

TOSHIBA Transistor Silicon NPN Epitaxial Type

2SC6052

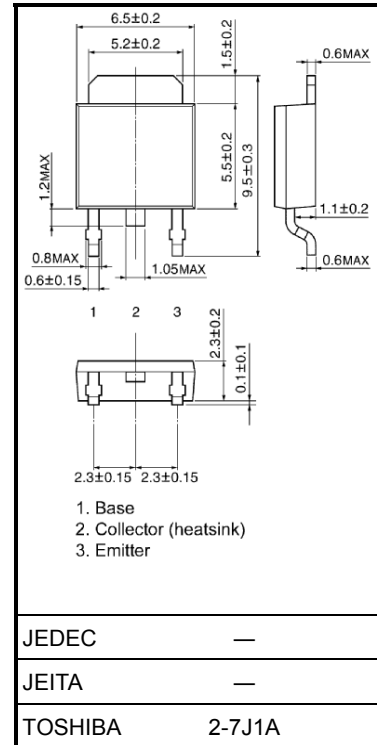
High-Speed Switching Applications
Power Amplifier Applications

- High DC current gain: $h_{FE} = 180$ to 390 ($I_C = 0.5$ A)
- Low collector-emitter saturation: $V_{CE(sat)} = 0.20$ V (max.)
- High-speed switching: $t_f = 15$ ns (typ.)

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

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	DC	I_C	5
	Pulse	I_{CP}	10
Base current	I_B	0.4	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	P_C	1
	$T_c = 25^\circ\text{C}$		10
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

Unit: mm

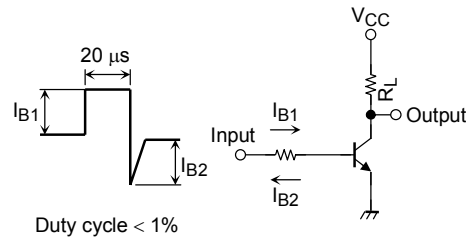


Weight: 0.36 g (typ.)

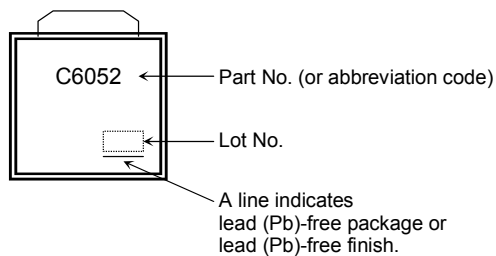
Electrical Characteristics (Ta = 25°C)

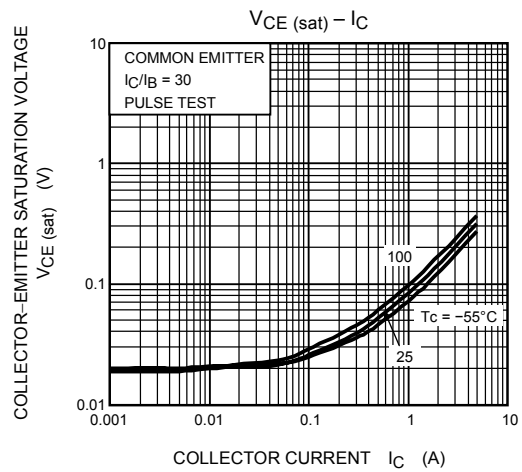
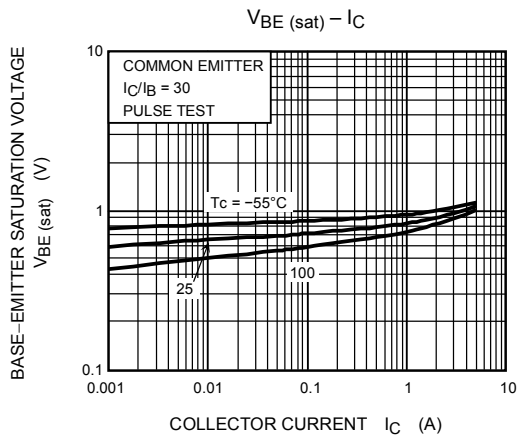
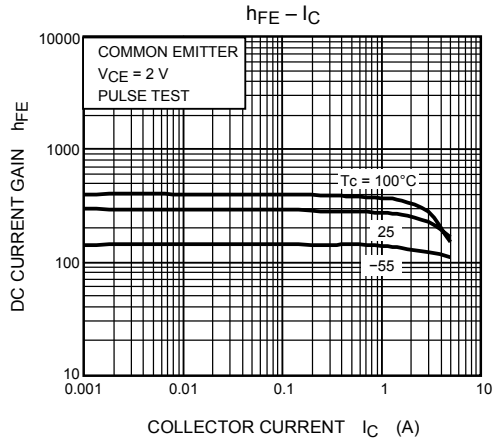
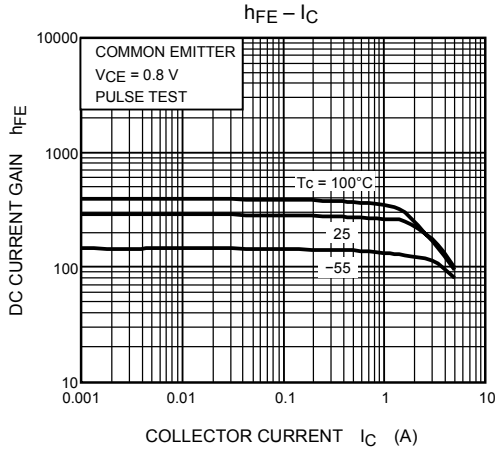
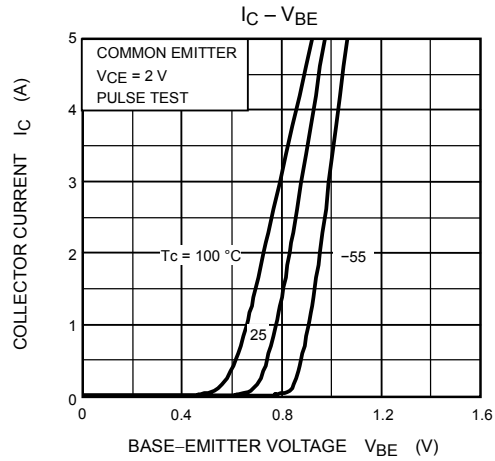
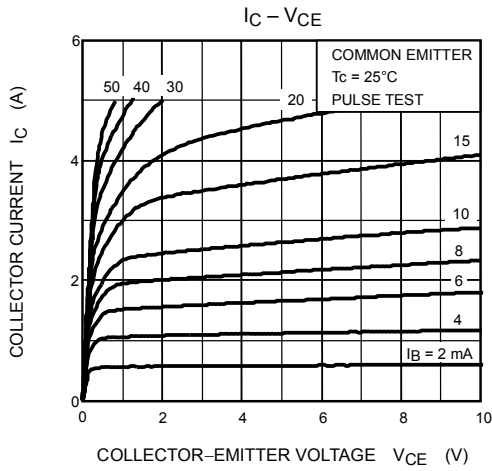
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 40\text{ V}, I_E = 0$	—	—	100	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	nA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	20	—	—	V
DC current gain	$h_{FE(1)}$	$V_{CE} = 2\text{ V}, I_C = 0.5\text{ A}$	180	—	390	
	$h_{FE(2)}$	$V_{CE} = 0.8\text{ V}, I_C = 2.0\text{ A}$	100	—	—	
Collector emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.8\text{ A}, I_B = 53\text{ mA}$	—	—	0.20	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1.8\text{ A}, I_B = 53\text{ mA}$	—	—	1.10	V
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	18	—	pF
Switching time	Rise time	t_r	See Figure 1 circuit diagram		—	ns
	Storage time	t_{stg}	$V_{CC} \approx 12\text{ V}, R_L = 7.5\ \Omega$		—	
	Fall time	t_f	$I_{B1} = -I_{B2} = 53\text{ mA}$		—	

