

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

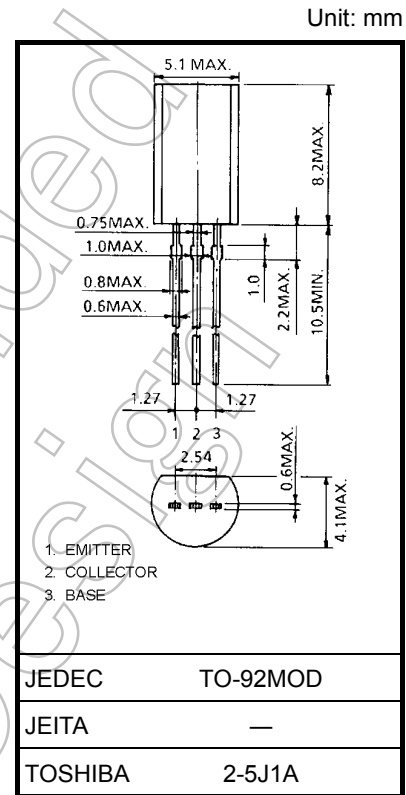
2SA1020

Power Amplifier Applications
 Power Switching Applications

- Low Collector saturation voltage: $V_{CE(sat)} = -0.5 \text{ V (max)}$ ($I_C = -1 \text{ A}$)
- High collector power dissipation: $P_C = 900 \text{ mW}$
- High-speed switching: $t_{stg} = 1.0 \mu\text{s}$ (typ.)
- Complementary to 2SC2655

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-2	A
Base current	I_B	-0.2	A
Collector power dissipation	P_C	900	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$



Weight: 0.36 g (typ.)

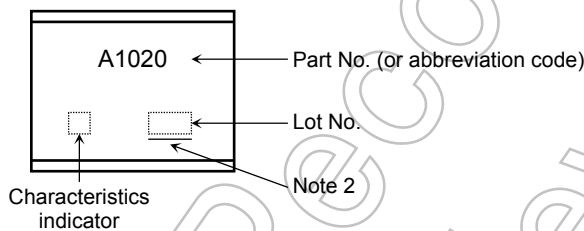
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Electrical Characteristics (T_a = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I _{CBO}	V _{CB} = -50 V, I _E = 0	—	—	-1	μA
Emitter cut-off current		I _{EBO}	V _{EB} = -5 V, I _C = 0	—	—	-1	μA
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 = -0.5 A	70	—	240	
		h _{FE} (2)	V _{CE} = -2 V, I _C = -1.5 A	40	—	—	
Collector-emitter saturation voltage		V _{CE (sat)}	I _C = -1 A, I _B = -0.05 A	—	—	-0.5	V
Base-emitter saturation voltage		V _{BE (sat)}	I _C = -1 A, I _B = -0.05 A	—	—	-1.2	V
Transition frequency		f _T	V _{CE} = -2 V, I _C = -0.5 A	—	100	—	MHz
Collector output capacitance		C _{ob}	V _{CB} = -10 V, I _E = 0, f = 1 MHz	—	40	—	pF
Switching time	Turn-on time	t _{on}	<p>20 μs Input I_{B2} I_{B1} Output 30 Ω V_{CC} = -30 V</p>	—	0.1	—	μs
	Storage time	t _{stg}		—	1	—	
	Fall time	t _f		I _{B1} = 0.05 A, I _{B2} = 0.05 A DUTY CYCLE ≤ 1%	—	0.1	

