

TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC6126

High-Speed Switching Applications
 DC-DC Converter Applications
 LCD Backlighting Applications

- High DC current gain: $h_{FE} = 250$ to 400 ($I_C = 0.3$ A)
- Low collector-emitter saturation: $V_{CE(sat)} = 0.18$ V (max)
- High-speed switching: $t_f = 40$ ns (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	120	V
Collector-emitter voltage		V_{CEX}	120	V
		V_{CEO}	50	V
Emitter-base voltage		V_{EBO}	6	V
Collector current (Note1)	DC	I_C	3	A
	Pulse	I_{CP}	5	
Base current		I_B	1.5	A
Collector power dissipation	DC	P_C (Note2)	1.0	W
	$t = 10$ s		2.5	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

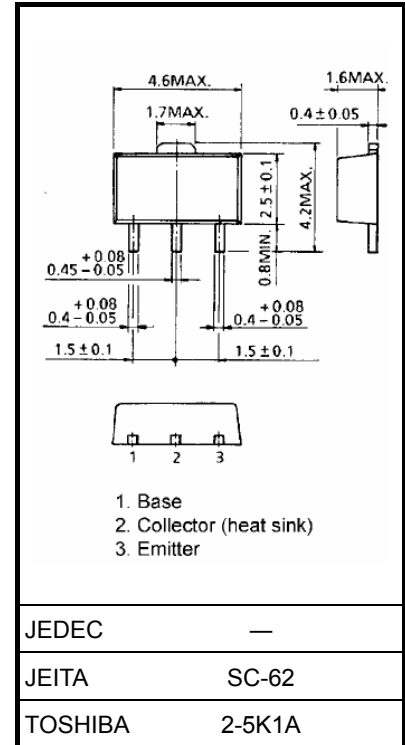
Note 1: Please use devices on condition that the junction temperature is below 150°C.

Note 2: Mounted on FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)

Note 3: 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

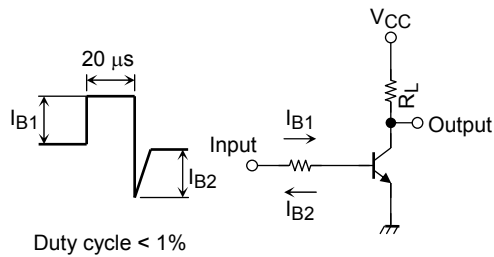


Weight: 0.05 g (typ.)

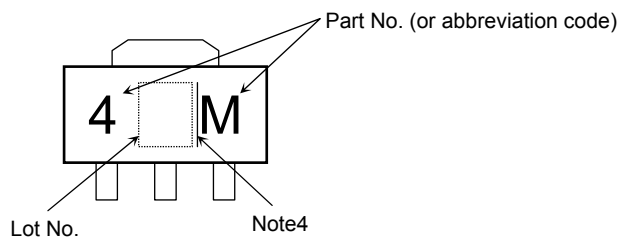
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current		I_{CBO}	$V_{CB} = 120\text{ V}, I_E = 0$	—	—	100	nA
Emitter cutoff current		I_{EBO}	$V_{EB} = 6\text{ V}, I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	50	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = 2\text{ V}, I_C = 0.3\text{ A}$	250	—	400	
		$h_{FE(2)}$	$V_{CE} = 2\text{ V}, I_C = 1.0\text{ A}$	100	—	—	
Collector emitter saturation voltage		$V_{CE(sat)}$	$I_C = 1.0\text{ A}, I_B = 33\text{ mA}$	—	—	0.18	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 1.0\text{ A}, I_B = 33\text{ mA}$	—	—	1.1	V
Collector output capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	10.5	—	pF
Switching time	Rise time	t_r	See Figure 1 circuit diagram $V_{CC} \approx 20\text{ V}, R_L = 20\ \Omega$ $I_{B1} = 33\text{ mA}$ $I_{B2} = 33\text{ mA}$	—	30	—	ns
	Storage time	t_{stg}		—	500	—	
	Fall time	t_f		—	40	—	

