

TOSHIBA Transistor Silicon PNP Epitaxial Type

TPC6601

High-Speed Switching Applications

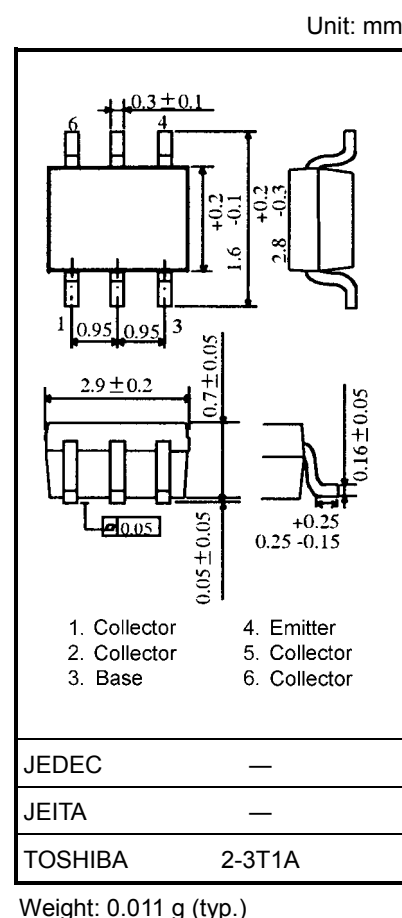
DC-DC Converter Applications

- High DC current gain: $h_{FE} = 200$ to 500 ($I_C = -0.3$ A)
- Low collector-emitter saturation voltage: $V_{CE(sat)} = -0.2$ V (max)
- High-speed switching: $t_f = 90$ ns (typ.)

Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristics		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	DC	I_C	-2.0	A
	Pulse	I_{CP}	-3.5	
Base current		I_B	-0.2	mA
Collector power dissipation	DC	P_C (Note)	0.8	W
	$t = 10$ s		1.6	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to 150	$^\circ\text{C}$

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



Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristics		Symbol	Test Condition	Min	Typ.	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		$V_{(BR)CEO}$	$I_C = -10$ mA, $I_B = 0$	-50	—	—	V
DC current gain		$h_{FE}(1)$	$V_{CE} = -2$ V, $I_C = -0.3$ A	200	—	500	
		$h_{FE}(2)$	$V_{CE} = -2$ V, $I_C = -1.0$ A	100	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -1.0$ A, $I_B = -33$ mA	—	—	-0.2	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -1.0$ A, $I_B = -33$ mA	—	—	-1.1	V
Switching time	Rise time	t_r	See Figure 1 circuit diagram. $V_{CC} \approx -30$ V, $R_L = 30 \Omega$ $I_{B1} = -I_{B2} = -33$ mA	—	60	—	ns
	Storage time	t_{stg}		—	250	—	
	Fall time	t_f		—	90	—	