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

Marking

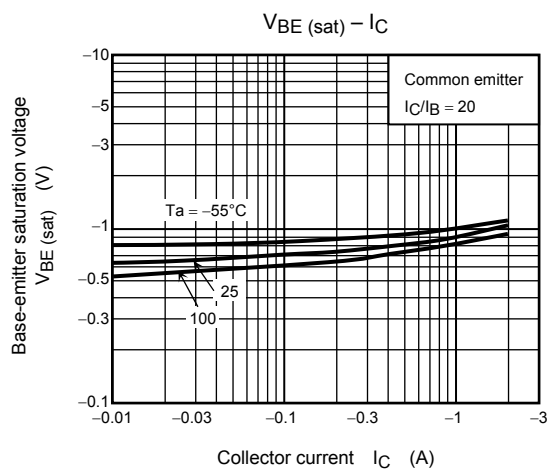
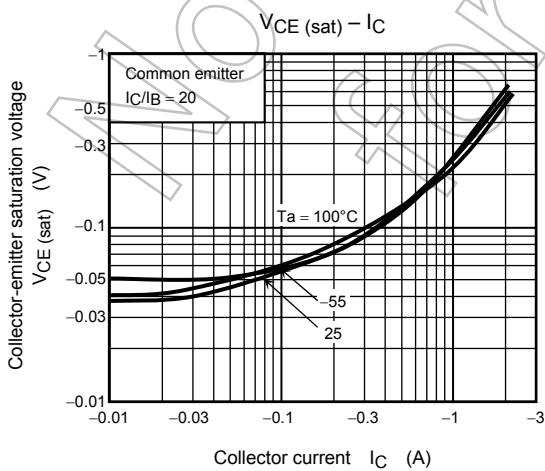
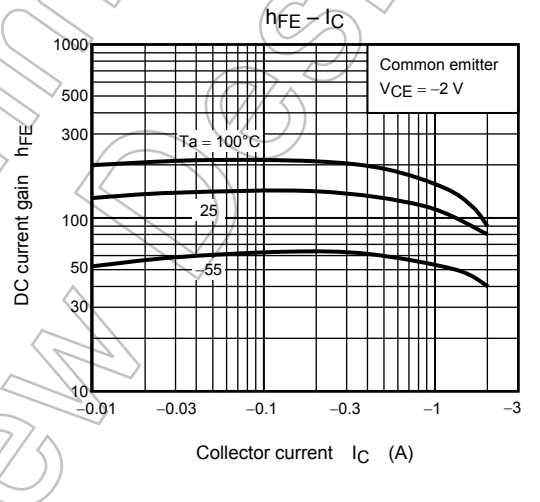
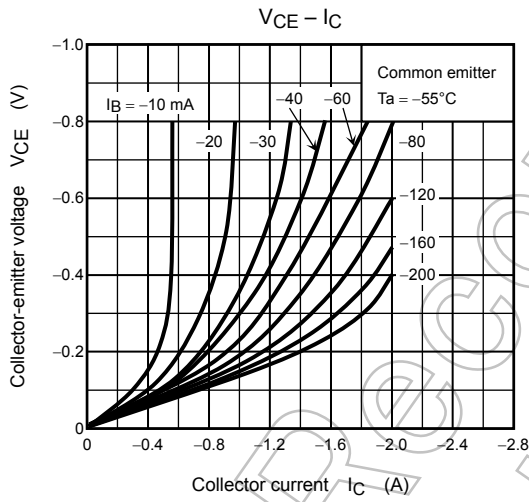
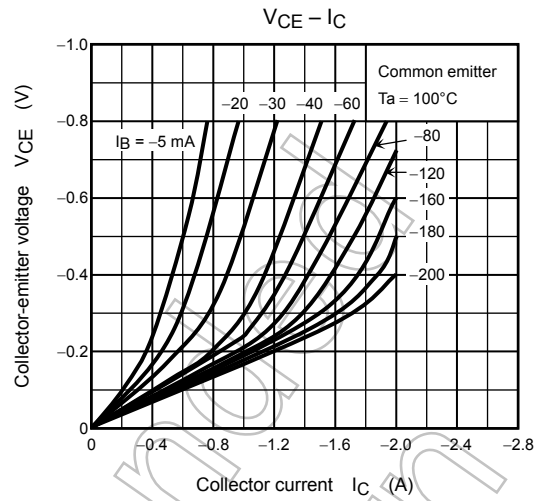
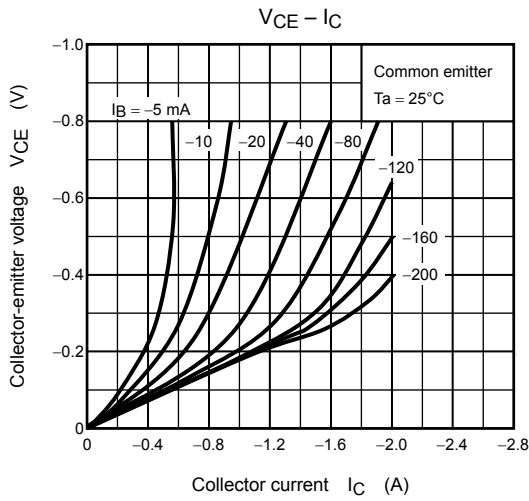


