

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT Process)

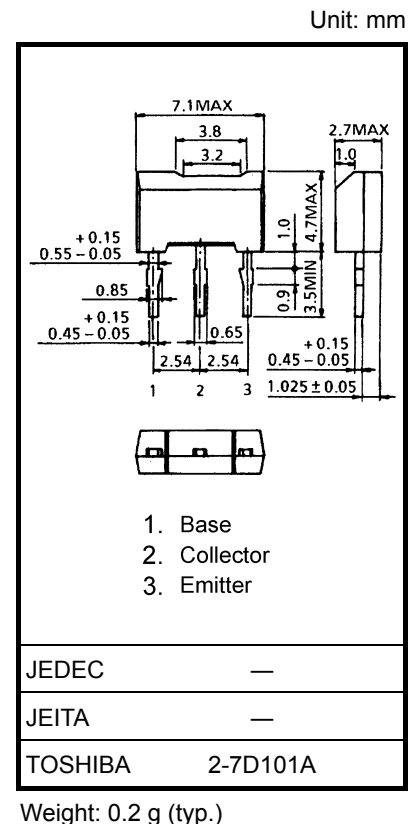
2SC5930

High-Speed and High-Voltage Switching Applications
 Switching Regulator Applications
 DC-DC Converter Applications

- High-speed switching: $t_f = 0.3 \mu s$ (max) ($I_C = 0.3 A$)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	600	V
Collector-emitter voltage		V_{CEX}	600	V
Collector-emitter voltage		V_{CEO}	285	V
Emitter-base voltage		V_{EBO}	7	V
Collector current	DC	I_C	1.0	A
	Pulse	I_{CP}	2.0	
Base current		I_B	0.5	A
Collector power dissipation	Ta = 25°C	P_C	1.0	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C



Note: 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	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 600\text{ V}, I_E = 0$	—	—	100	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	μA
Collector-base breakdown voltage		$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_B = 0$	600	—	—	V
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	285	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	30	—	100	
		$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 0.2\text{ A}$	40	—	100	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 0.6\text{ A}, I_B = 0.075\text{ A}$	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 0.6\text{ A}, I_B = 0.075\text{ A}$	—	—	1.3	V
Switching time	Rise time	t_r	See Figure 1. $V_{CC} \approx 200\text{ V}, R_L = 667\ \Omega$ $I_{B1} = 20\text{ mA}, -I_{B2} = 50\text{ mA}$	—	—	0.5	μs
	Storage time	t_{stg}		—	—	3.0	
	Fall time	t_f		—	—	0.3	

