

TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA2060

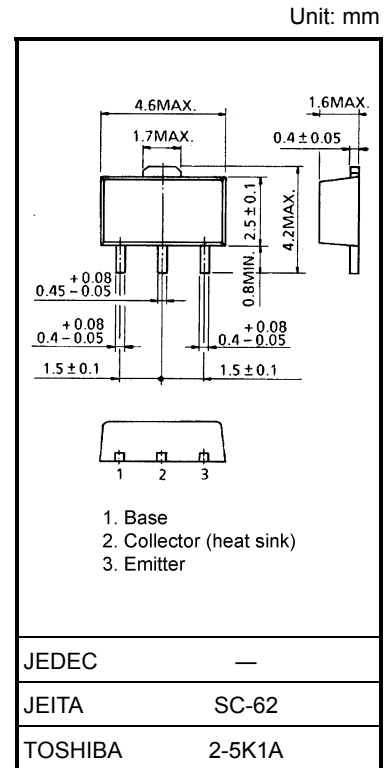
High-Speed Switching Applications
 DC-DC Converter Applications
 Strobe Applications

- High DC current gain: $h_{FE} = 200$ to 500 ($I_C = -0.5$ A)
- Low collector-emitter saturation voltage: $V_{CE(sat)} = -0.2$ V (max)
- High-speed switching: $t_f = 90$ ns (typ.)

Maximum Ratings (Ta = 25°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
	Pulse	I_{CP}	-3.5
Base current	I_B	-200	mA
Collector power dissipation	t = 10 s	P_C	2.5
	DC	(Note 1)	1.0
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

Note 1: Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm²)



Weight: 0.05 g (typ.)

Electrical Characteristics (Ta = 25°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, $I_B = -0.033$ A	—	—	-0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1.0$ A, $I_B = -0.033$ A	—	—	-1.1	V
Collector output capacitance	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, $f = 1$ MHz	—	20	—	pF
Switching time	Rise time	See Figure 1 circuit diagram. $V_{CC} \approx -30$ V, $R_L = 30 \Omega$ $-I_{B1} = I_{B2} = -33$ mA	—	60	—	ns
	Storage time		—	250	—	
	Fall time		—	90	—	

