

TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA1771

High-Current Switching Applications

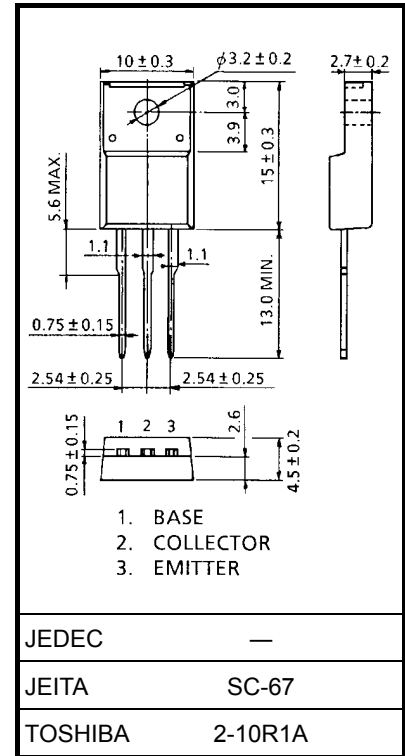
- Low collector saturation voltage: $V_{CE(sat)} = -0.4 \text{ V (max)}$ ($I_C = -6 \text{ A}$)
- High-speed switching: $t_{stg} = 0.6 \mu\text{s (typ.)}$
- High emitter-base breakdown voltage: $V_{(BR) EBO} = -14 \text{ V (min)}$

Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	-80	V
Collector-emitter voltage	V_{CE0}	-80	V
Emitter-base voltage	V_{EBO}	-14	V
Collector current	I_C	-12	A
Base current	I_B	-1.2	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	30	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

