Unit: mm

TOSHIBA Transistor Silicon PNP Epitaxial Type

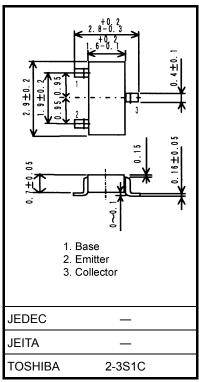
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High-Speed Switching Applications DC-DC Converter Applications Strobe Applications

- High DC current gain: $h_{FE} = 200 \text{ to } 500 \text{ (IC} = -0.2 \text{ A)}$
- Low collector-emitter saturation voltage: $V_{CE (sat)} = -0.19 \text{ V (max)}$
- High-speed switching: $t_f = 25 \text{ ns (typ.)}$

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-base voltage		V _{CBO}	-20	V	
Collector-emitter voltage		V _{CEO}	-10	V	
Emitter-base voltage		V _{EBO}	-7	V	
Collector current	DC	IC	-1.5	Α	
	Pulse	I _{CP}	-2.5		
Base current		ΙΒ	-150	mA	
Collector power dissipation	DC	PC	500	mW	
	t = 10 s	(Note)	750		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	-55 to 150	°C	



Weight: 0.01 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}	$V_{CB} = -20 \text{ V}, I_E = 0$	_	_	-100	nA
Emitter cut-off current		I _{EBO}	$V_{EB} = -7 \text{ V, } I_{C} = 0$	_	_	-100	nA
Collector-emitter breakdown voltage		V (BR) CEO	$I_C = -10 \text{ mA}, I_B = 0$	-10	_	_	V
DC current gain		h _{FE} (1)	V _{CE} = -2 V, I _C = -0.2 A	200	_	500	
		h _{FE} (2)	V _{CE} = -2 V, I _C = -0.6 A	125	_	_	
Collector-emitter saturation voltage		V _{CE} (sat)	$I_C = -0.6 \text{ A}, I_B = -20 \text{ mA}$	_	_	-0.19	V
Base-emitter saturation voltage		V _{BE} (sat)	$I_C = -0.6 \text{ A}, I_B = -20 \text{ mA}$	_	_	-1.10	V
Collector output capacitance		C _{ob}	V _{CB} = -10 V, I _E = 0, f = 1 MHz	_	12	_	pF
Switching time	Rise time	t _r	See Figure 1 circuit diagram.	_	50	_	ns
	Storage time	t _{stg}	$V_{CC} \simeq -6 \text{ V}, R_L = 10 \Omega$	_	115	_	
	Fall time	t _f	$-I_{B1} = I_{B2} = -20 \text{ mA}$	_	25	_	

Marking

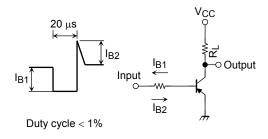
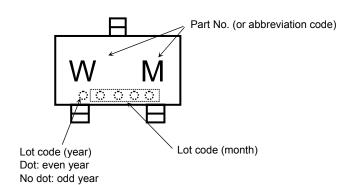
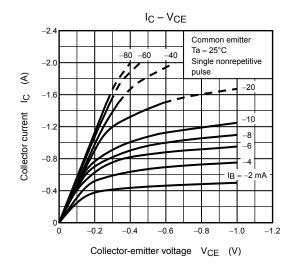
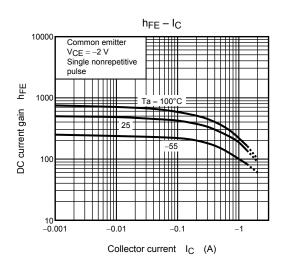
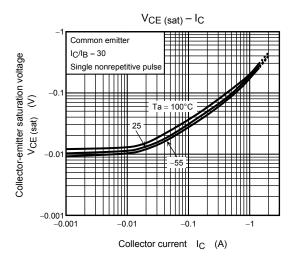


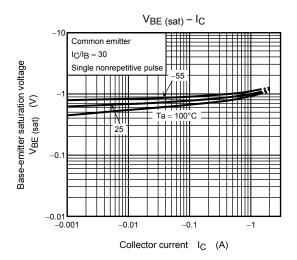
Figure 1 Switching Time Test Circuit & Timing Chart

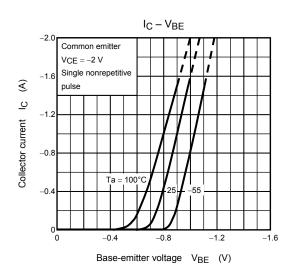


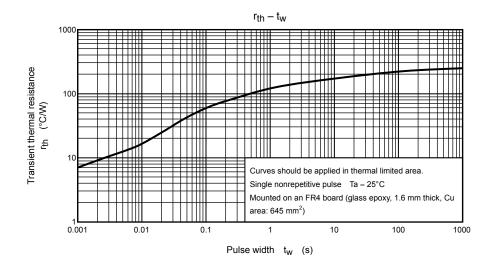


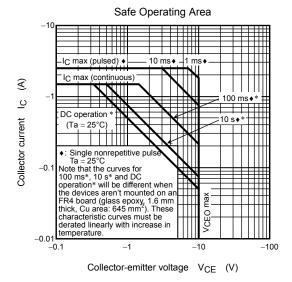












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