

TOSHIBA Transistor Silicon NPN Epitaxial Type

# 2SC4684

Strobe Flash Applications  
Medium Power Amplifier Applications

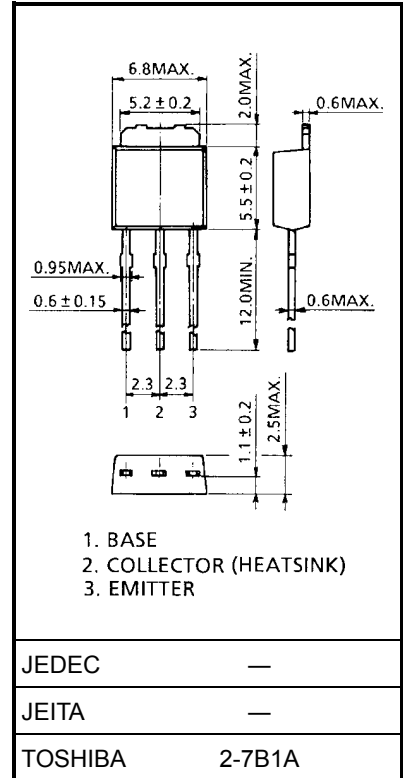
- High DC current gain  
:  $h_{FE(1)} = 800$  to  $3200$  ( $V_{CE} = 2\text{ V}$ ,  $I_C = 0.5\text{ A}$ )  
:  $h_{FE(2)} = 250$  ( $V_{CE} = 2\text{ V}$ ,  $I_C = 4\text{ A}$ )
- Low collector saturation voltage  
:  $V_{CE(sat)} = 0.5\text{ V (max)}$  ( $I_C = 4\text{ A}$ ,  $I_B = 40\text{ mA}$ )
- High power dissipation  
:  $P_C = 10\text{ W}$  ( $T_c = 25^\circ\text{C}$ ),  $P_C = 1.0\text{ W}$  ( $T_a = 25^\circ\text{C}$ )

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

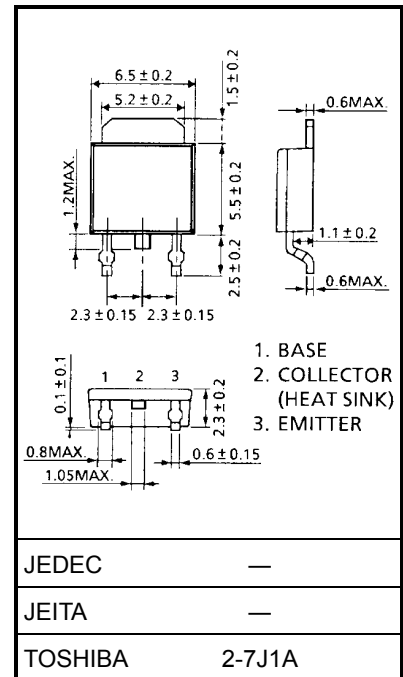
Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	50	V
Collector-emitter voltage		$V_{CES}$	40	V
		$V_{CEO}$	20	
Emitter-base voltage		$V_{EBO}$	8	V
Collector current	DC	$I_C$	5	A
	Pulse (Note)	$I_{CP}$	8	
Base current		$I_B$	0.5	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	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: Pulse test: Pulse width = 10 ms (max), duty cycle = 30% (max)

Unit: mm



Weight: 0.36 g (typ.)

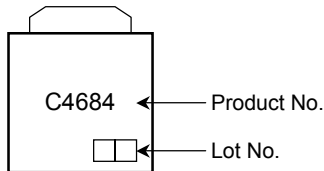


Weight: 0.36 g (typ.)

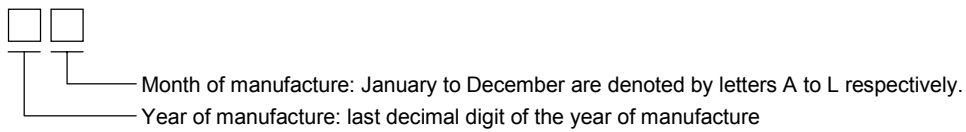
## Electrical Characteristics (Ta = 25°C)