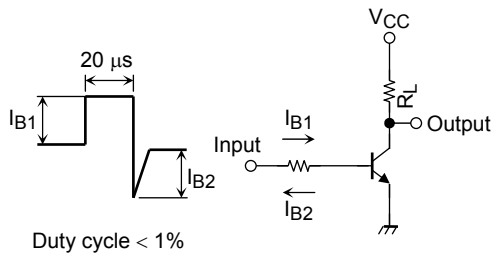
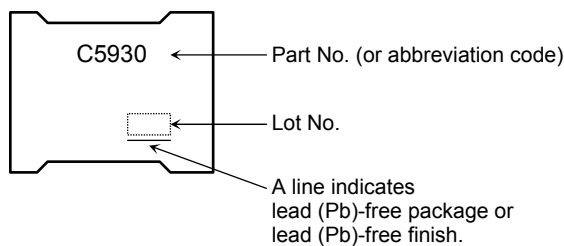
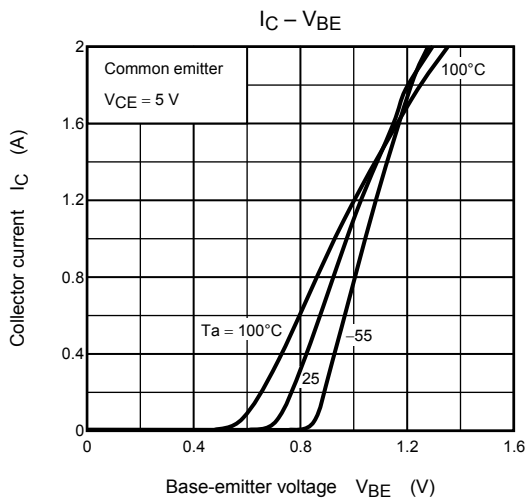
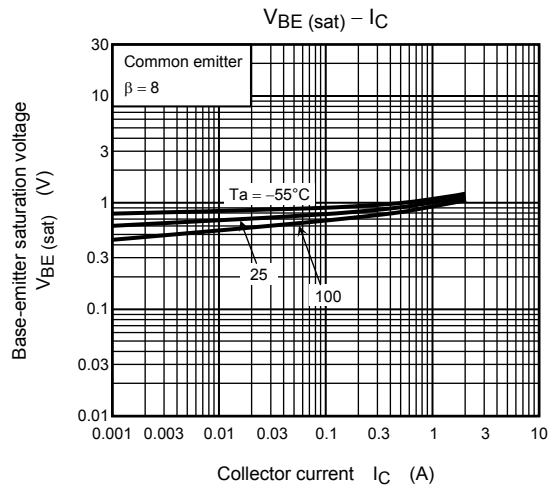
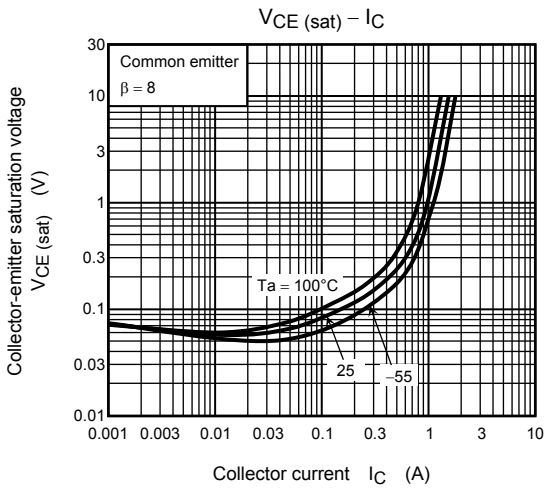
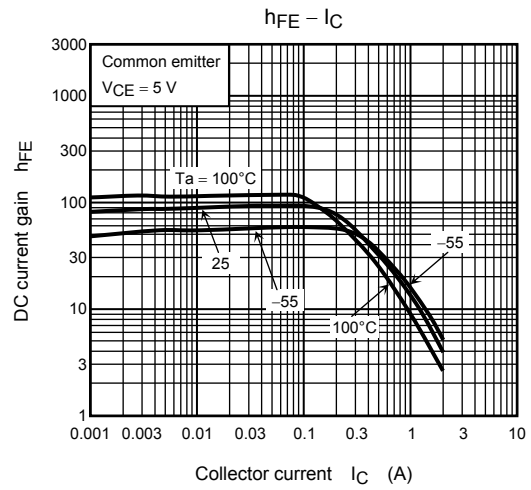
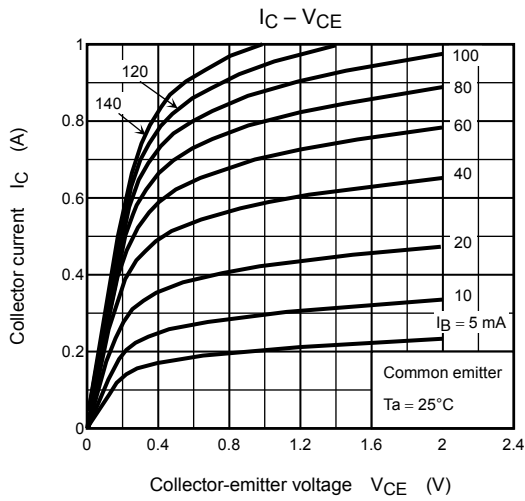
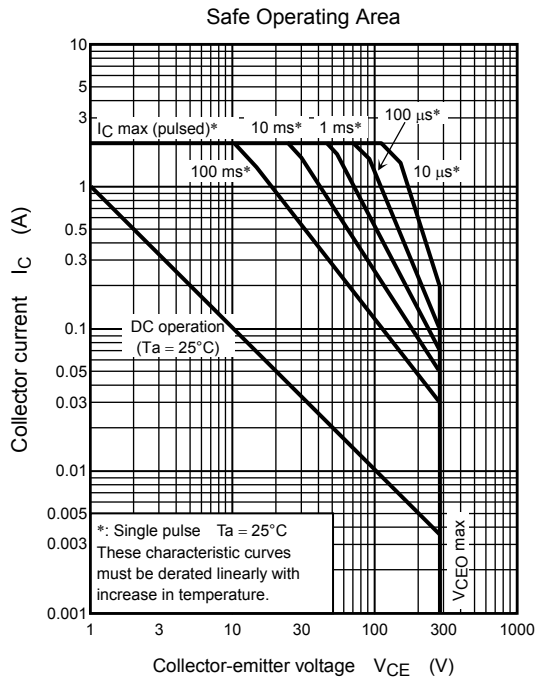


Figure 1 Switching Time Test Circuit & Timing Chart

Marking







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