

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

# 2SC752(G)TM

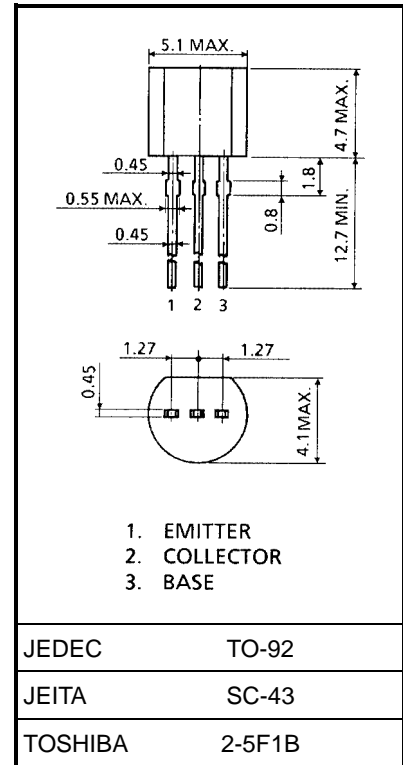
Ultra High Speed Switching Applications  
Computer, Counter Applications

Unit: mm

- High transition frequency:  $f_T = 400 \text{ MHz (typ.)}$
- Low saturation voltage:  $V_{CE(sat)} = 0.3 \text{ V (max)}$
- High speed switching time:  $t_{stg} = 15 \text{ ns (typ.)}$

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	15	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	200	mA
Base current	$I_B$	40	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$