Marking

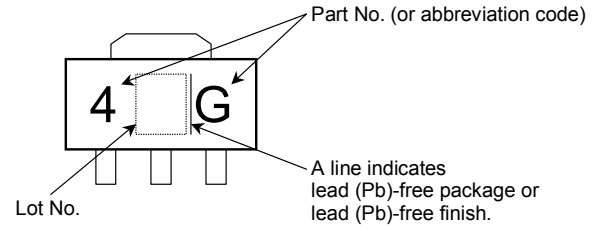
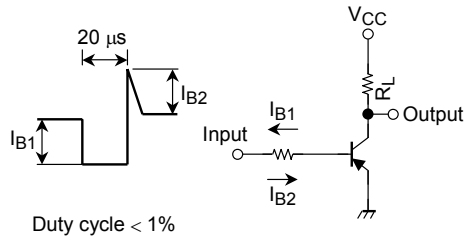
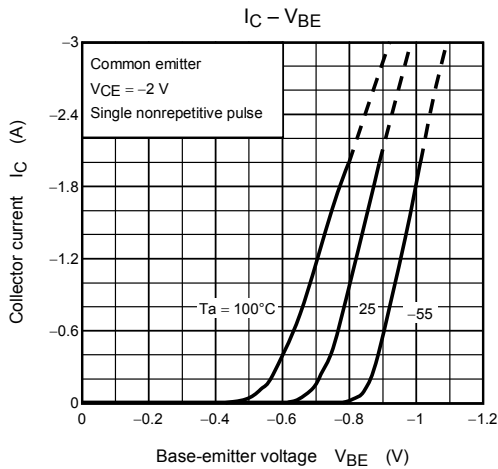
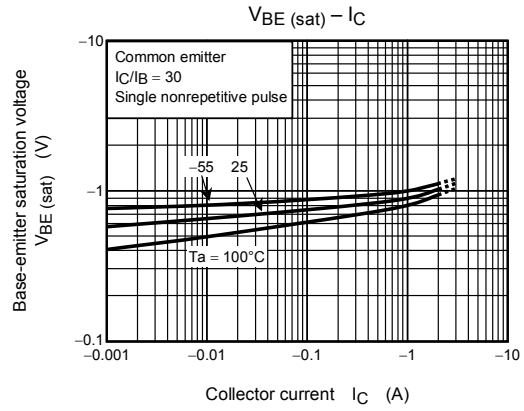
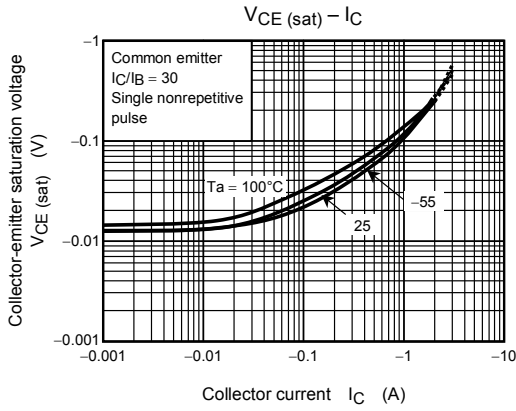
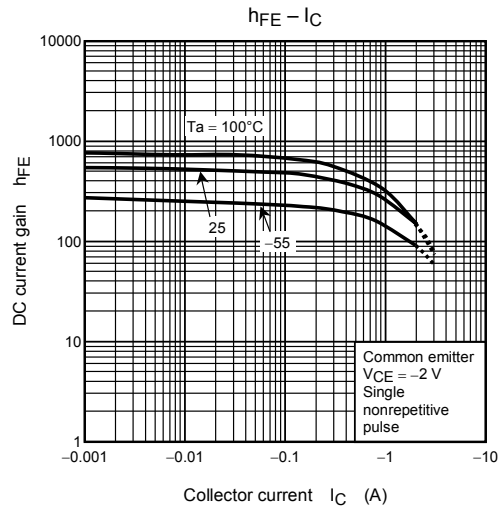
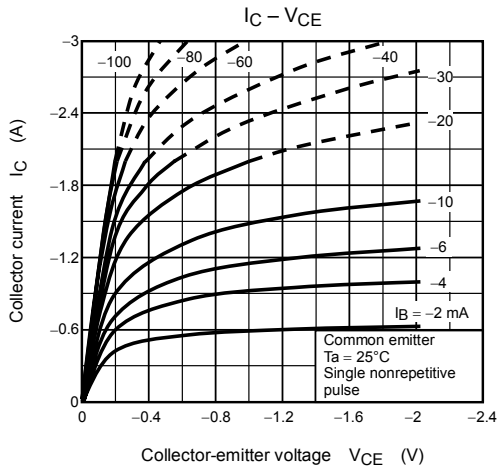
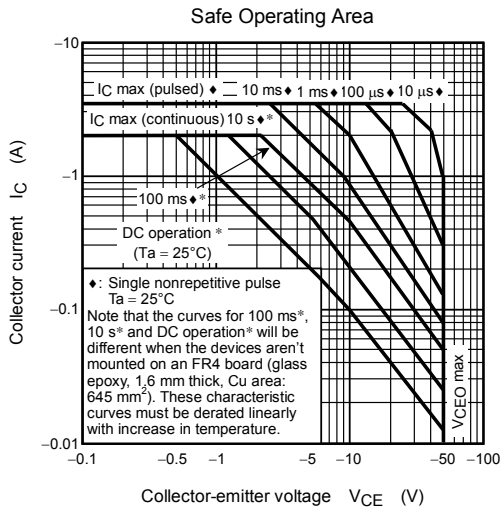
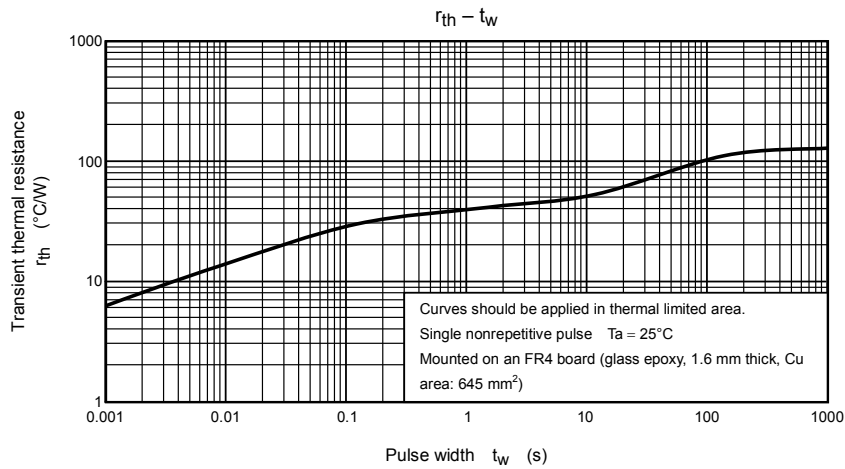


Figure 1 Switching Time Test Circuit & Timing Chart





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