TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

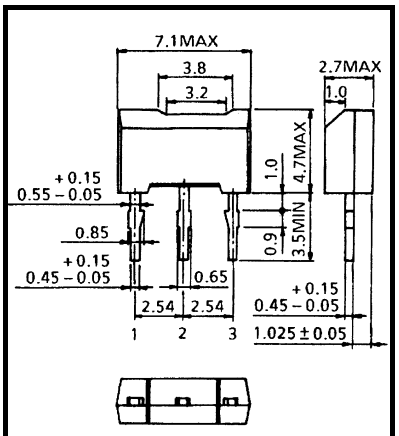
2SC3670

Strobe Flash Applications

Medium Power Amplifier Applications

- High DC current gain and excellent h_{FE} linearity
  : $h_{FE\ (1)}$ = 140 to 600 (V_{CE} = 1 V, I_C = 0.5 A)
  : $h_{FE\ (2)}$ = 70 (min), 200 (typ.) (V_{CE} = 1 V, I_C = 2 A)
- Low saturation voltage: $V_{CE\ (sat)}$ = 0.5 V (max)
  (I_C = 2 A, I_B = 50 mA)

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-7D101A

Weight: 0.2 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	30	V
Collector-emitter voltage		V_{CES}	30	V
		V_{CEO}	10	
Emitter-base voltage		V_{EBO}	6	V
Collector current	DC	I_C	2	A
	Pulsed (Note 1)	I_{CP}	5	
Base current		I_B	0.5	A
Collector power dissipation		P_C	1000	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

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

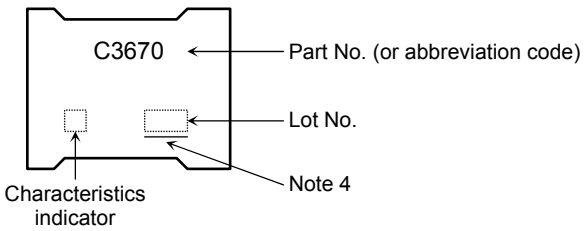
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 30 V, I_E = 0	—	—	100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 6 V, I_C = 0	—	—	100	nA
Collector-emitter breakdown voltage	V_{CEO}	I_C = 10 mA, I_B = 0	10	—	—	V
Emitter-base breakdown voltage	V_{EBO}	I_C = 1 mA, I_C = 0	6	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note 3)	V_{CE} = 1 V, I_C = 0.5 A	140	—	600	
	$h_{FE\ (2)}$	V_{CE} = 1 V, I_C = 2 A	70	200	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 2 A, I_B = 50 mA	—	0.2	0.5	V
Base-emitter voltage	V_{BE}	V_{CE} = 1 V, I_C = 2 A	—	0.86	1.5	V
Transition frequency	f_T	V_{CE} = 1 V, I_C = 0.5 A	—	150	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	27	—	pF

Note 3: $h_{FE\ (1)}$ classification A: 140 to 240, B: 200 to 330, C: 300 to 450, D: 420 to 600