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

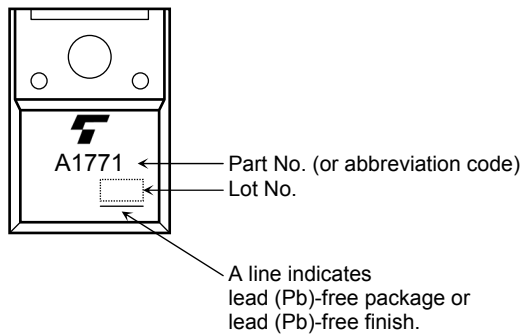


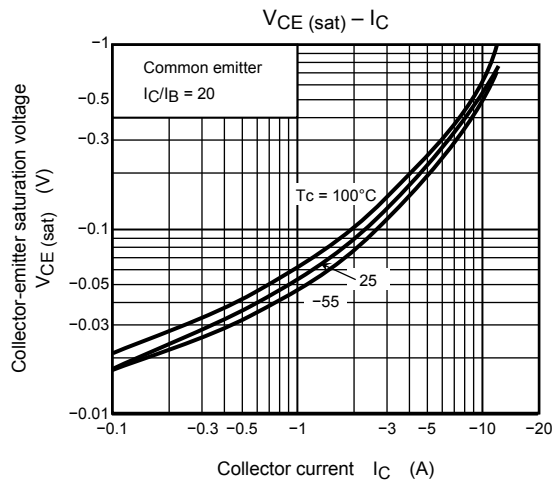
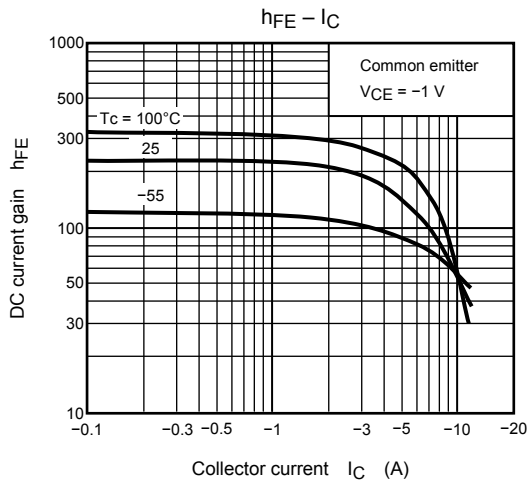
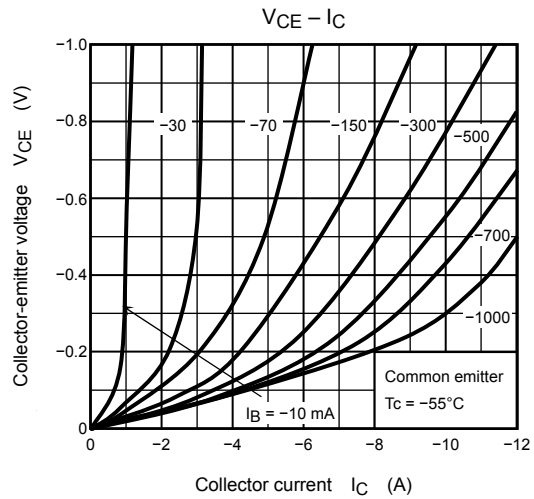
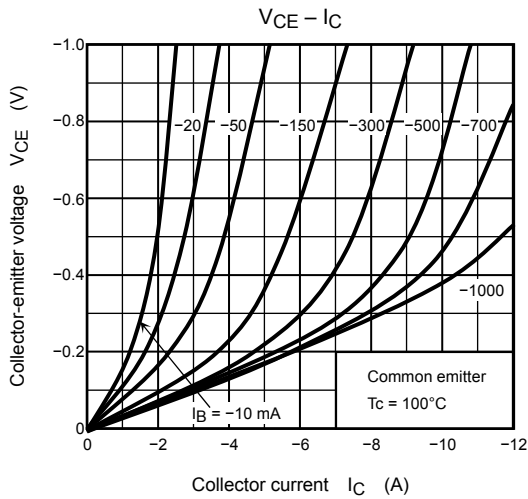
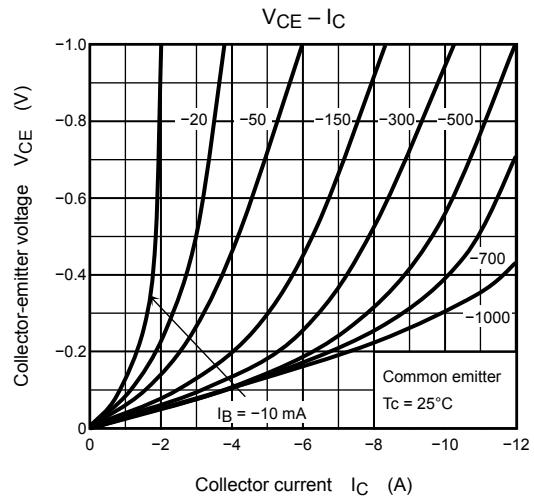
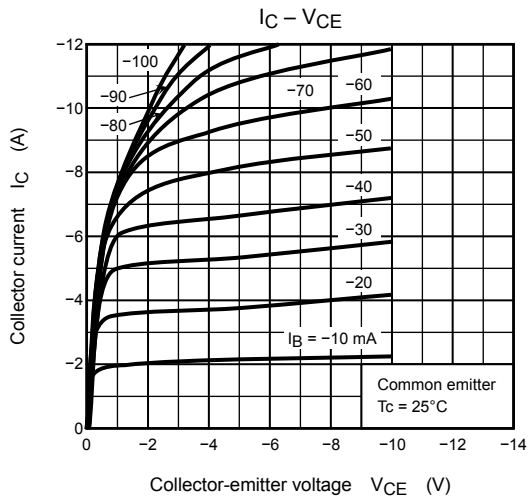
Weight: 1.7 g (typ.)

