

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

# 2SC3072

Strobe Flash Applications  
 Medium Power Amplifier Applications

- High DC current gain  
 :  $h_{FE} = 140$  to  $450$  ( $V_{CE} = 2$  V,  $I_C = 0.5$  A)  
 :  $h_{FE} = 70$  (min) ( $V_{CE} = 2$  V,  $I_C = 4$  A)
- Low collector saturation voltage  
 :  $V_{CE(sat)} = 1.0$  V (max) ( $I_C = 4$  A,  $I_B = 0.1$  A)
- High power dissipation  
 :  $P_C = 10$  W ( $T_c = 25^\circ\text{C}$ ),  $P_C = 1.0$  W ( $T_a = 25^\circ\text{C}$ )

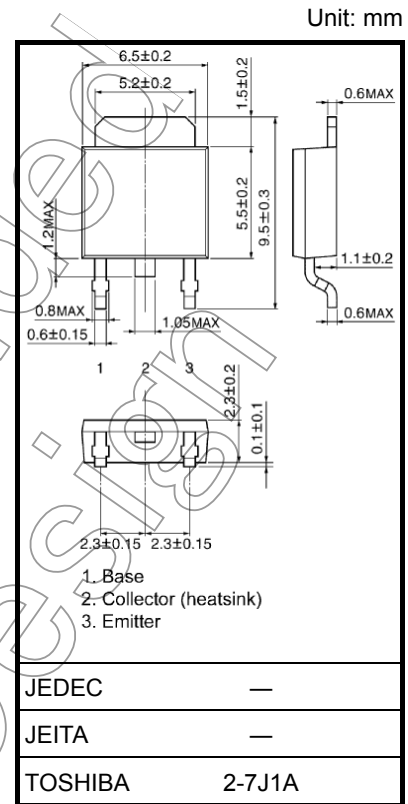
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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		$I_B$	0.5	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1.0	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).



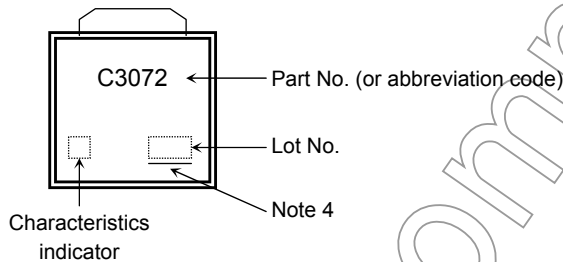
Weight: 0.36 g (typ.)

## Electrical Characteristics (Ta = 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	—	450	
	$h_{FE (2)}$	$V_{CE} = 2\text{ V}, I_C = 4\text{ A}$	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 A: 140 to 240, B: 200 to 330, C: 300 to 450