Figure 1. Switching Time Test Circuit & Timing Chart



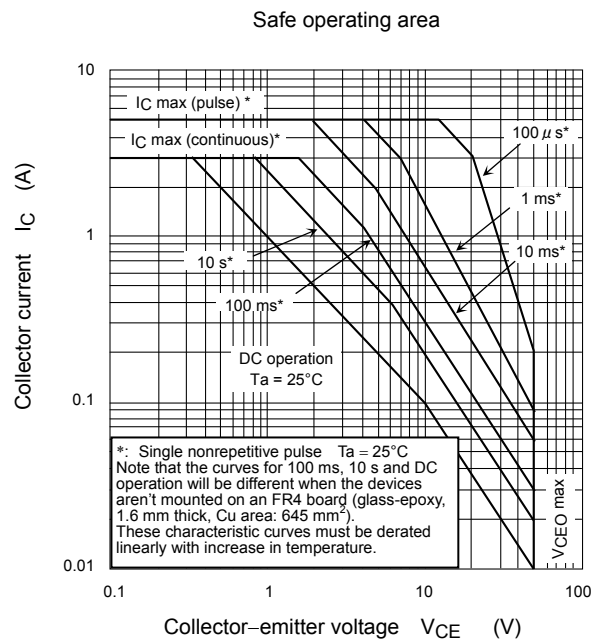
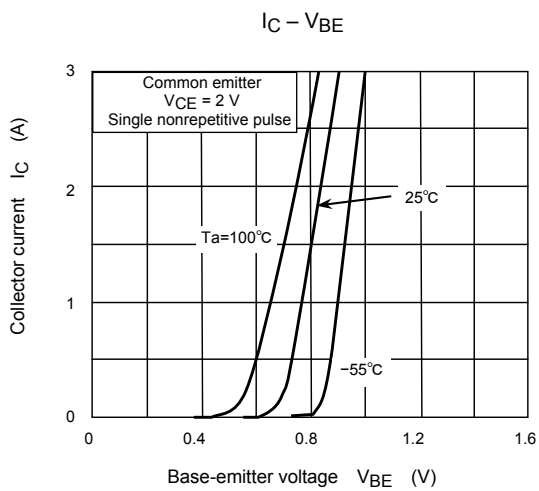
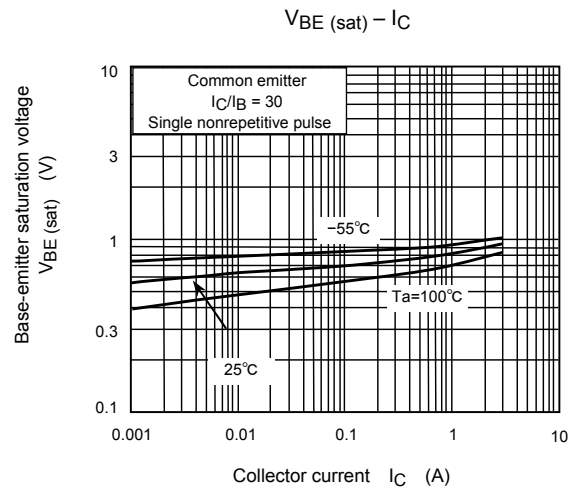
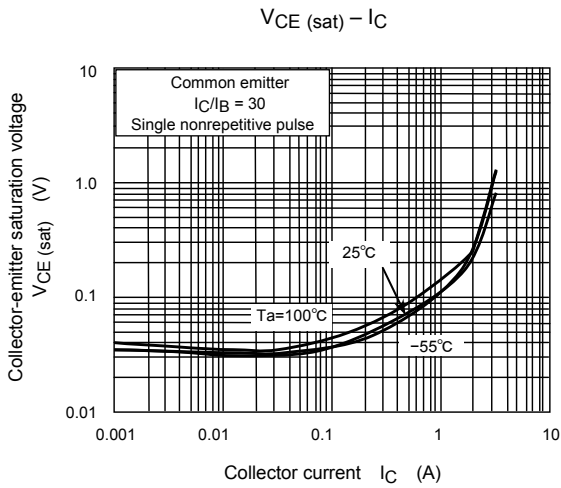
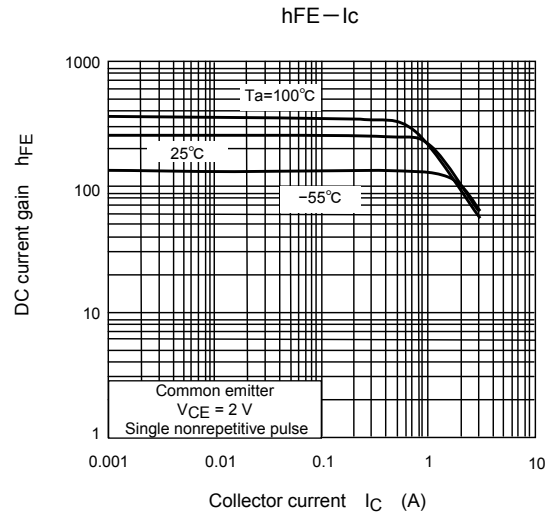
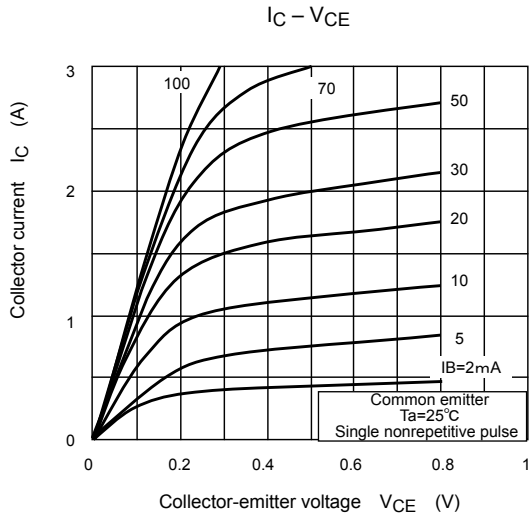
Marking

