Unit: mm

TOSHIBA Transistor Silicon NPN Epitaxial Type

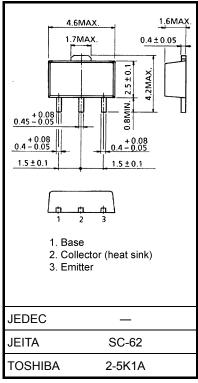
2SC5712

High-Speed Switching Applications
DC-DC Converter Applications
DC-AC Converter Applications

- High DC current gain: $h_{FE} = 400$ to 1000 (IC = 0.3 A)
- Low collector-emitter saturation voltage: VCE (sat) = 0.14 V (max)
- High-speed switching: tf = 120 ns (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-base voltage		V _{CBO}	100	V	
Collector-emitter voltage		V _{CEX}	80	V	
		V _{CEO}	50		
Emitter-base voltage		V _{EBO}	7	>	
Collector current	DC	IC	3.0	Α	
	Pulse	I _{CP}	5.0		
Base current		ΙΒ	0.3	Α	
Collector power dissipation	DC	PC	1.0	W	
	t = 10 s	(Note 1)	2.5		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	–55 to 150	°C	



Weight: 0.05 g (typ.)

- Note 1: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)
- 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	Тур.	Max	Unit
Collector cut-off current		I _{CBO}	V _{CB} = 100 V, I _E = 0	_	_	100	nA
Emitter cut-off current		I _{EBO}	V _{EB} = 7 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 V, I _C = 0.3 A	400	_	1000	
		h _{FE} (2)	V _{CE} = 2 V, I _C = 1 A	200	_	_	
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = 1 A, I _B = 20 mA	_	_	0.14	V
Base-emitter saturation voltage		V _{BE} (sat)	I _C = 1 A, I _B = 20 mA	_	_	1.10	V
Collector output capacitance		C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	_	13	_	pF
Switching time	Rise time	t _r	See Figure 1 circuit diagram.	_	40	_	ns
	Storage time	t _{stg}	$V_{CC} \simeq 30 \text{ V}, R_L = 30 \Omega$	_	500	_	
	Fall time	t _f	$I_{B1} = -I_{B2} = 33.3 \text{ mA}$	_	120	_	

Marking

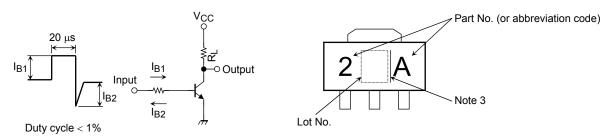


Figure 1 Switching Time Test Circuit & Timing Chart

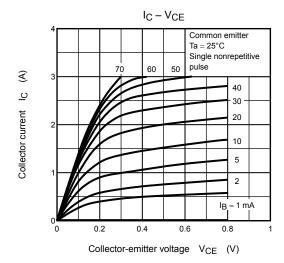
Note 3: A line beside a Lot No. identifies the indication of product Labels.

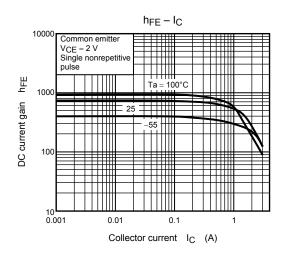
Without a line: [[Pb]]/INCLUDES > MCV

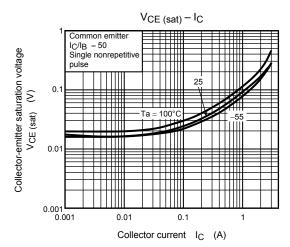
With a line: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

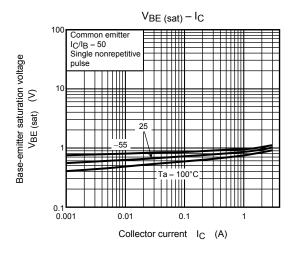
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

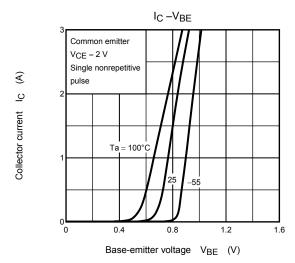
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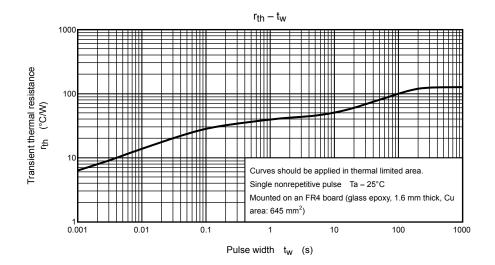


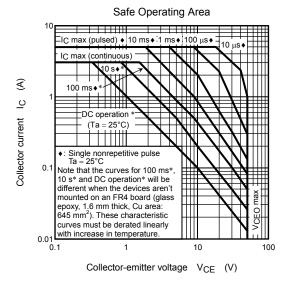






3





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5