

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1451A

High-Speed, High-Current Switching Applications

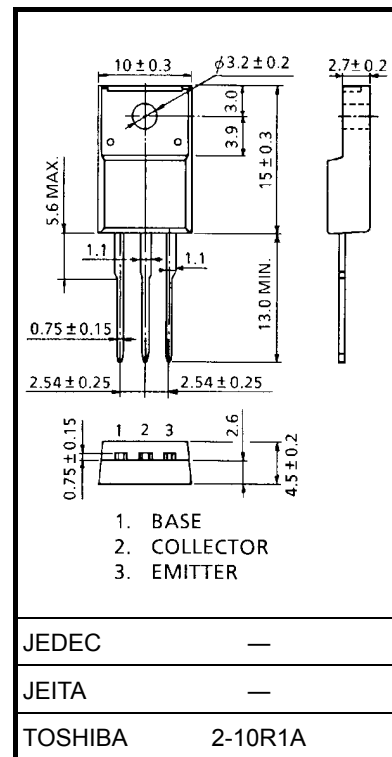
Unit: mm

- Low collector saturation voltage
: $V_{CE(sat)} = -0.4 \text{ V (max)} (I_C = -6 \text{ A})$
- High-speed switching: $t_{stg} = 1.0 \mu\text{s (typ.)}$
- Complementary to 2SC3709A

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

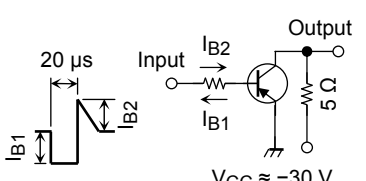
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-12	A
Base current	I_B	-2	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	30	W
Junction temperature	T_j	150	$^\circ\text{C}$
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).



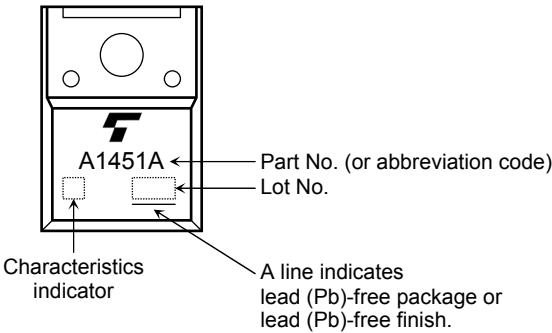
Weight: 1.7 g (typ.)