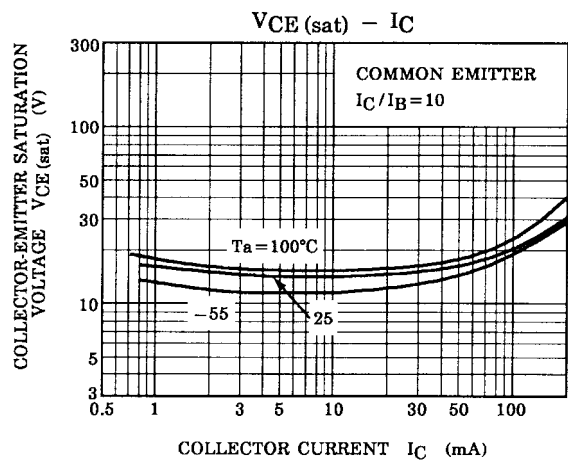
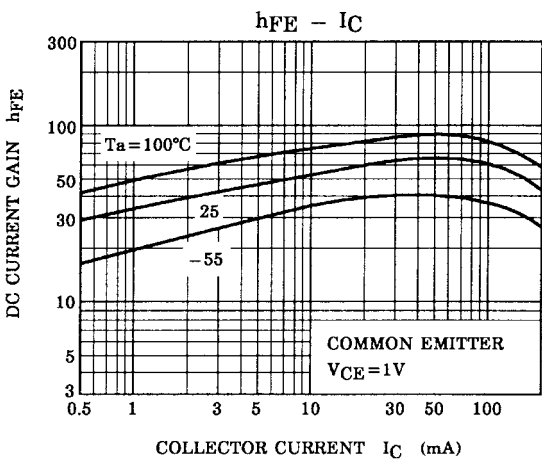
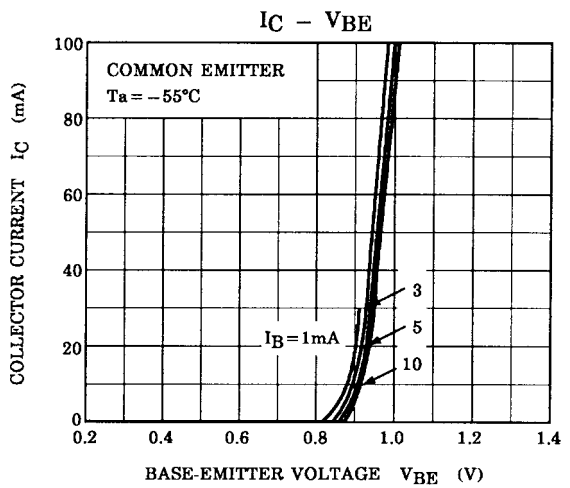
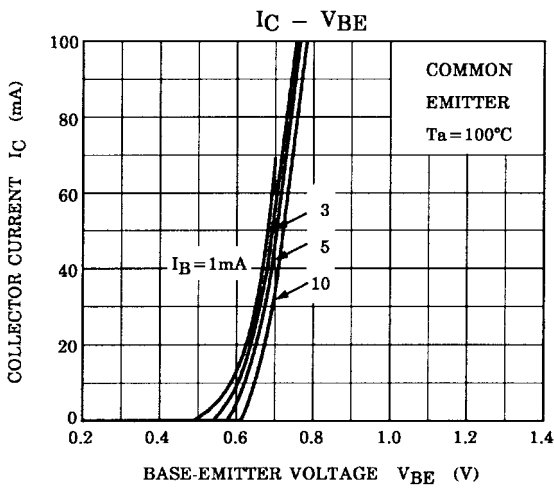
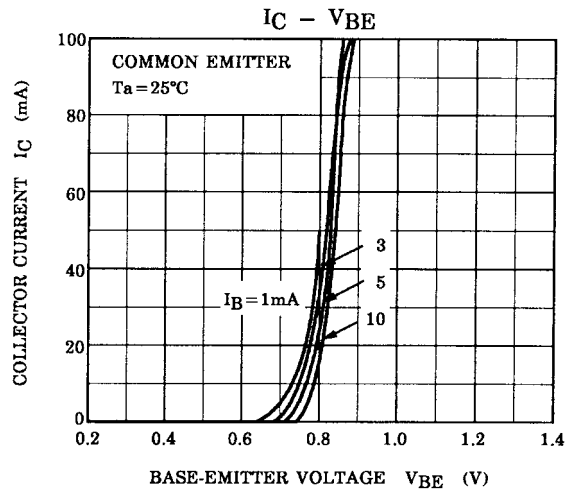
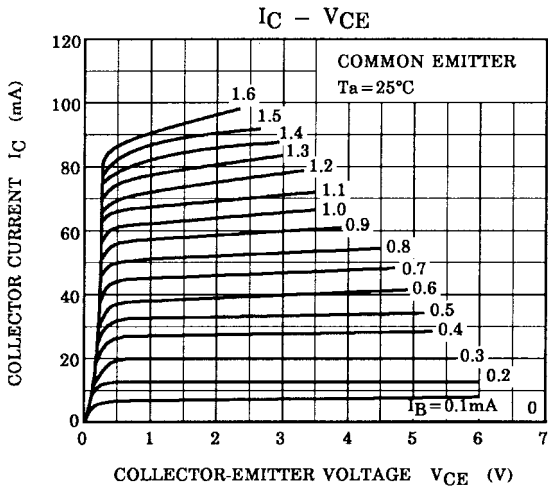


## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

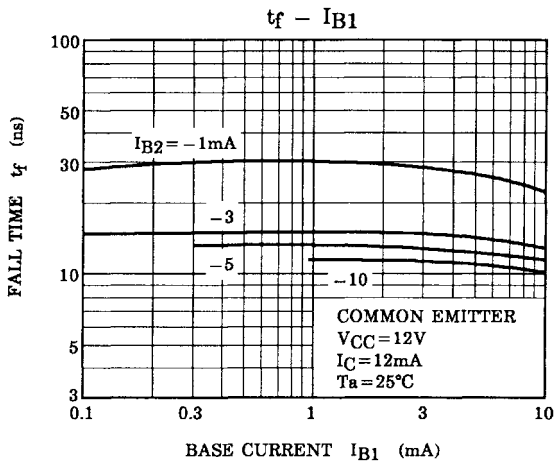
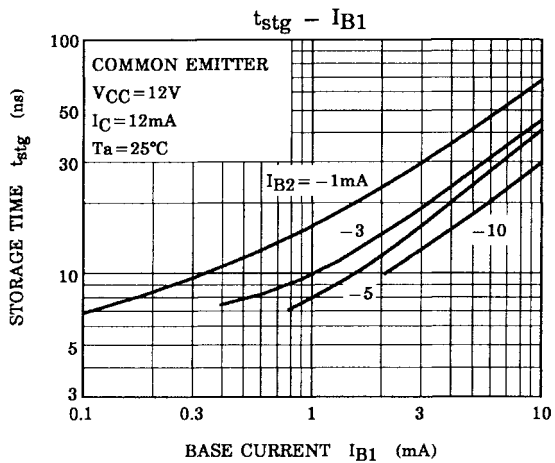
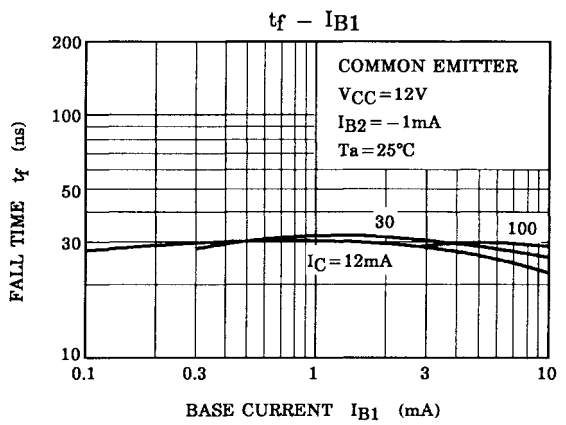
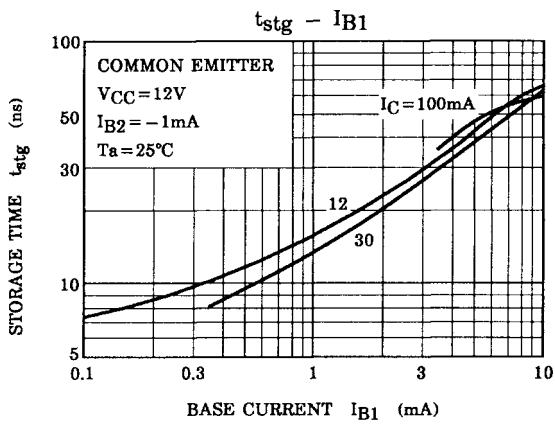
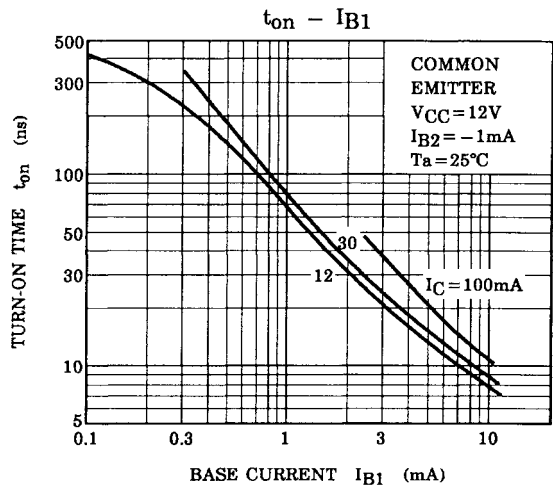
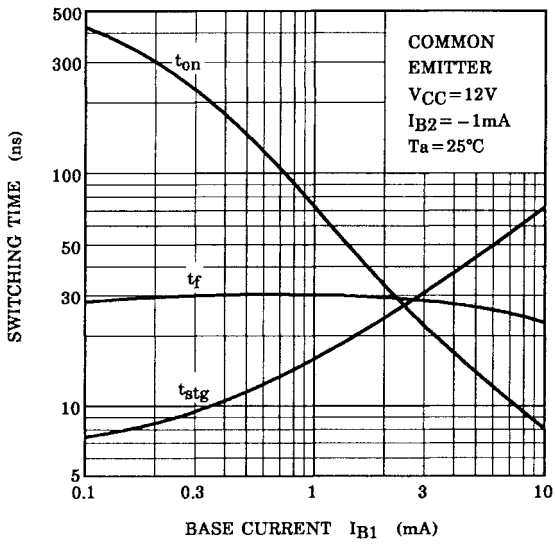
Weight: 0.21 g (typ.)

