

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

2SC3420

Strobe Flash Applications

Audio Power Amplifier Applications

- High DC current gain: $h_{FE} = 140$ to 600 ($V_{CE} = 2$ V, $I_C = 0.5$ A)
: $h_{FE} = 70$ (min) ($V_{CE} = 2$ V, $I_C = 4$ A)
- Low saturation voltage: $V_{CE(sat)} = 1.0$ V (max) ($I_C = 4$ A, $I_B = 0.1$ A)
- High collector power dissipation: $P_C = 10$ W ($T_c = 25^\circ\text{C}$),
 $P_C = 1.5$ W ($T_a = 25^\circ\text{C}$)

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

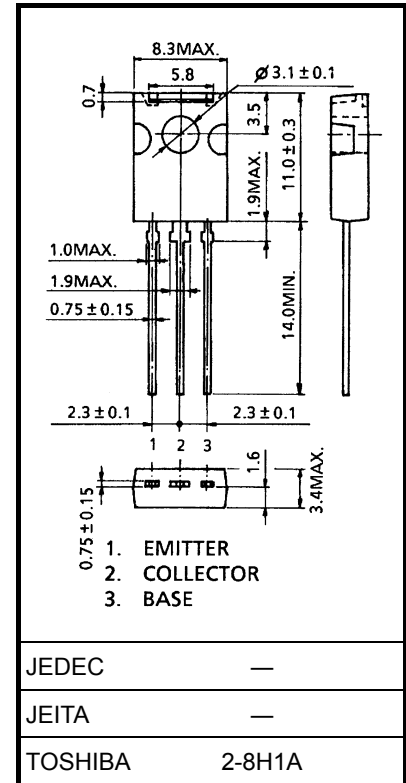
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	50	V
Collector-emitter voltage		V_{CES}	40	V
		V_{CEO}	20	
Emitter-base voltage		V_{EBO}	8	V
Collector current	DC	I_C	5	A
	Pulse (Note 1)	I_{CP}	8	
Base current		I_B	1	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	P_C	1.5	W
	$T_c = 25^\circ\text{C}$		10	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to 150	$^\circ\text{C}$

Note 1: Pulse test: Pulse width = 10 ms (max) Duty cycle = 30% (max)

Note 2: 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



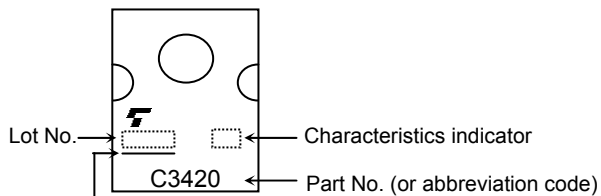
Weight: 0.82 g (typ.)

Electrical Characteristics (Tc = 25°C)