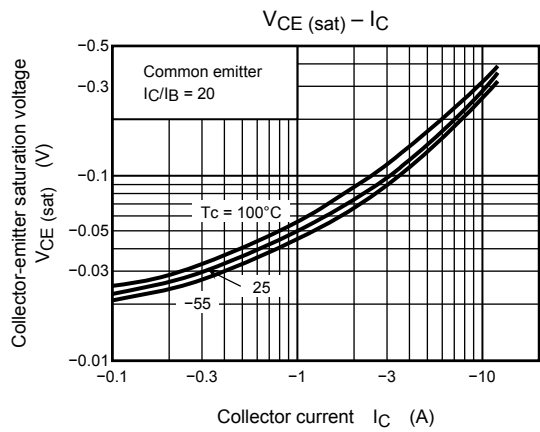
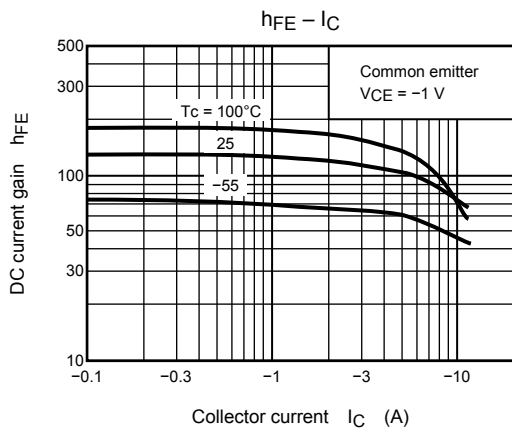
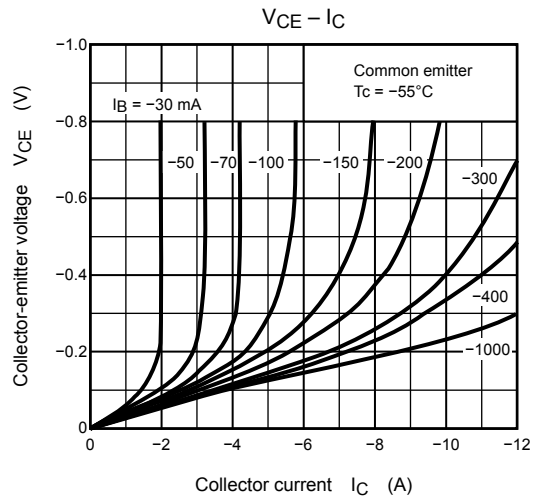
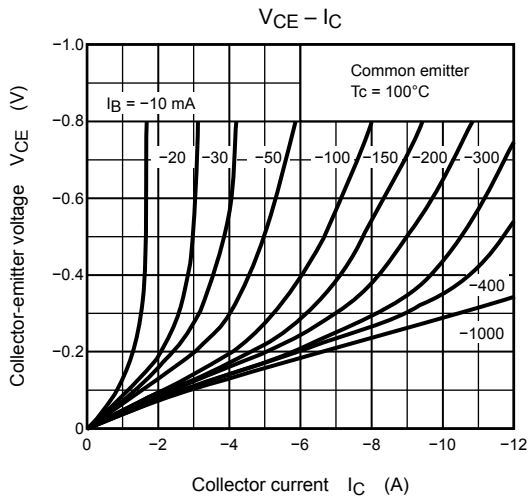
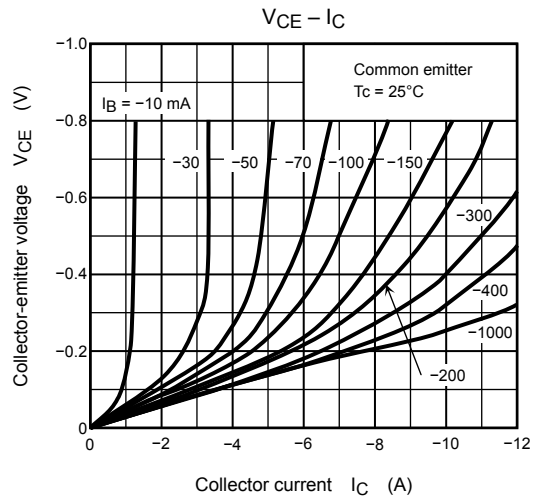
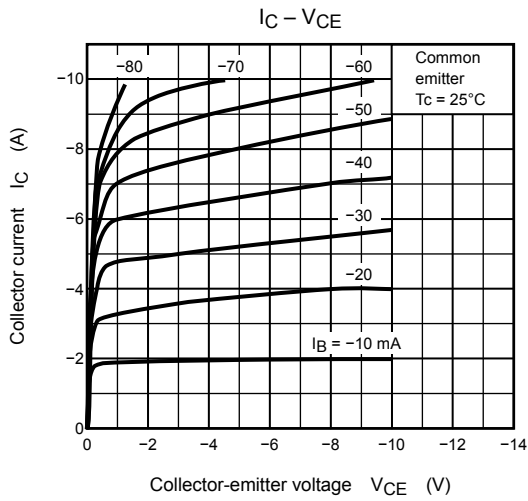
Electrical Characteristics (Tc = 25°C)

