

TOSHIBA Transistor Silicon NPN Epitaxial Type

TPC6502

High-Speed Switching Applications

DC/DC Converter Applications

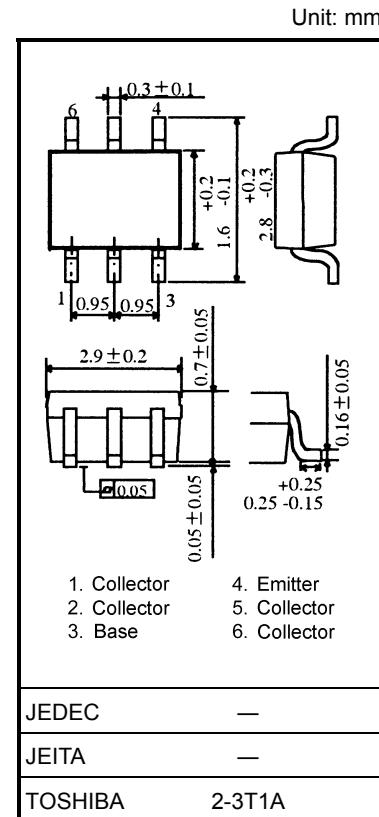
Strobe Applications

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

Maximum Ratings (Ta = 25°C)

Characteristic	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	A
	Pulse	I_{CP}	
Base current	I_B	300	mA
Collector power dissipation	DC	P_C	W
	$t = 10$ s	(Note)	
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

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



Weight: 0.01 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 100 \text{ V}$, $I_E = 0$	—	—	100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 7 \text{ V}$, $I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage	$V_{(BR)} \text{ CEO}$	$I_C = 10 \text{ mA}$, $I_B = 0$	50	—	—	V
DC current gain	$h_{FE} \text{ (1)}$	$V_{CE} = 2 \text{ V}$, $I_C = 0.3 \text{ A}$	400	—	1000	
	$h_{FE} \text{ (2)}$	$V_{CE} = 2 \text{ V}$, $I_C = 1 \text{ A}$	200	—	—	
Collector-emitter saturation voltage	$V_{CE} \text{ (sat)}$	$I_C = 1 \text{ A}$, $I_B = 20 \text{ mA}$	—	—	0.14	V
Base-emitter saturation voltage	$V_{BE} \text{ (sat)}$	$I_C = 1 \text{ A}$, $I_B = 20 \text{ mA}$	—	—	1.10	V
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$	—	13	—	pF
Switching time	Rise time	t_r	See Figure 1 circuit diagram. $V_{CC} \approx 30 \text{ V}$, $R_L = 30 \Omega$	—	40	—
	Storage time	t_{stg}		—	500	—
	Fall time	t_f		—	120	—

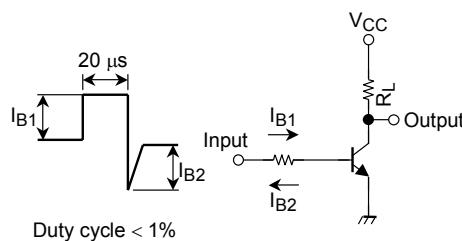
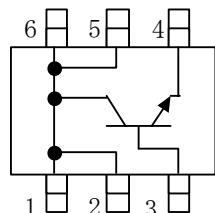
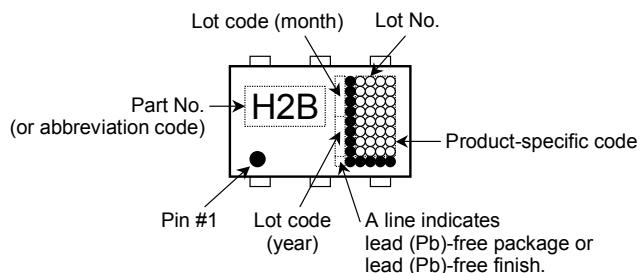