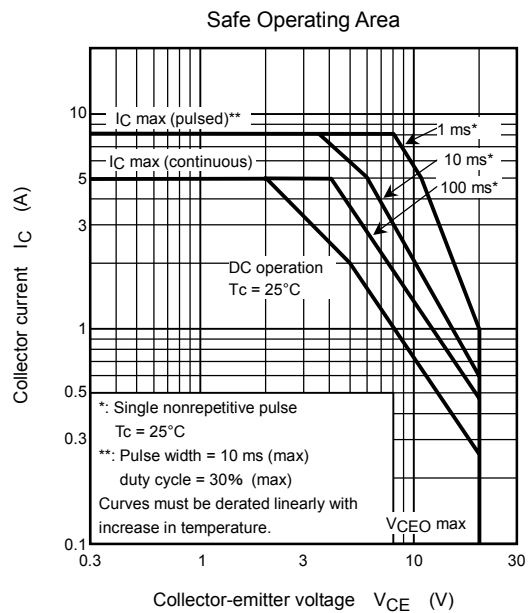
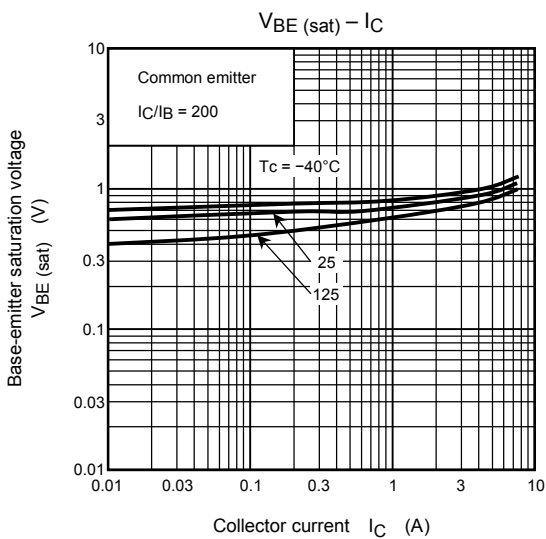
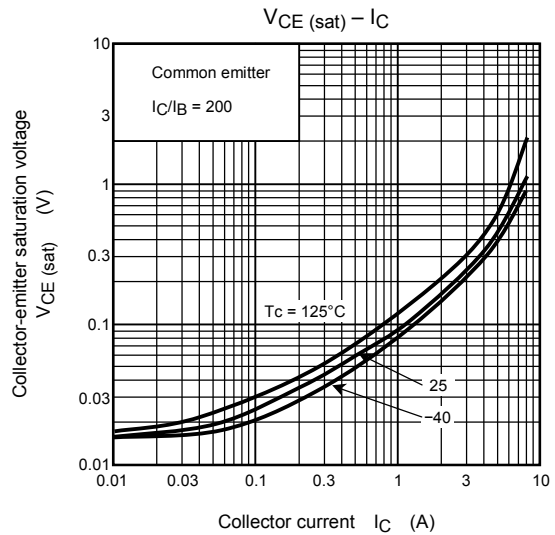
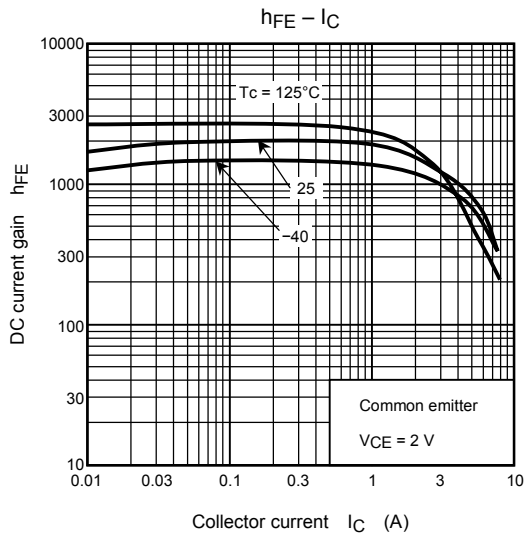
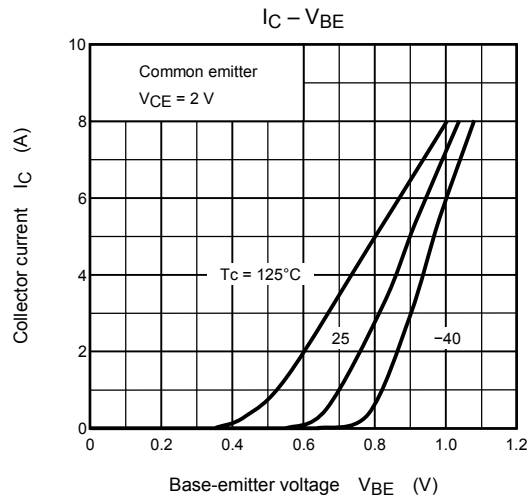
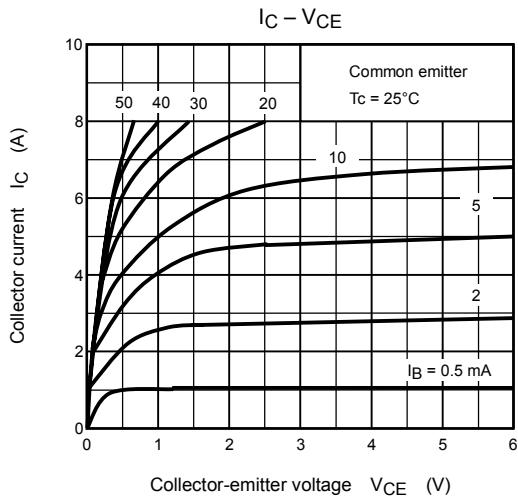
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50\text{ V}, I_E = 0$	—	—	100	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 8\text{ V}, I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage	$V_{CEO}$	$I_C = 10\text{ mA}, I_B = 0$	20	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	800	—	3200	
	$h_{FE} (2)$	$V_{CE} = 2\text{ V}, I_C = 4\text{ A}$	250	—	—	
Collector-emitter saturation voltage	$V_{CE} (sat)$	$I_C = 4\text{ A}, I_B = 40\text{ mA}$	—	—	0.5	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 2\text{ V}, I_C = 4\text{ A}$	—	—	1.2	V
Transition frequency	$f_T$	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	—	150	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	45	—	pF

## Marking



## Explanation of Lot No.





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