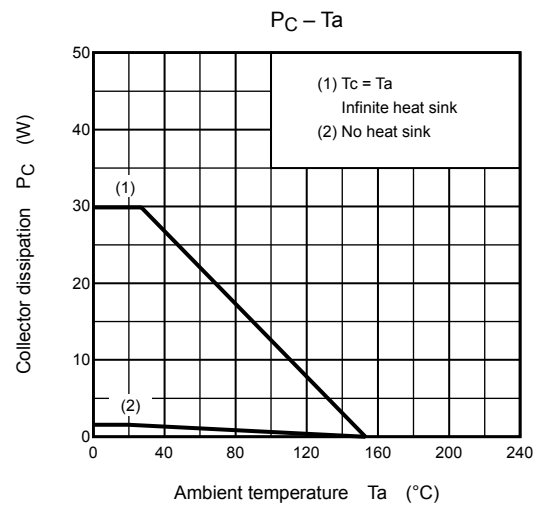
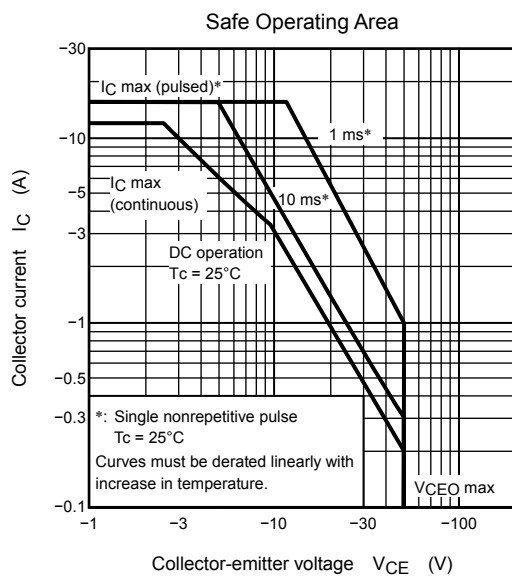
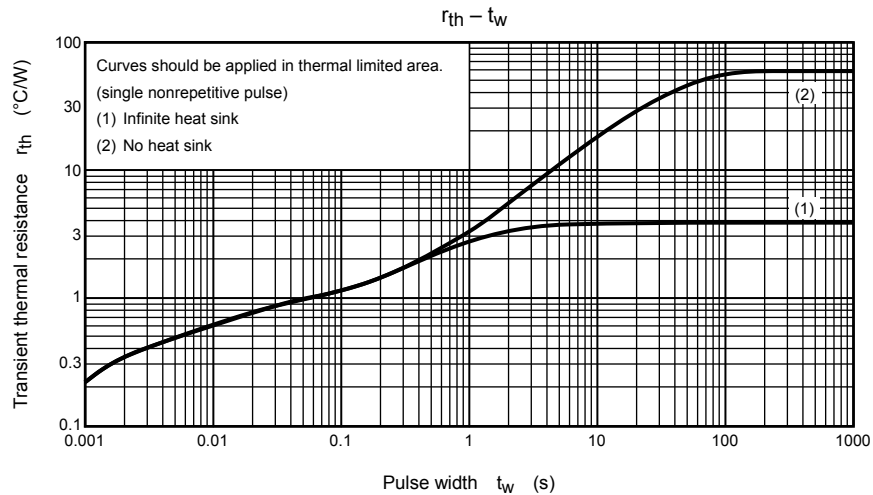
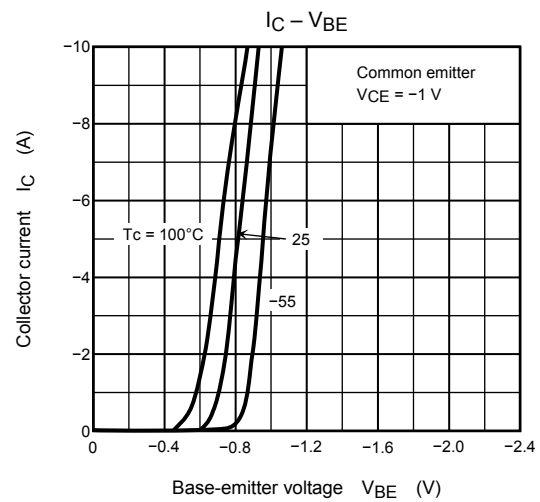
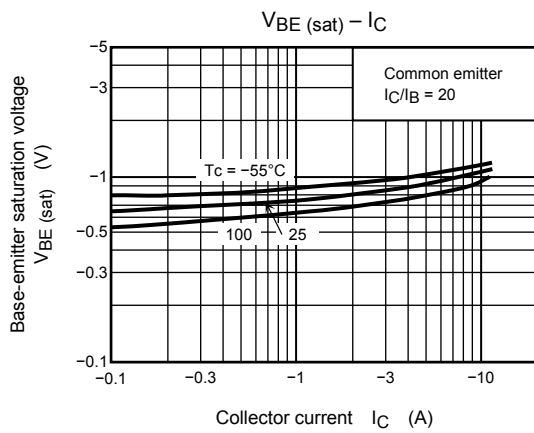
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	V _{CB} = -60 V, I _E = 0	—	—	-10	μA
Emitter cut-off current		IEBO	V _{EB} = -6 V, I _C = 0	—	—	-10	μA
Collector-emitter breakdown voltage		V (BR) CEO	I _C = -50 mA, I _B = 0	-50	—	—	V
DC current gain	h _{FE} (1) (Note)		V _{CE} = -1 V, I _C = -1 A	70	—	240	
	h _{FE} (2)		V _{CE} = -1 V, I _C = -6 A	40	—	—	
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = -6 A, I _B = -0.3 A	—	-0.15	-0.4	V
Base-emitter saturation voltage		V _{BE} (sat)	I _C = -6 A, I _B = -0.3 A	—	-0.9	-1.2	
Transition frequency		f _T	V _{CE} = -5 V, I _C = -1 A	—	70	—	MHz
Collector output capacitance		C _{ob}	V _{CB} = -10 V, I _E = 0, f = 1 MHz	—	320	—	pF
Switching time	Turn-on time	t _{on}	 -IB ₁ = IB ₂ = 0.3 A, duty cycle ≤ 1%	—	0.3	—	μs
	Storage time	t _{stg}		—	1.0	—	
	Fall time	t _f		—	0.2	—	

Note: h_{FE} (1) classification O: 70 to 140, Y: 120 to 240

Marking







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20070701-EN

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