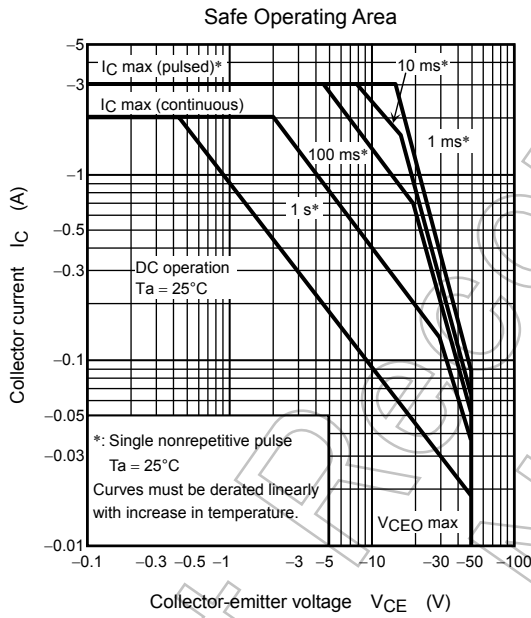
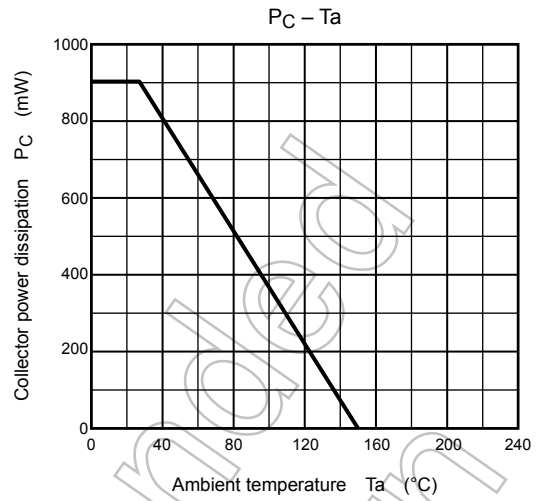
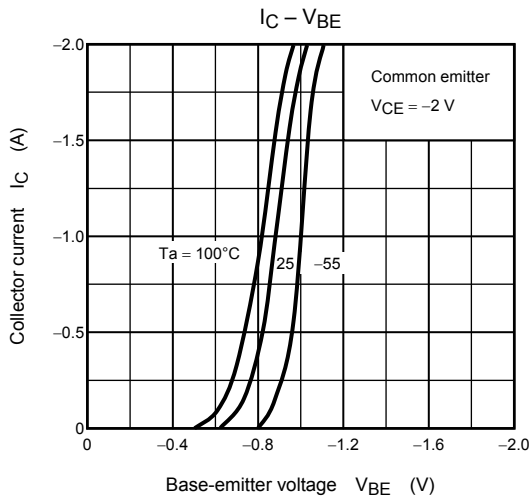
Note 2: A line under a Lot No. identifies the indication of product Labels.

Not underlined: [[Pb]]/INCLUDES > MCV

Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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