

TOSHIBA Transistor Silicon NPN Triple Diffused Type

# 2SC6040

High-Speed and High-Voltage Switching Applications

Switching Regulator Applications

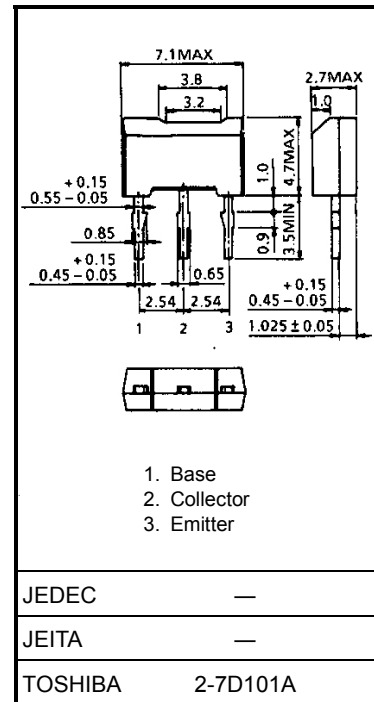
DC-DC Converter Applications

Unit: mm

- High-speed switching:  $t_f = 0.2 \mu s$  (max) ( $I_C = 0.3 A$ )
- High breakdown voltage:  $V_{CES} = 800 V$ ,  $V_{CEO} = 410 V$

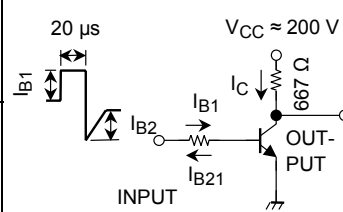
## Maximum Ratings ( $T_a = 25^\circ C$ )

Characteristic		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	800	V
Collector-emitter voltage		$V_{CES}$	800	V
Collector-emitter voltage		$V_{CEO}$	410	V
Emitter-base voltage		$V_{EBO}$	8	V
Collector current	DC	$I_C$	1.0	A
	Pulse	$I_{CP}$	2.0	
Base current		$I_B$	0.5	A
Collector power dissipation	$T_a = 25^\circ C$	$P_C$	1.0	W
Junction temperature		$T_j$	150	$^\circ C$
Storage temperature range		$T_{stg}$	-55 to 150	$^\circ C$

