

TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC5810

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

- High DC current gain: $h_{FE} = 400$ to 1000 ($I_C = 0.1$ A)
- Low collector-emitter saturation voltage: $V_{CE(sat)} = 0.17$ V (max)
- High-speed switching: $t_f = 85$ ns (typ.)

Maximum Ratings (Ta = 25°C)

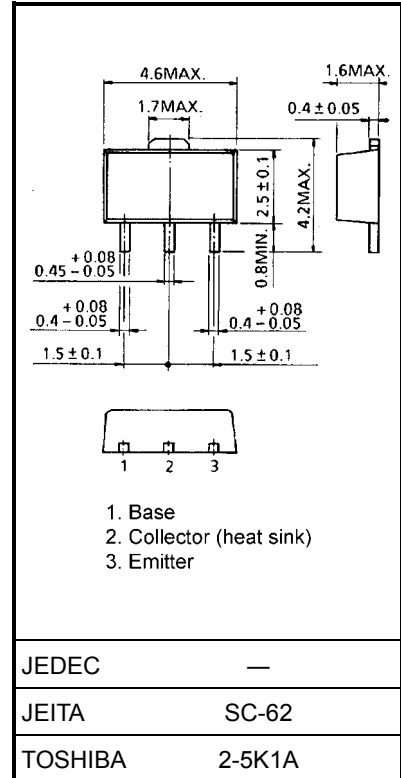
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	100	V
Collector-emitter voltage	V_{CEX}	80	V
	V_{CEO}	50	
Emitter-base voltage	V_{EBO}	7	V
Collector current	DC	I_C	A
	Pulse	I_{CP}	
Base current	I_B	0.1	A
Collector power dissipation	DC	P_C (Note)	W
	$t = 10$ s		
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

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

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 100$ V, $I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7$ 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, $I_C = 0.1$ A	400	—	1000	
	$h_{FE(2)}$	$V_{CE} = 2$ V, $I_C = 0.3$ A	200	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 300$ mA, $I_B = 6$ mA	—	—	0.17	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 300$ mA, $I_B = 6$ mA	—	—	1.10	V
Collector output capacitance	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, $f = 1$ MHz	—	5	—	pF
Switching time	Rise time	See Figure 1 circuit diagram. $V_{CC} \approx 30$ V, $R_L = 100 \Omega$ $I_{B1} = -I_{B2} = 10$ mA	—	35	—	ns
	Storage time		—	680	—	
	Fall time		—	85	—	

Unit: mm



Weight: 0.05 g (typ.)

