

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

# 2SC4604

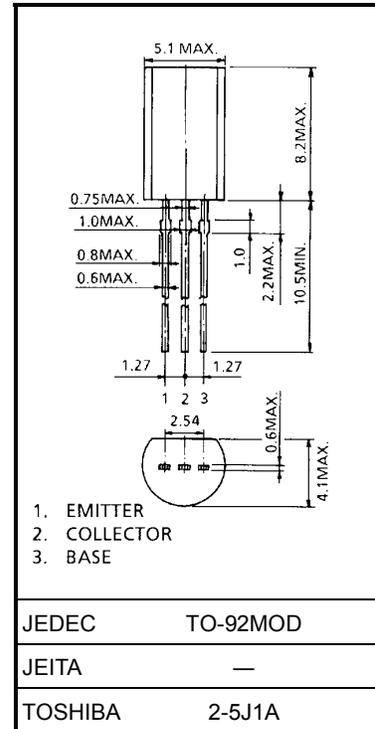
Power Amplifier Application.  
Power Switching Applications.

Unit: mm

- Low collector-emitter saturation voltage:  $V_{CE(sat)} = 0.5\text{ V (max)}$   
( $I_C = 1.5\text{ A}$ )
- High-speed switching:  $t_{stg} = 0.5\text{ }\mu\text{s (typ.)}$
- Complementary to 2SA1761

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	80	V
Collector-emitter voltage	$V_{CEO}$	50	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	3	A
Base current	$I_B$	0.6	A
Collector power dissipation	$P_C$	900	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$



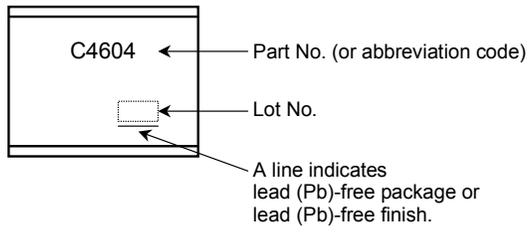
Weight: 0.36 g (typ.)

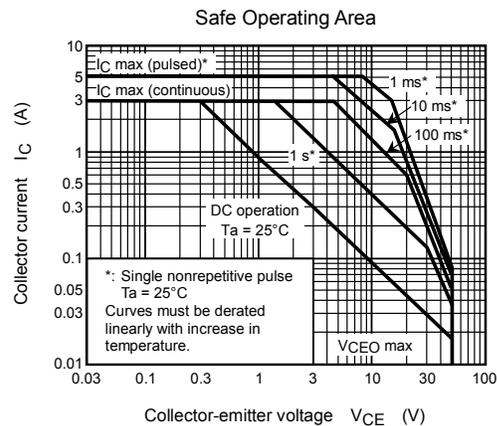
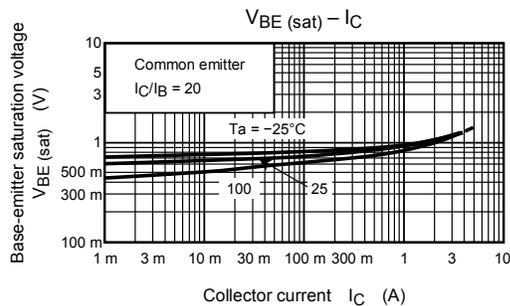
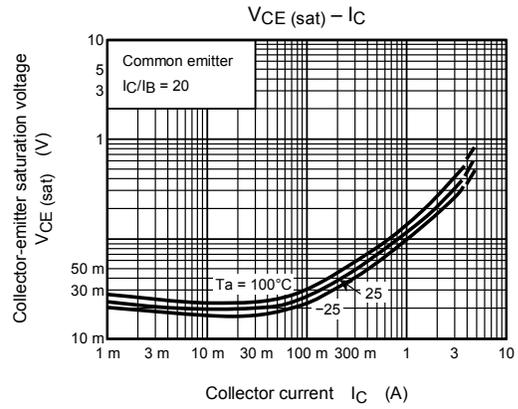
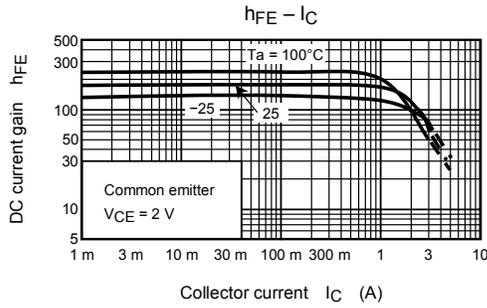
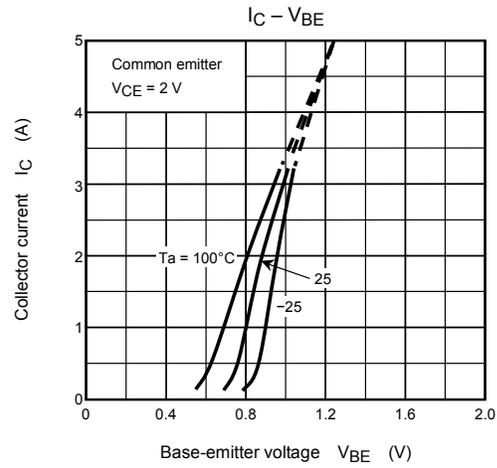
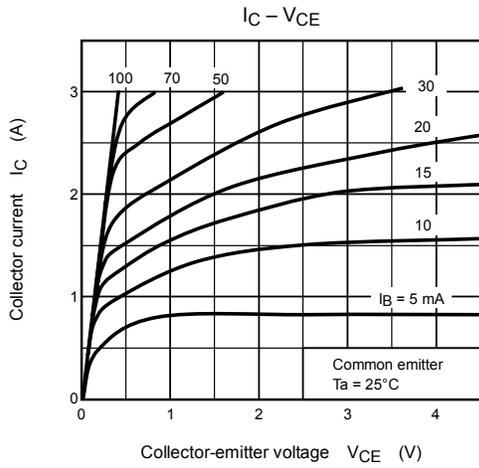
### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	$I_{CBO}$	$V_{CB} = 80\text{ V}, I_E = 0$	—	—	0.1	$\mu\text{A}$	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 6\text{ V}, I_C = 0$	—	—	0.1	$\mu\text{A}$	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_E = 0$	50	—	—	V	
DC current gain	$h_{FE(1)}$	$V_{CE} = 2\text{ V}, I_C = 100\text{ mA}$	120	—	400		
	$h_{FE(2)}$	$V_{CE} = 2\text{ V}, I_C = 2\text{ A}$	40	—	—		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.5\text{ A}, I_B = 75\text{ mA}$	—	—	0.5	V	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1.5\text{ A}, I_B = 75\text{ mA}$	—	—	1.2	V	
Transition frequency	$f_T$	$V_{CE} = 2\text{ V}, I_C = 100\text{ mA}$	—	100	—	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	20	—	pF	
Switching time	Turn-on time	$t_{on}$		—	0.1	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	0.5	—	
	Fall time	$t_f$		—	0.1	—	

$I_{B1} = -I_{B2} = 75\text{ mA}, \text{ duty cycle } \leq 1\%$

## Marking





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