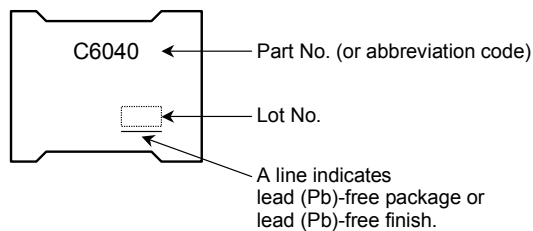


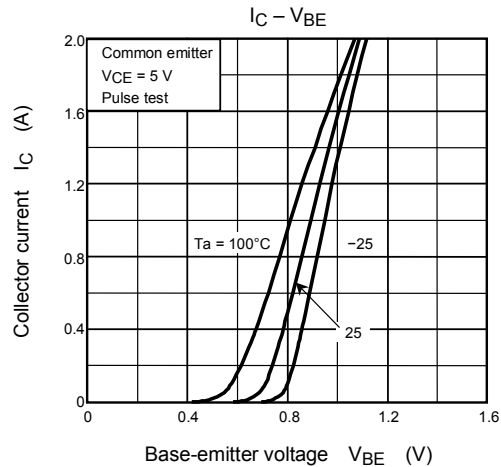
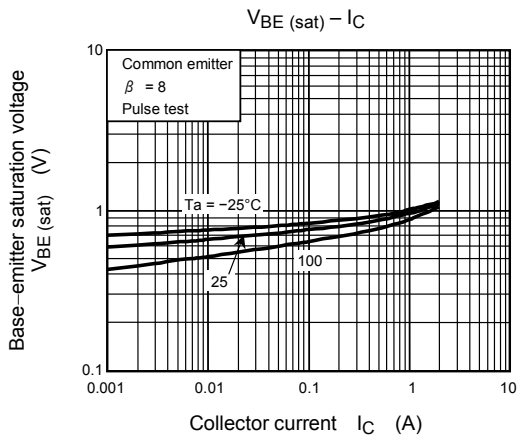
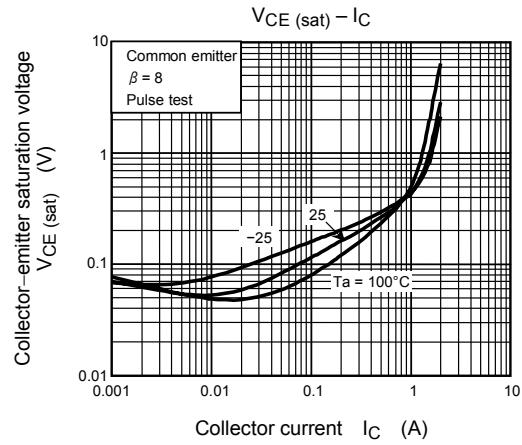
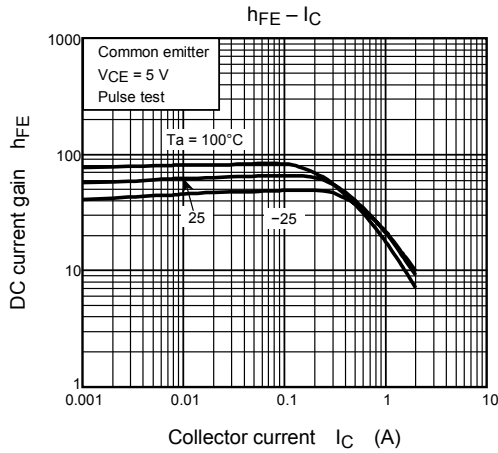
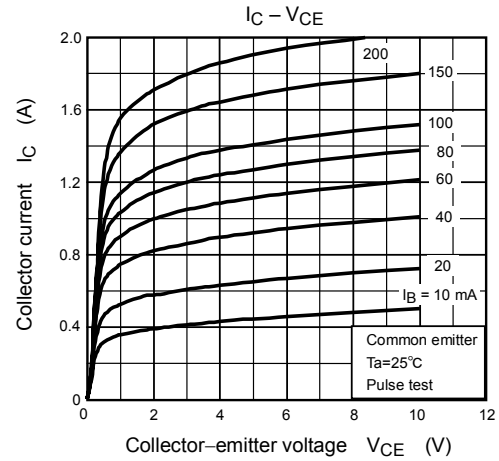
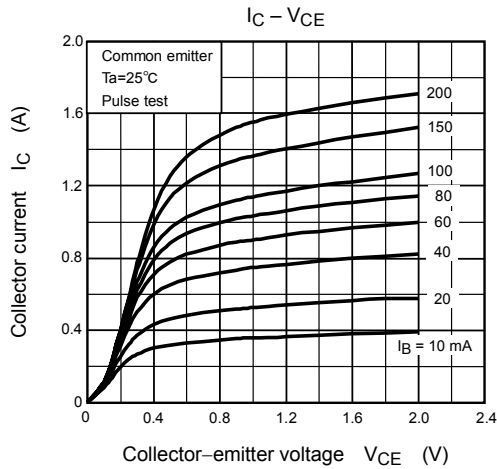
Weight: 0.2 g (typ.)

