

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

# 2SC2500

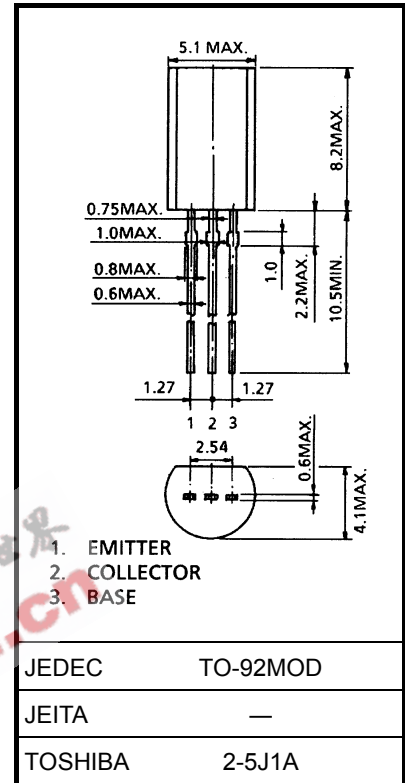
Strobe Flash Applications  
Medium-Power Amplifier Applications

Unit: mm

- High DC current gain and excellent hFE linearity  
: hFE (1) = 140 to 600 (VCE = 1 V, IC = 0.5 A)  
: hFE (2) = 70 (min), 200 (typ.), (VCE = 1 V, IC = 2 A)
- Low saturation voltage: VCE (sat) = 0.5 V (max) (IC = 2 A, IB = 50 mA)

### Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V <sub>CBO</sub>	30	V
Collector-emitter voltage		V <sub>CES</sub>	30	V
		V <sub>CEO</sub>	10	
Emitter-base voltage		V <sub>EBO</sub>	6	V
Collector current	DC	I <sub>C</sub>	2	A
	Pulsed (Note 1)	I <sub>CP</sub>	5	
Base current		I <sub>B</sub>	0.5	A
Collector power dissipation		P <sub>C</sub>	900	mW
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature range		T <sub>stg</sub>	-55 to 150	°C



Weight: 0.36 g (typ.)

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.

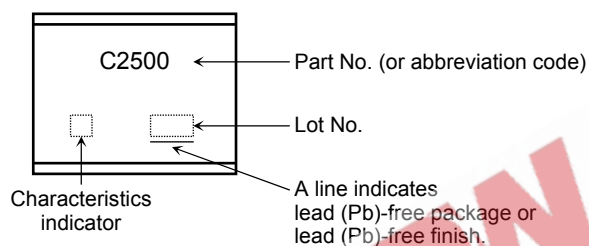
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