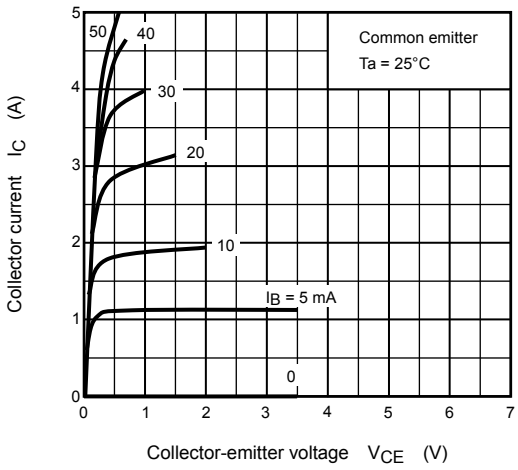
Marking



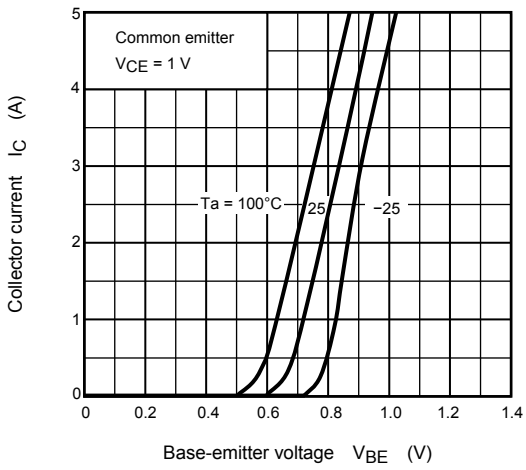
Note 4: A line under a Lot No. identifies the indication of product Labels.
Not underlined: [[Pb]]/INCLUDES > MCV
Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

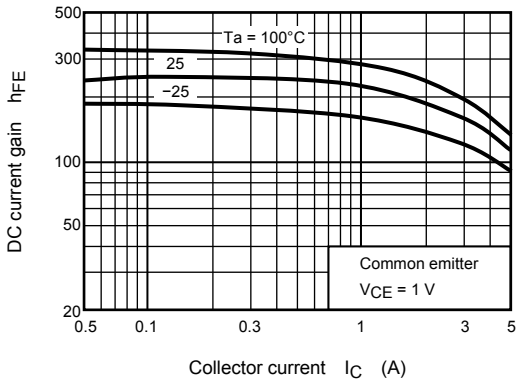
$I_C - V_{CE}$



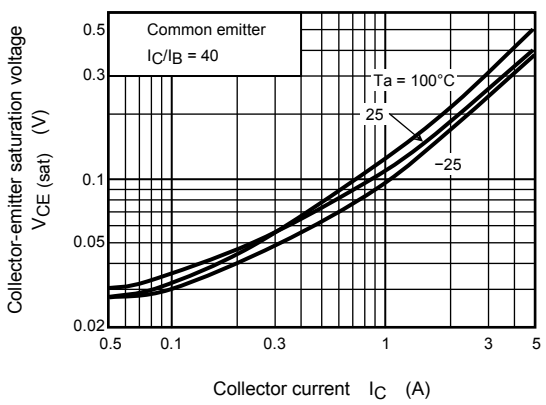
$I_C - V_{BE}$



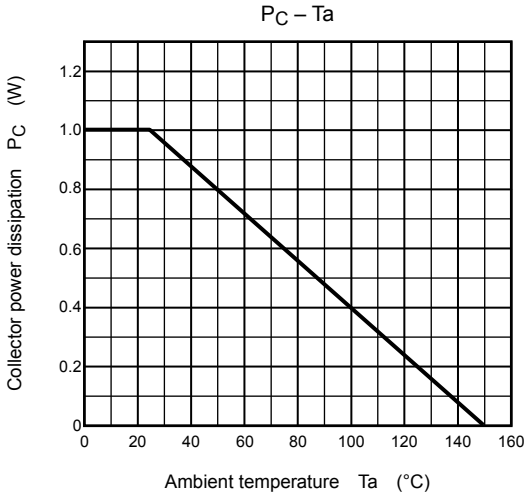
$h_{FE} - I_C$



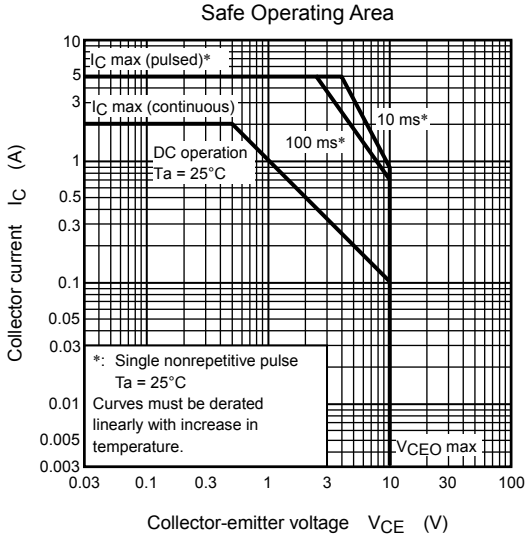
$V_{CE\ (sat)} - I_C$



$P_C - Ta$



Safe Operating Area



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