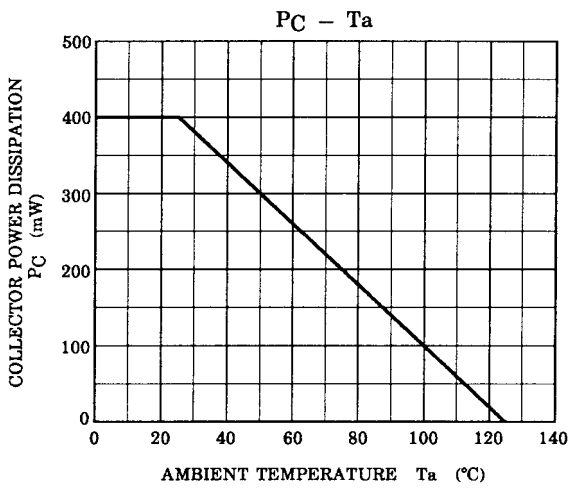
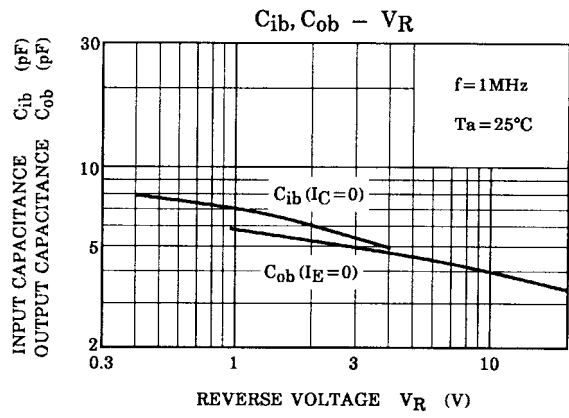
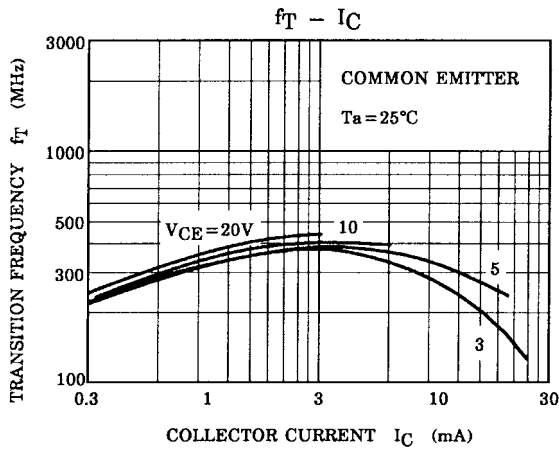
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = 40 \text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = 5 \text{ V}, I_C = 0$	—	—	0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$ (Note)		$V_{CE} = 1 \text{ V}, I_C = 10 \text{ mA}$	40	—	240	
	$h_{FE(2)}$		$V_{CE} = 1 \text{ V}, I_C = 100 \text{ mA}$	20	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 20 \text{ mA}, I_B = 1 \text{ mA}$	—	—	0.3	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 20 \text{ mA}, I_B = 1 \text{ mA}$	—	—	1.0	V
Transition frequency		$f_T$	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	200	400	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	4	6	pF
Switching time	Turn-on time	$t_{on}$	<p>Duty cycle <math>\leq 2\%</math></p>	—	70	100	ns
	Storage time	$t_{stg}$		—	15	30	
	Fall time	$t_f$		—	30	70	

Note:  $h_{FE}$  classification R: 40~80, O: 70~140, Y: 120~240



**SWITCHING CHARACTERISTICS**





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