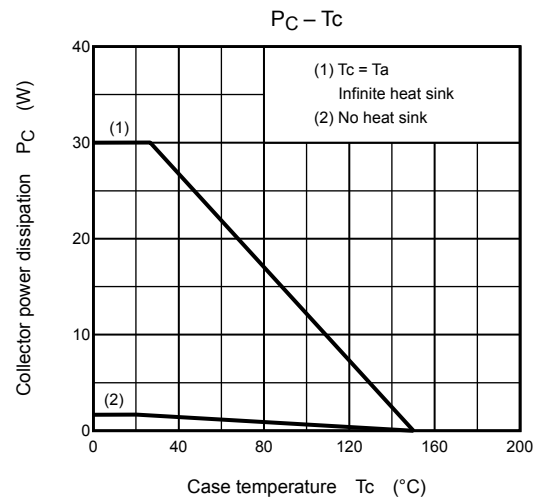
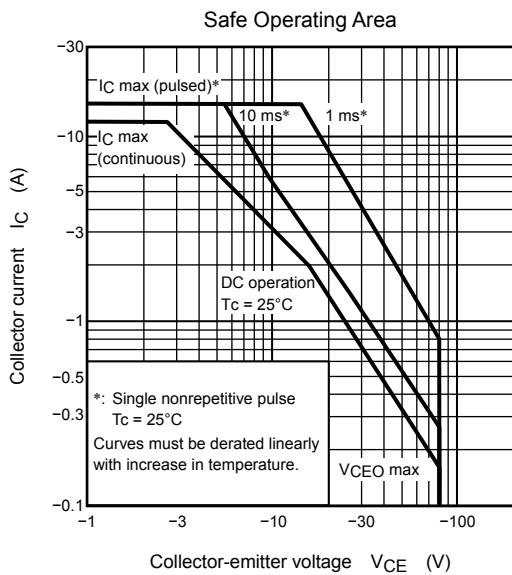
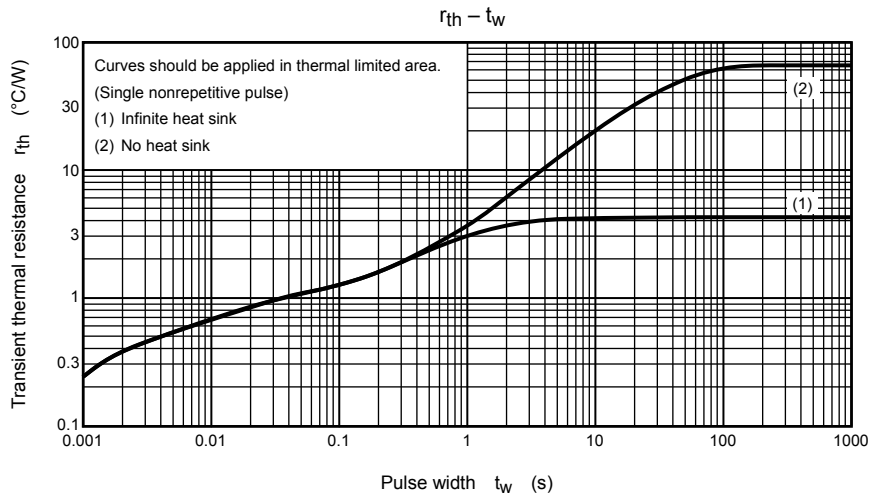
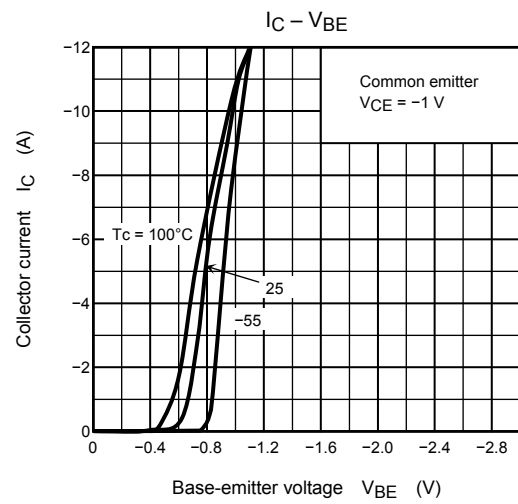
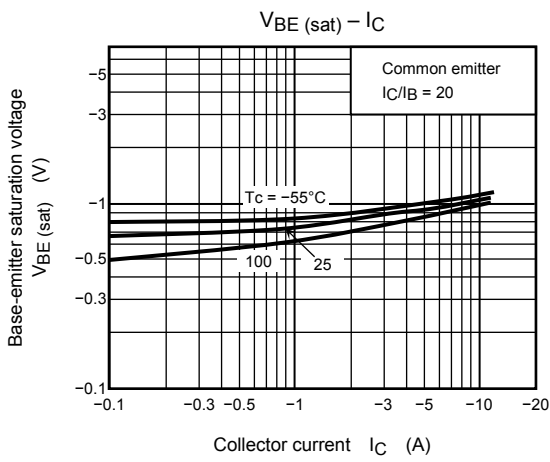
Electrical Characteristics (Tc = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = -80\text{ V}, I_E = 0$	—	—	-10	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = -14\text{ V}, I_C = 0$	—	—	-10	μA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -50\text{ mA}, I_B = 0$	-80	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = -1\text{ V}, I_C = -1\text{ A}$	100	—	320	
		$h_{FE(2)}$	$V_{CE} = -1\text{ V}, I_C = -6\text{ A}$	40	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -6\text{ A}, I_B = -0.3\text{ A}$	—	-0.2	-0.4	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -6\text{ A}, I_B = -0.3\text{ A}$	—	-0.9	-1.2	
Transition frequency		f_T	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	—	50	—	MHz
Collector output capacitance		C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	300	—	pF
Switching time	Turn-on time	t_{on}	<p style="text-align: center;">$-I_{B1} = I_{B2} = 0.3\text{ A}, \text{ duty cycle} \leq 1\%$</p>	—	0.2	—	μs
	Storage time	t_{stg}		—	0.6	—	
	Fall time	t_f		—	0.1	—	

Marking







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20070701-EN

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