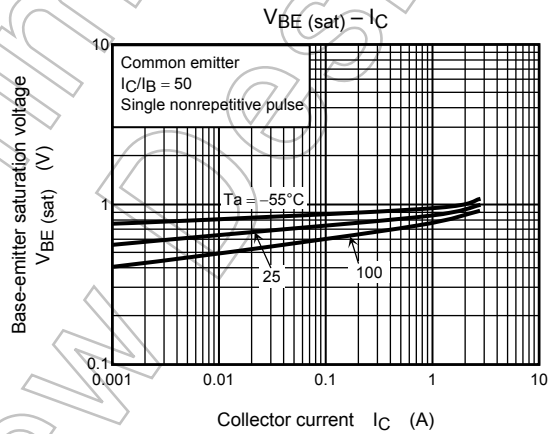
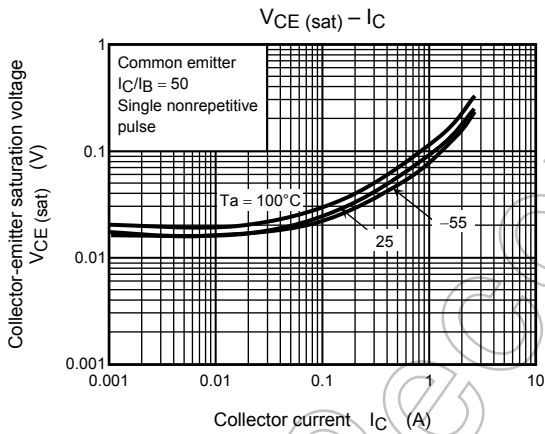
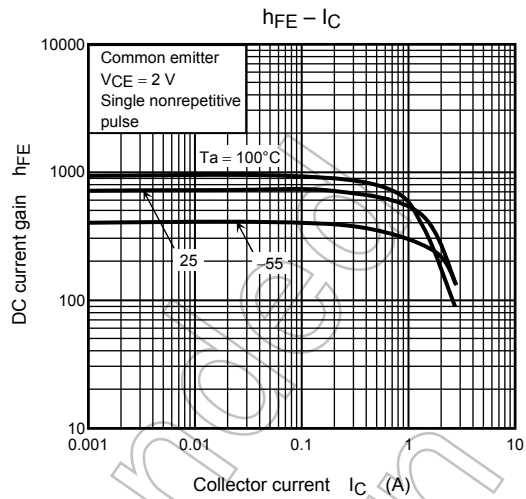
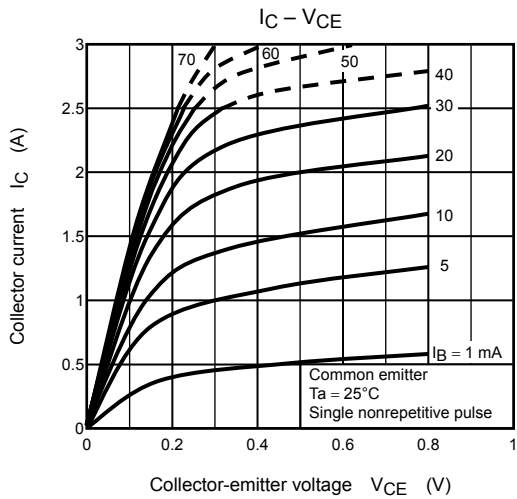
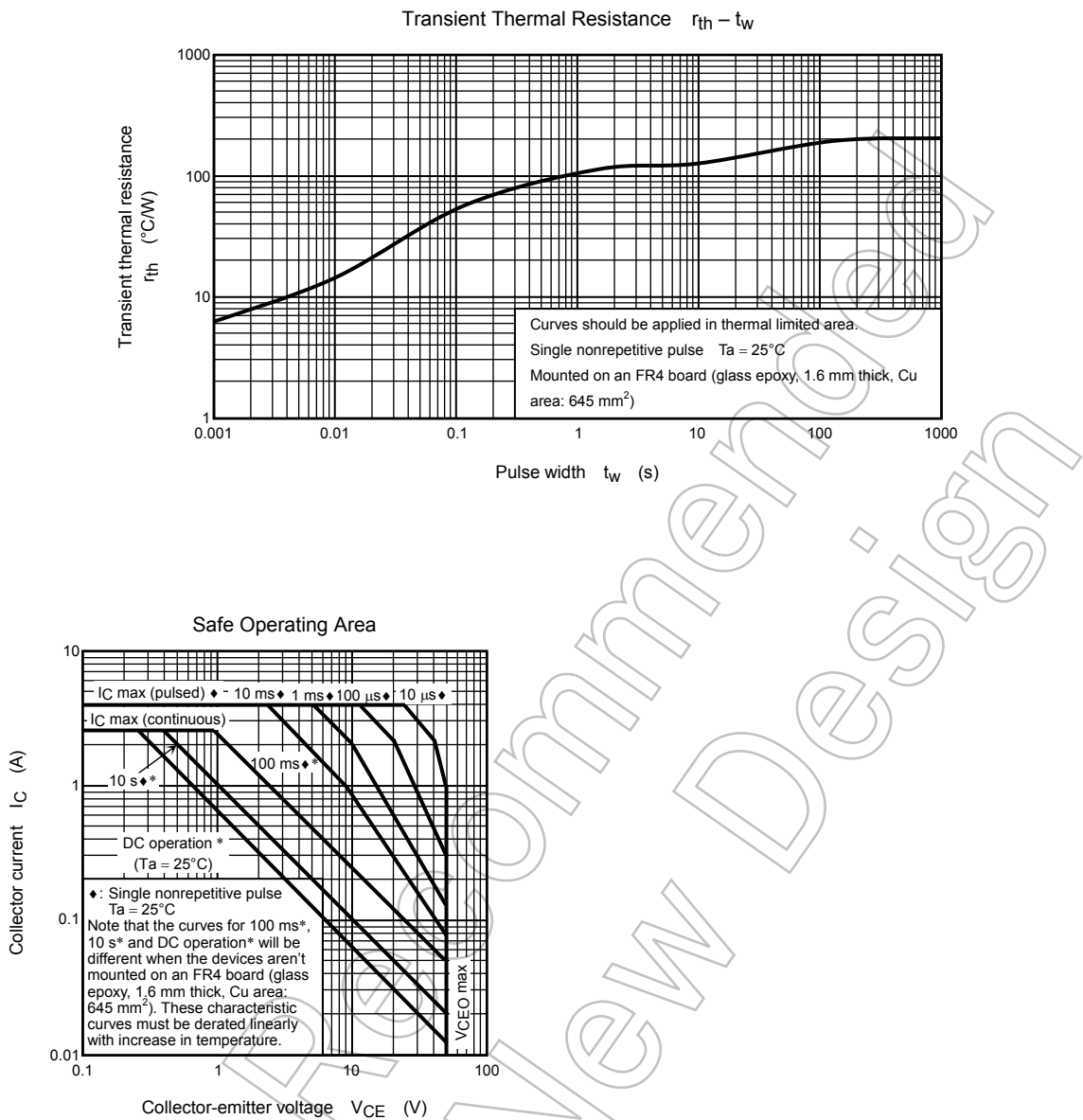


Figure 1 Switching Time Test Circuit & Timing Chart





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