Circuit Configuration

Marking

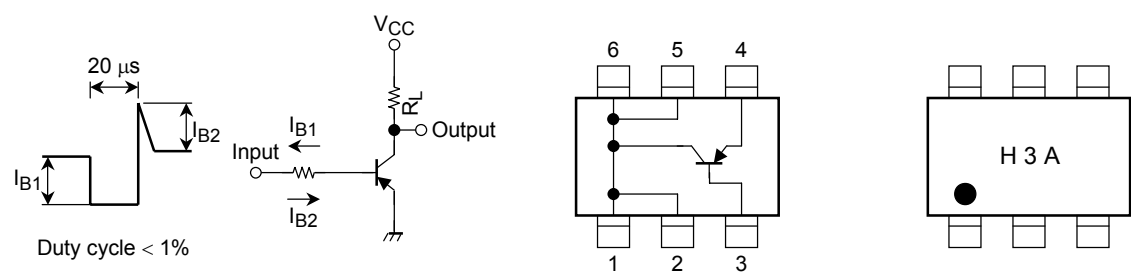
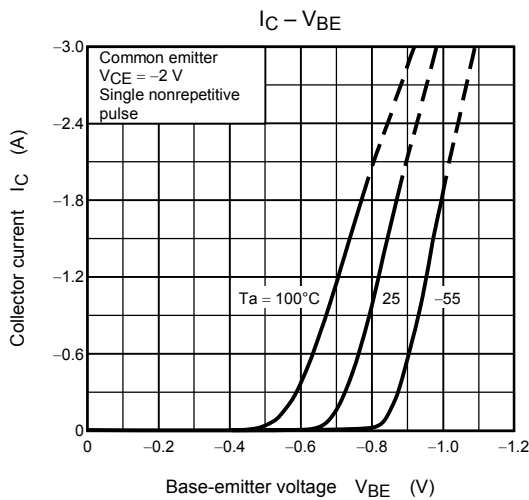
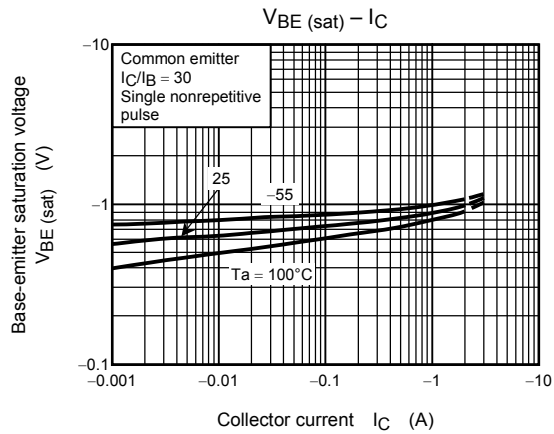
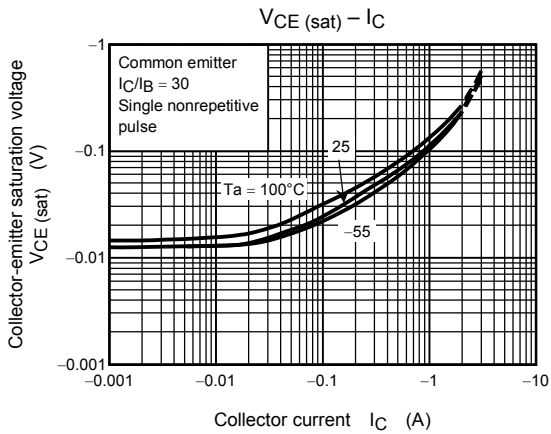
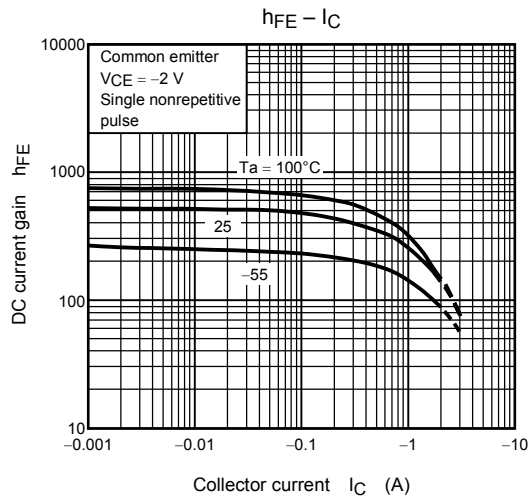
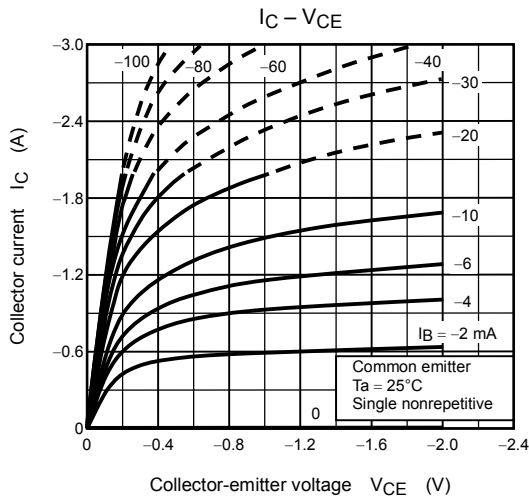
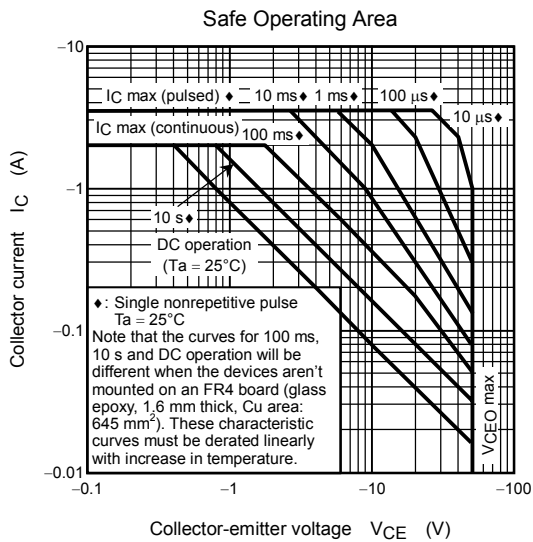
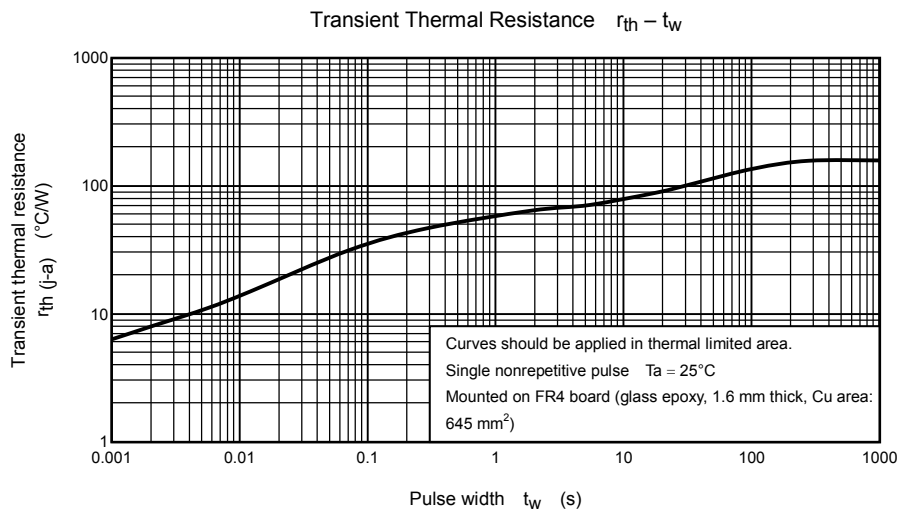


Figure 1 Switching Time Test Circuit & Timing Chart





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