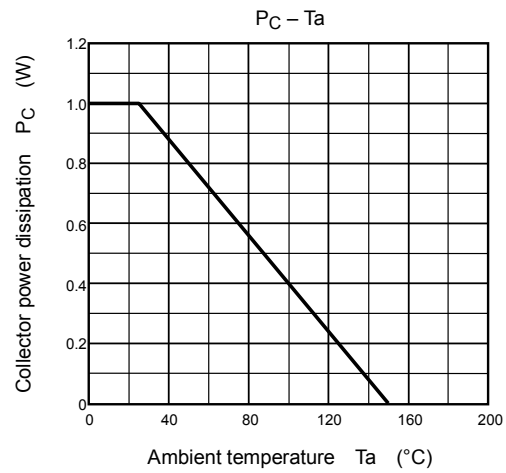
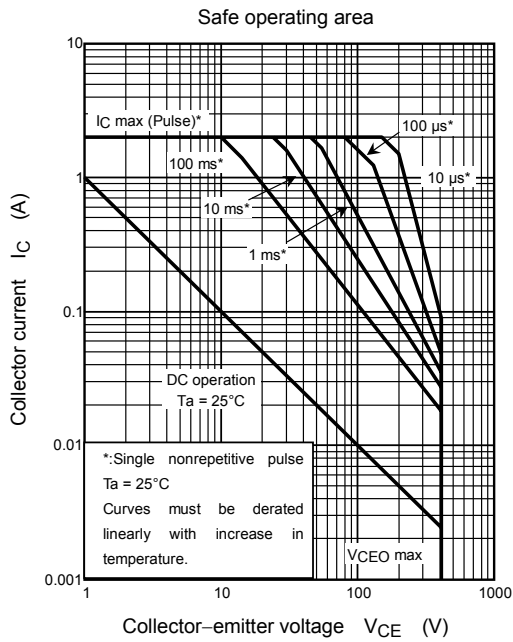
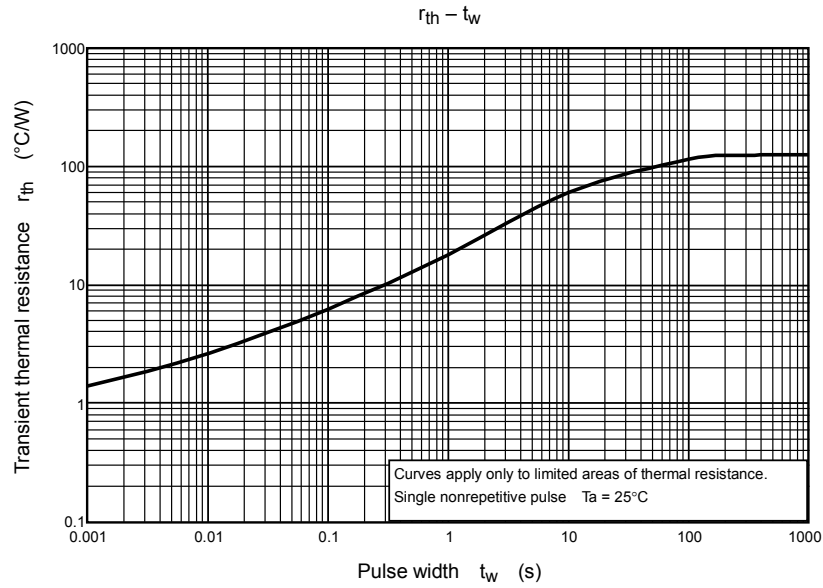
## Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 800 \text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 8 \text{ V}, I_C = 0$	—	—	100	$\mu\text{A}$
Collector-base breakdown voltage		$V_{(BR) CBO}$	$I_C = 1 \text{ mA}, I_B = 0$	800	—	—	V
Collector-emitter breakdown voltage		$V_{(BR) CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	410	—	—	V
DC current gain		$h_{FE (1)}$	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$	50	—	—	
		$h_{FE (2)}$	$V_{CE} = 5 \text{ V}, I_C = 0.1 \text{ A}$	60	—	120	
		$h_{FE (3)}$	$V_{CE} = 5 \text{ V}, I_C = 0.2 \text{ A}$	50	—	—	
Collector emitter saturation voltage		$V_{CE (sat)}$	$I_C = 0.8 \text{ A}, I_B = 0.1 \text{ A}$	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE (sat)}$	$I_C = 0.8 \text{ A}, I_B = 0.1 \text{ A}$	—	—	1.3	V
Switching time	Rise time	$t_r$	 <p>20 <math>\mu\text{s}</math></p> <p><math>V_{CC} \approx 200 \text{ V}</math></p> <p>667 <math>\Omega</math></p> <p>INPUT</p> <p>OUTPUT</p> <p><math>I_{B1}</math></p> <p><math>I_{B21}</math></p> <p><math>I_C</math></p> <p><math>I_{B1} = 0.1 \text{ A}, -I_{B21} = 50 \text{ mA}</math></p> <p>DUTY CYCLE <math>\leq 1\%</math></p>	—	—	0.5	$\mu\text{s}$
	Storage time	$t_{stg}$		—	—	4.0	
	Fall time	$t_f$		—	—	0.2	

## Marking







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