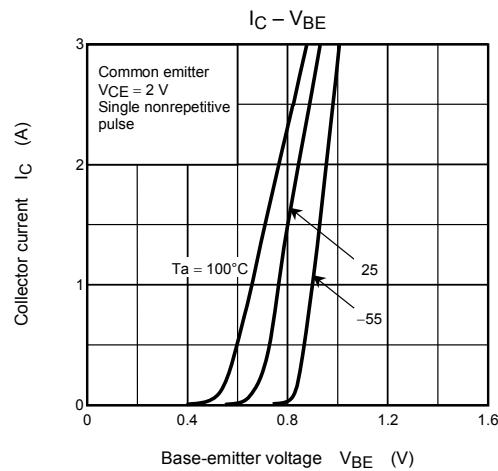
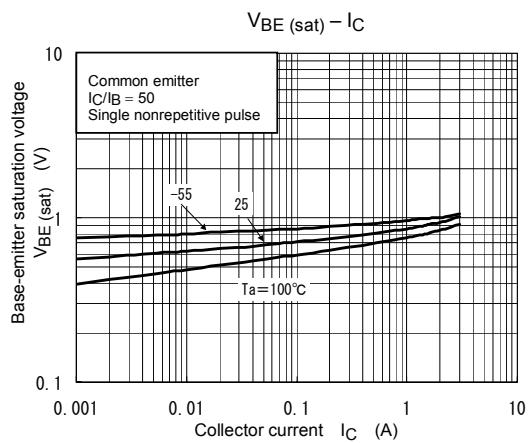
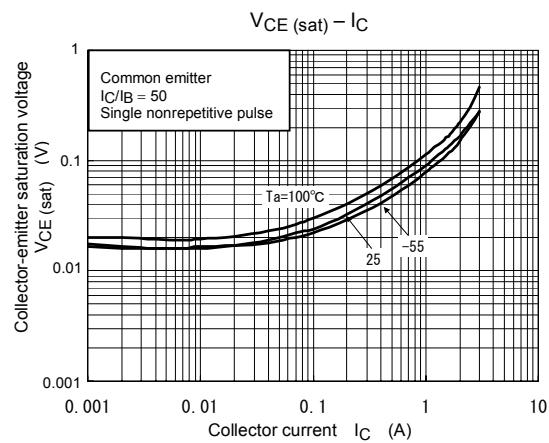
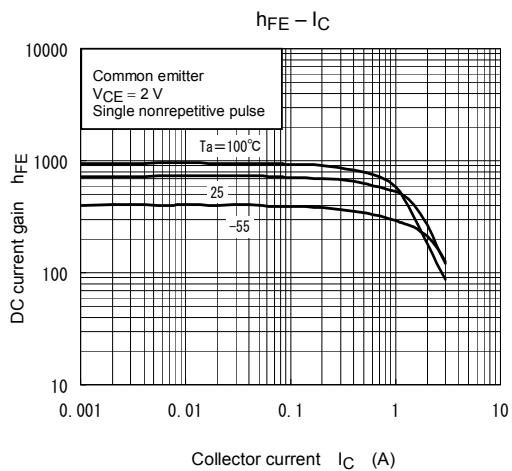
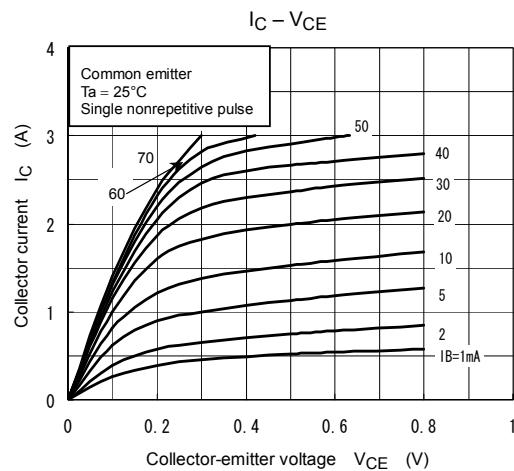
Figure 1. Switching Time Test Circuit & Timing Chart

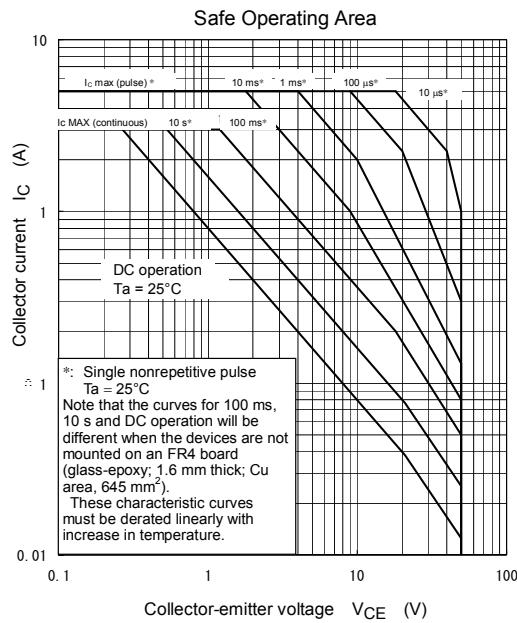
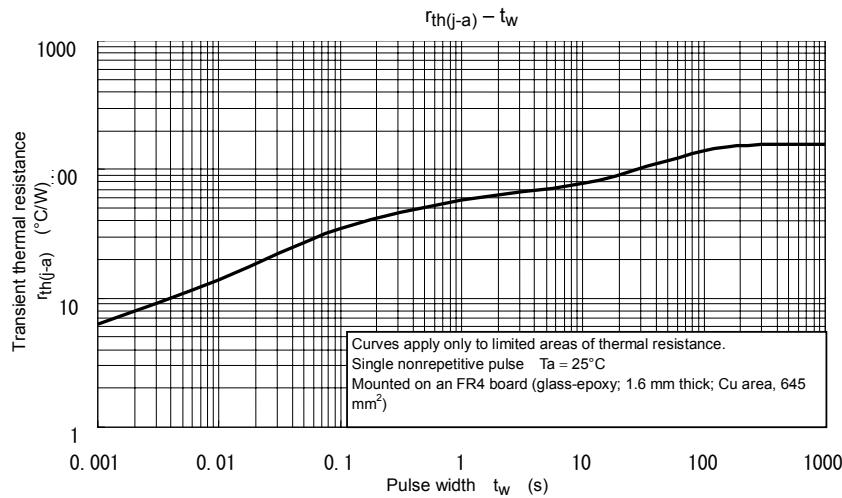
Circuit Configuration



Marking







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