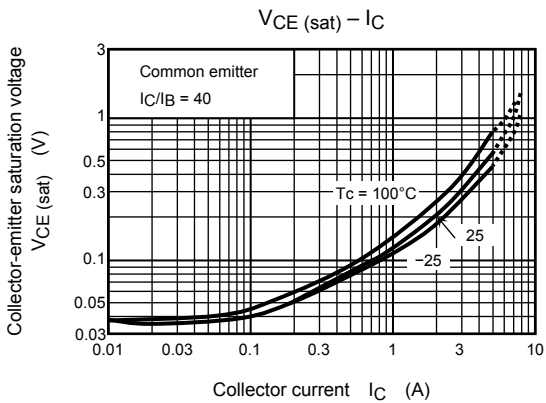
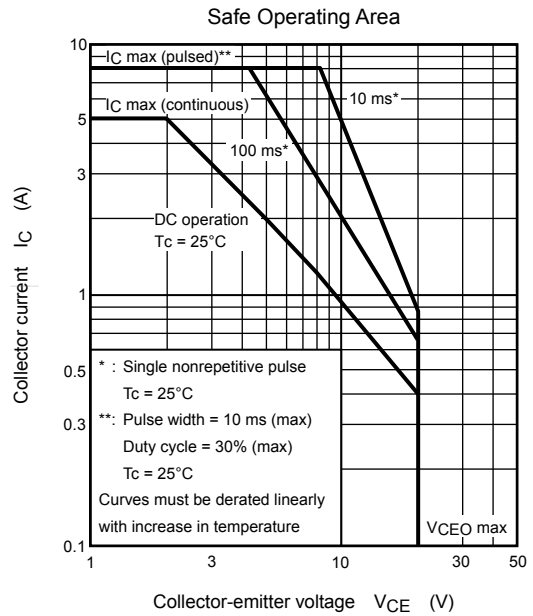
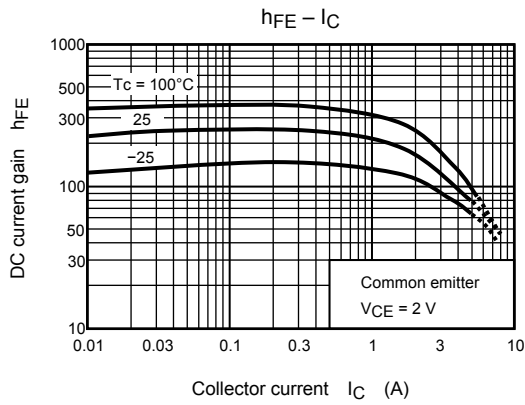
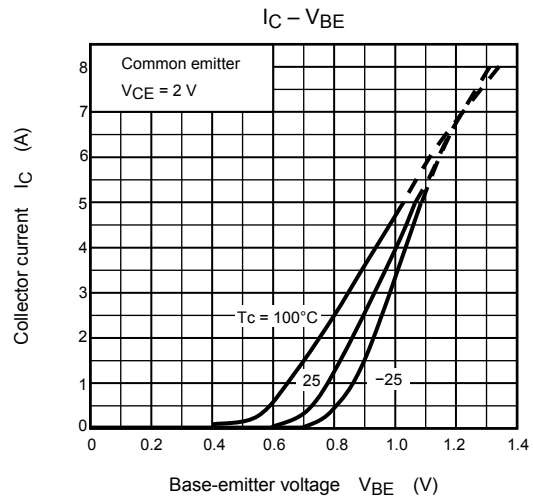
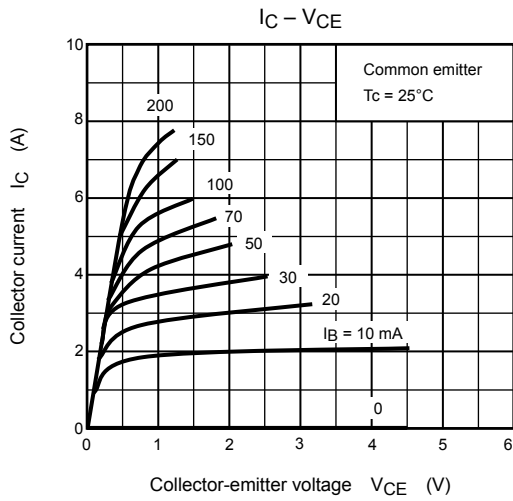
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 40\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 8\text{ V}, I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	20	—	—	V
DC current gain	$h_{FE (1)}$ (Note 3)	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	140	—	600	
	$h_{FE (2)}$	$V_{CE} = 2\text{ V}, I_C = 4\text{ A}$	70	—	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = 4\text{ A}, I_B = 0.1\text{ A}$	—	—	1.0	V
Base-emitter voltage	V_{BE}	$V_{CE} = 2\text{ V}, I_C = 4\text{ A}$	—	—	1.5	V
Transition frequency	f_T	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	—	100	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	40	—	pF

Note 3: $h_{FE (1)}$ classification Y: 140 to 240, GR: 200 to 400, BL: 300 to 600

Marking



A line indicates lead (Pb)-free package or lead (Pb)-free finish.



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20070701-EN

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