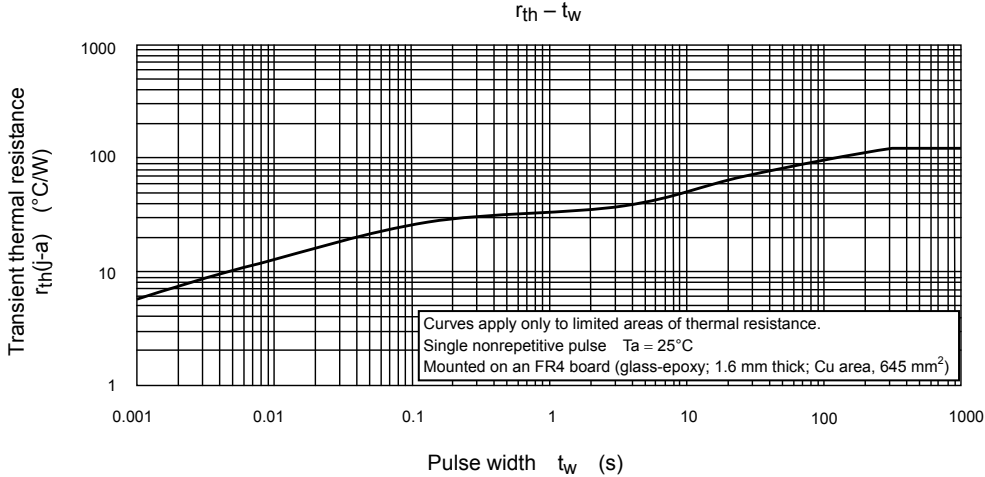


Note4 :A line to the right of a Lot No. identifies the indication of product Labels
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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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