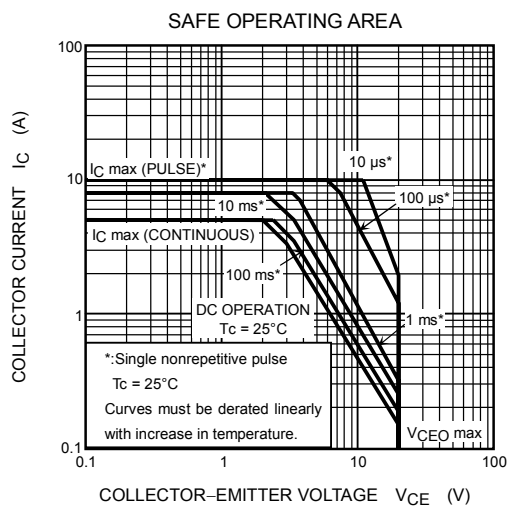
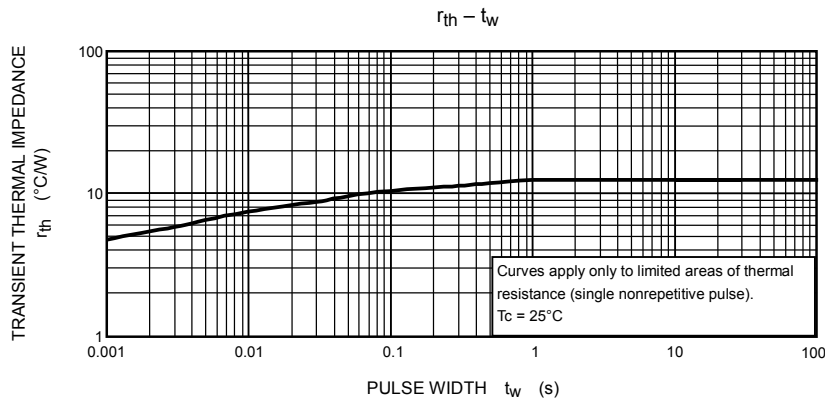
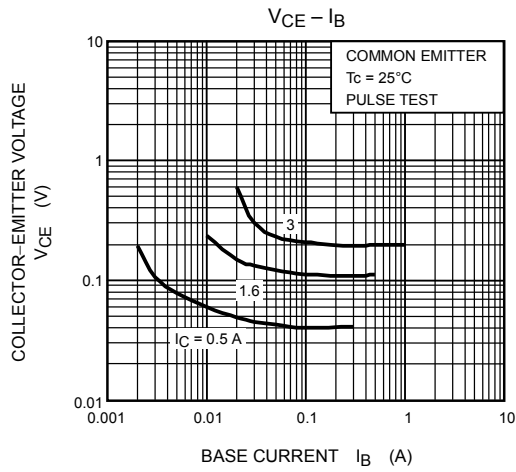
Figure 1. Switching Time Test Circuit & Timing Chart



Marking







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