Unit: mm

0.25 -0.15

Emitter
 Collector

6. Collector

TOSHIBA Transistor Silicon PNP Epitaxial Type

TPC6604

High-Speed Switching Applications DC-DC Converter Applications

• High DC current gain : $h_{FE} = 200 \text{ to } 500 \text{ (I}_{C} = -0.1 \text{ A)}$

Low collector-emitter saturation voltage : V_{CE} (sat) = -0.23 V (max)
 High-speed switching : t_f = 70 ns (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
Collector-base voltage		V_{CBO}	-50	V	
Collector-emitter voltage		V _{CEO}	-50	V	
Emitter-base voltage		V _{EBO}	-7	V	
Collector current (Note 1)	DC	IC	-1	Α	
	Pulse	I _{CP}	-2		
Base current		ΙB	-0.1	Α	
Collector power dissipation (Note 2)	DC	-	0.8	W	
	t = 10 s	P _C	1.6		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	-55 to 150	°C	

TOSHIBA 2-3T1C
Weight: 0.011 g (typ.)

JEDEC JEITA

0.05

1. Collector

Collector
 Base

Note 1: Ensure that the junction temperature does not exceed 150°C during use of the device.

Note 2: Mounted on an 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).

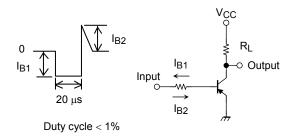
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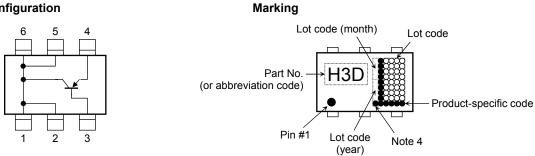
Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Conditions	Min	Тур.	Max	Unit
Collector cut-off current		I _{CBO}	V _{CB} = -50 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 = -0.1 A	200	_	500	
		h _{FE} (2)	V _{CE} = -2 V, I _C = -0.3 A	125	_	_	
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = -300 mA, I _B = -10 mA	_	_	-0.23	V
Base-emitter saturation voltage		V _{BE} (sat)	I _C = -300 mA, I _B = -10 mA	_	_	-1.1	V
Collector output capacitance		C _{ob}	V _{CB} = -10 V, I _E = 0, f = 1 MHz	_	8	_	pF
Switching time	Rise time	t _r	See Figure 1 circuit diagram. V _{CC} ≈ -30 V, R _L = 100 Ω	_	60	_	ns
	Storage time	t _{stg}		_	280	_	
	Fall time	t _f	$I_{B1} = I_{B2} = 10$ mA	_	70	_	

Figure 1. Switching Time Test Circuit & Timing Chart



Circuit Configuration

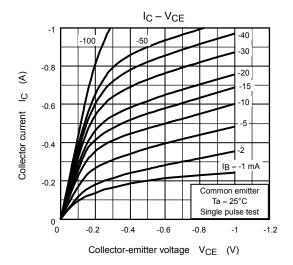


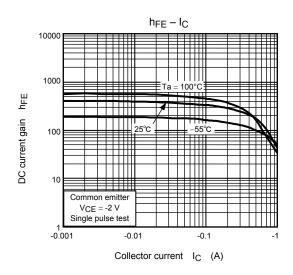
Note 4 : A dot marking identifies the indication of product Labels. [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

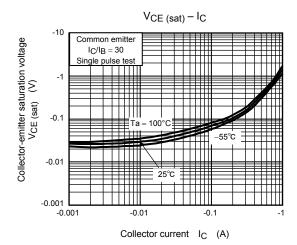
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

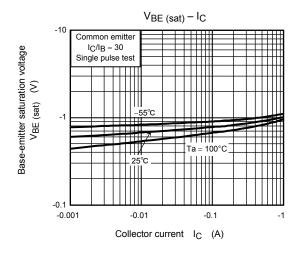
The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

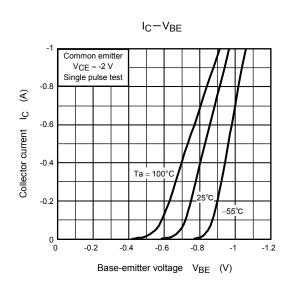
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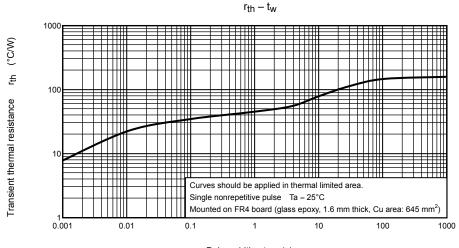




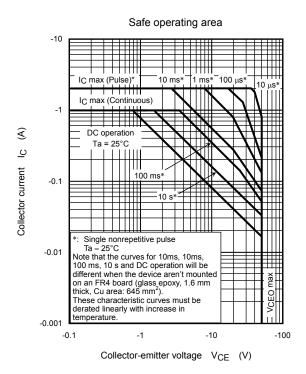












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