Marking

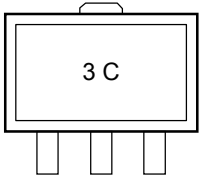
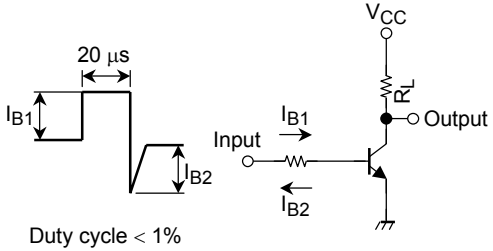
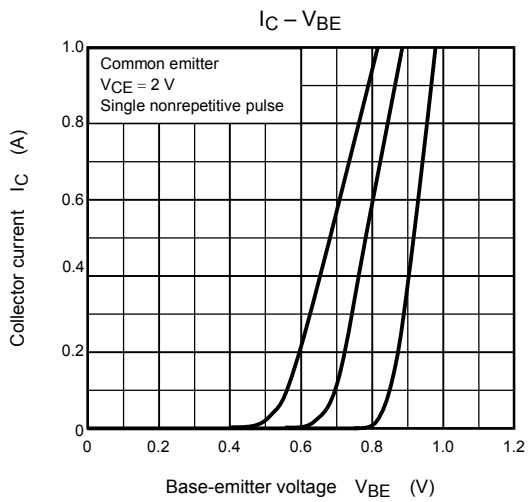
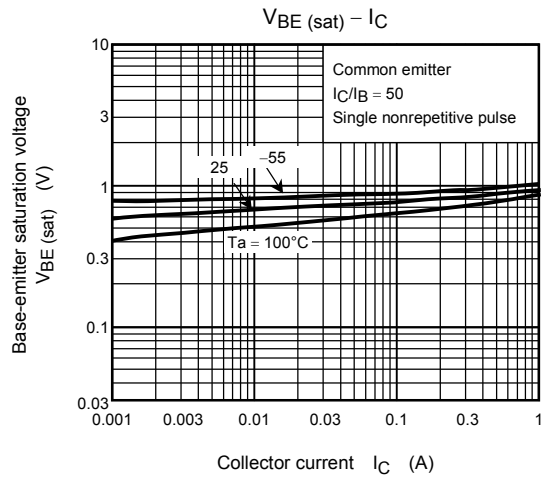
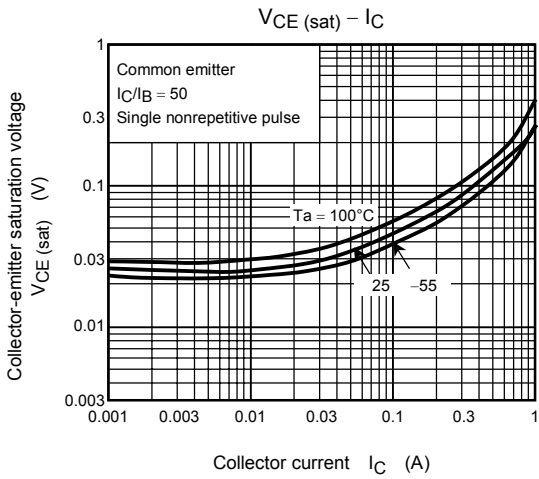
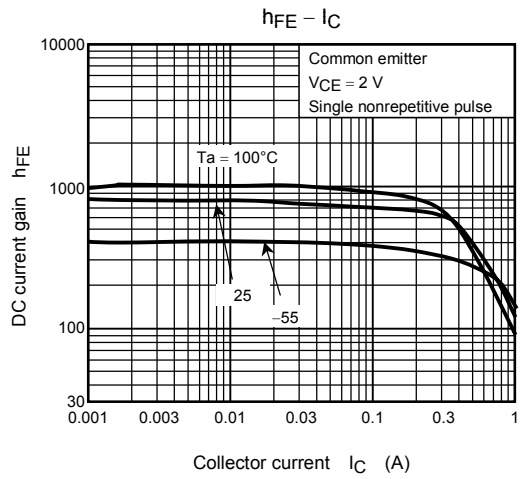
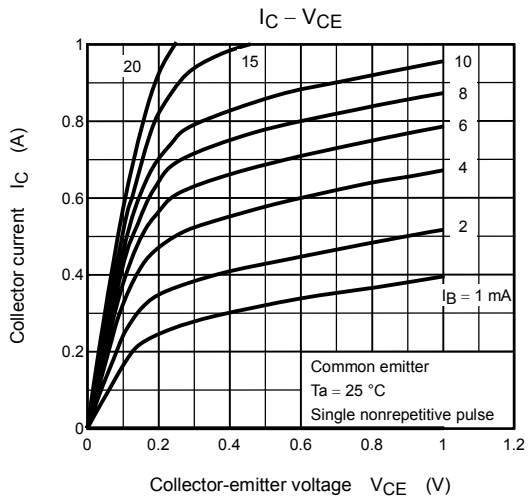
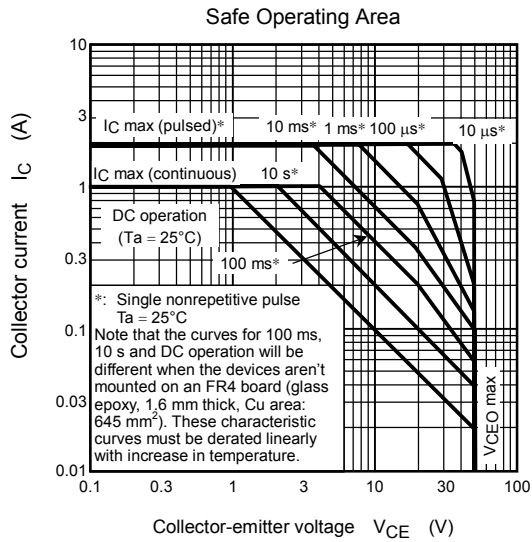
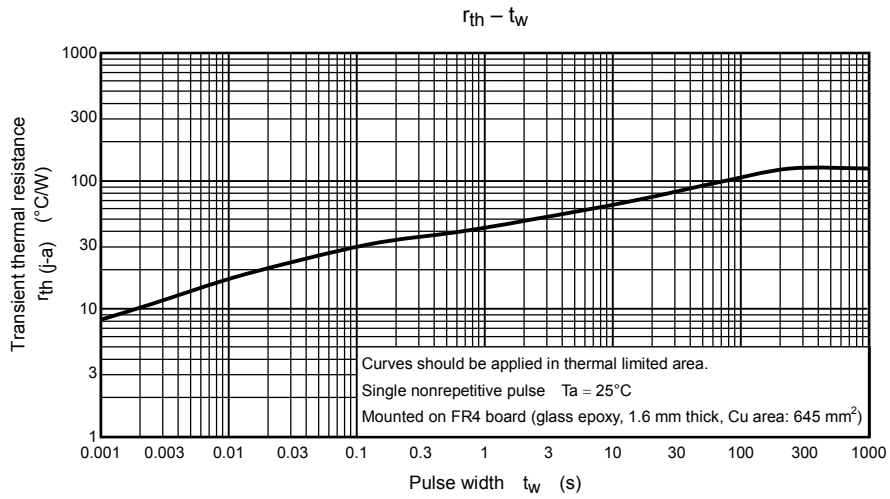


Figure 1 Switching Time Test Circuit & Timing Chart





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