

# 2SC3670

Strobe Flash Applications  
 Medium Power Amplifier Applications

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

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

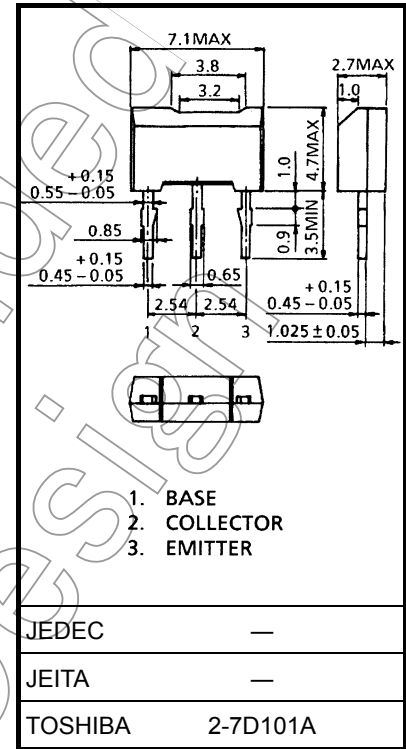
Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	30	V
Collector-emitter voltage		$V_{CES}$	30	V
		$V_{CEO}$	10	
Emitter-base voltage		$V_{EBO}$	6	V
Collector current	DC	$I_C$	2	A
	Pulsed (Note 1)	$I_{CP}$	5	
Base current		$I_B$	0.5	A
Collector power dissipation		$P_C$	1000	mW
Junction temperature		$T_j$	150	$^\circ\text{C}$
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



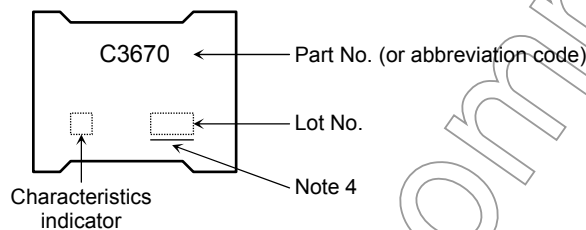
Weight: 0.2 g (typ.)

**Electrical Characteristics (Ta = 25°C)**

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

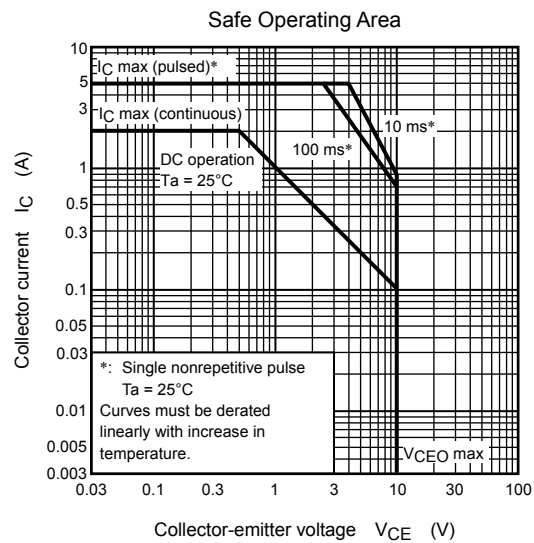
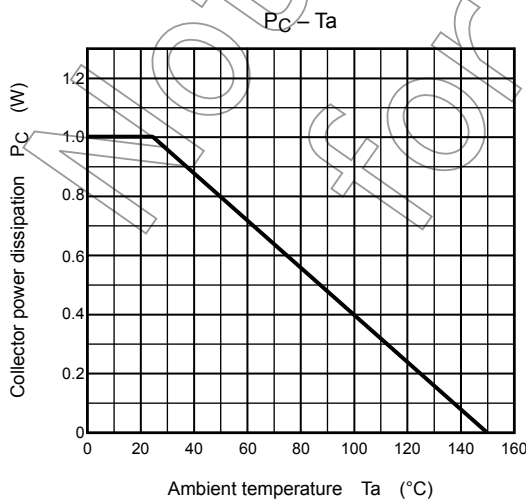
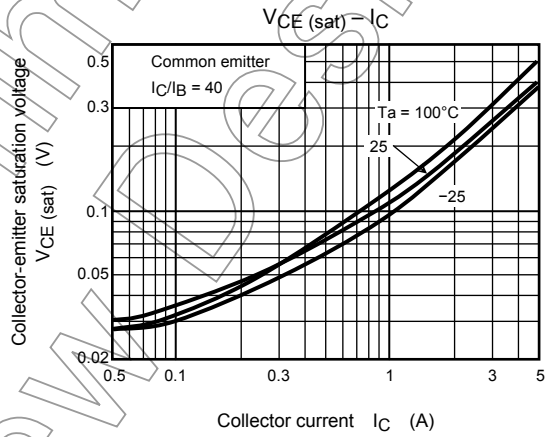
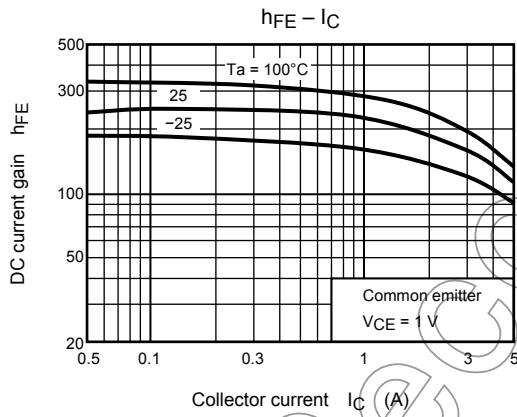
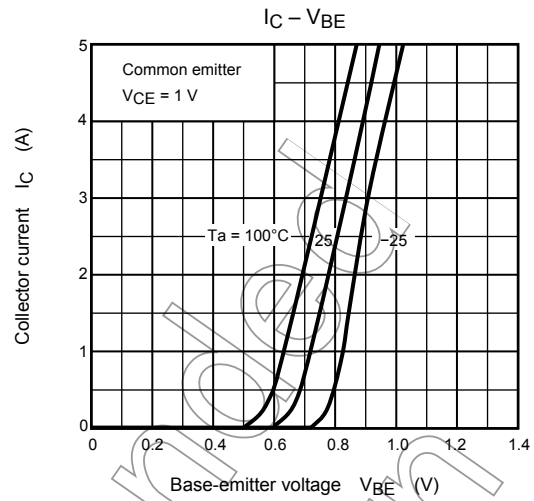
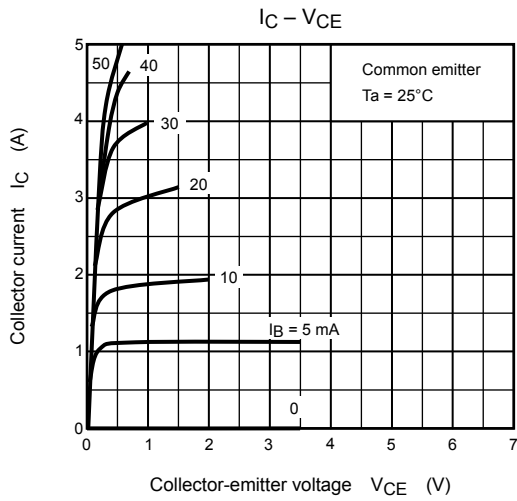
Note 3:  $h_{FE} (1)$  classification A: 140 to 240, B: 200 to 330, C: 300 to 450, D: 420 to 600

**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.



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