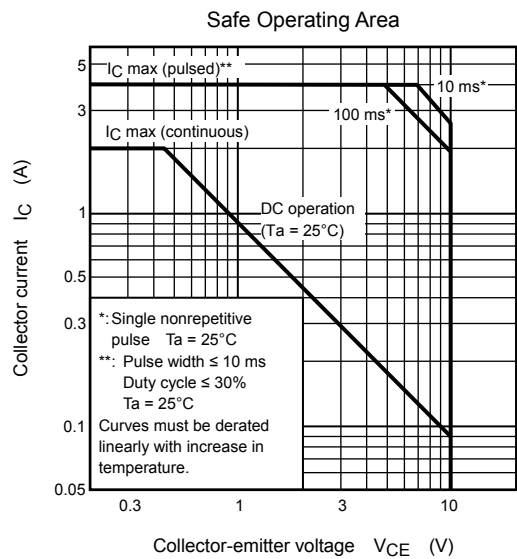
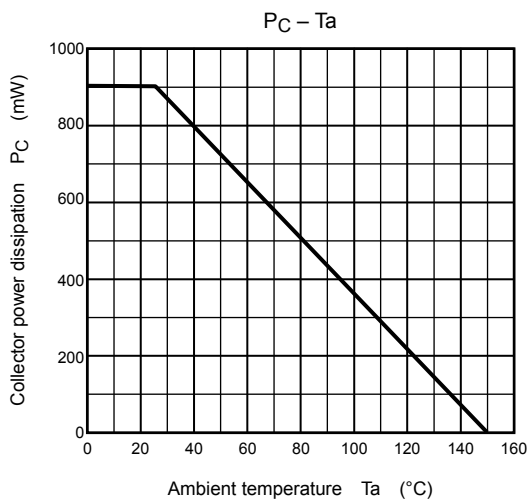
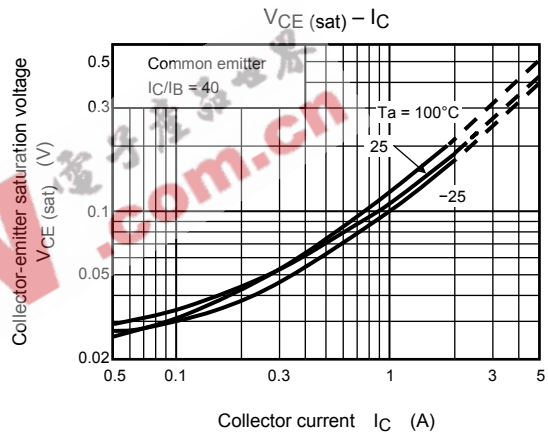
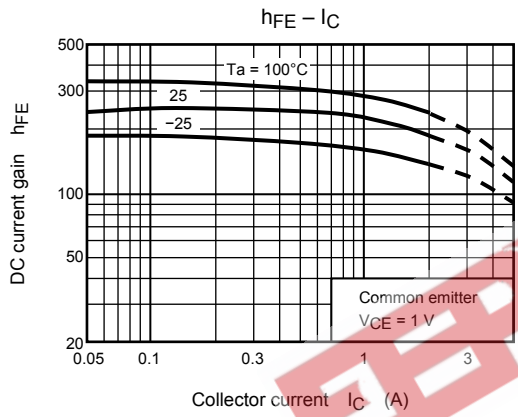
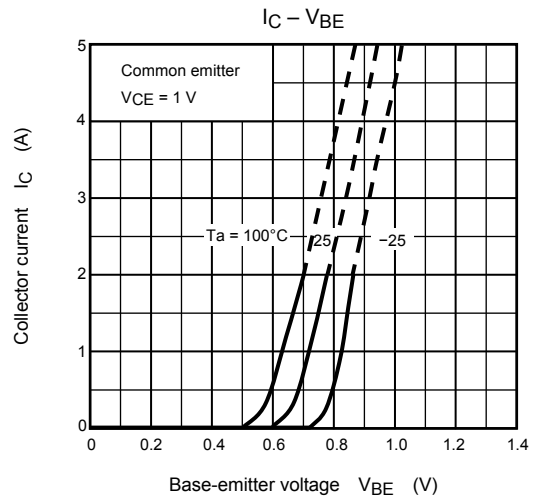
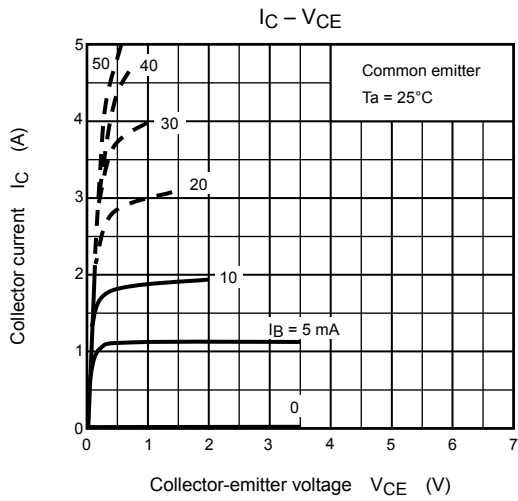
## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 30\text{ V}, I_E = 0$	—	—	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





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