## Marking

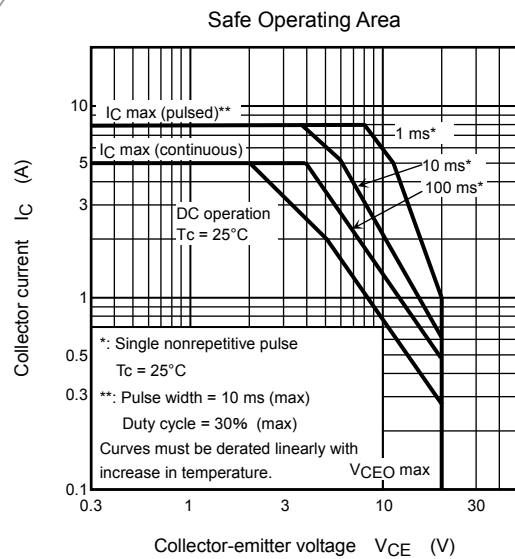
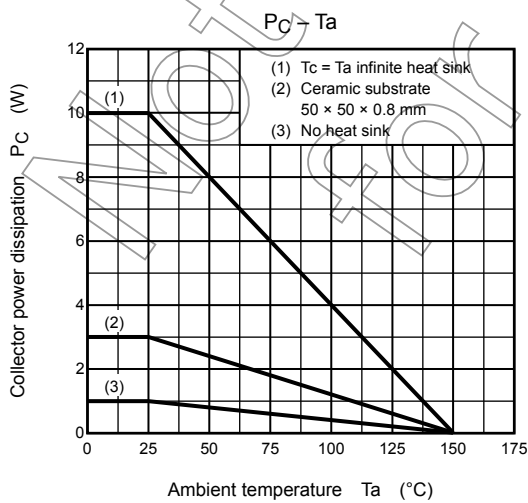
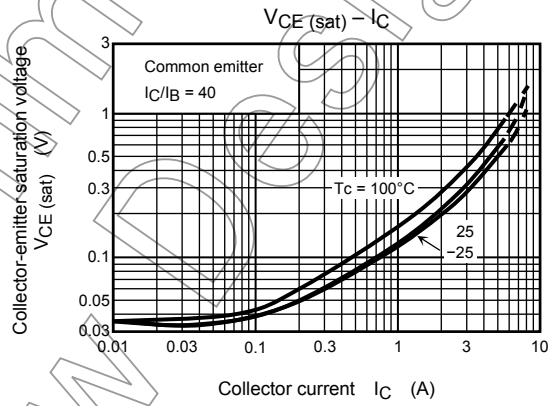
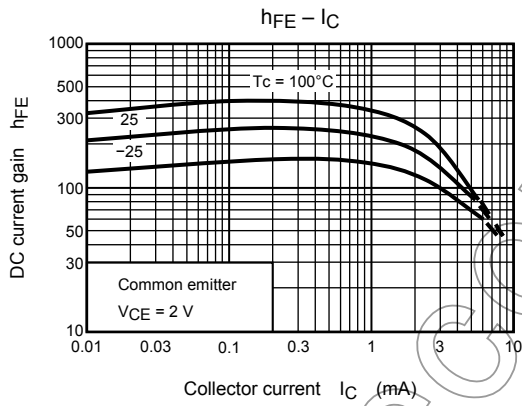
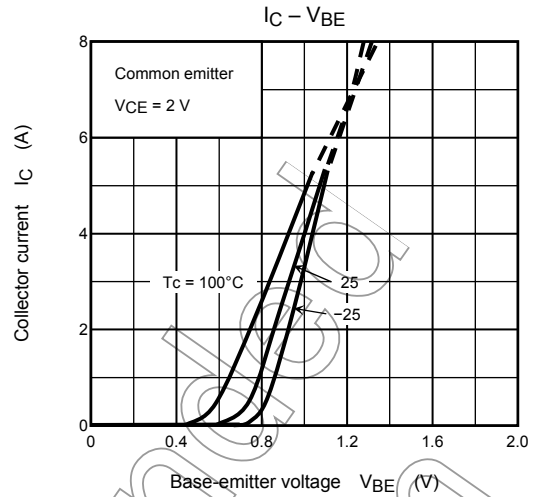
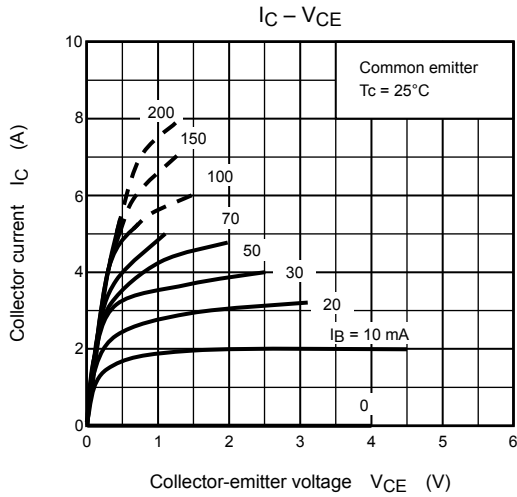


Note 4: A line under a Lot No. identifies the indication of product Labels.

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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