

TOSHIBA Transistor Silicon PNP Triple Diffused Type (PCT process)

## 2SA1091

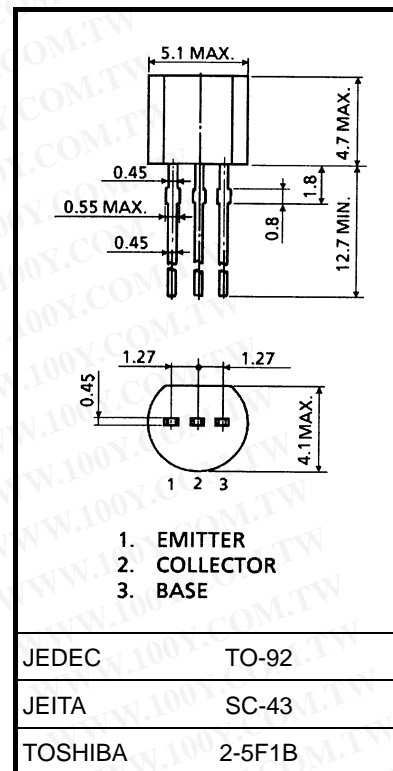
High Voltage Control Applications

Plasma Display, Nixie Tube Driver Applications

Cathode Ray Tube Brightness Control Applications

- High voltage:  $V_{CBO} = -300\text{ V}$ ,  $V_{CEO} = -300\text{ V}$
- Low saturation voltage:  $V_{CE(sat)} = -0.5\text{ V (max)}$
- Small collector output capacitance:  $C_{ob} = 6\text{ pF (typ.)}$
- Complementary to 2SC2551.

Unit: mm

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-300	V
Collector-emitter voltage	$V_{CEO}$	-300	V
Emitter-base voltage	$V_{EBO}$	-8	V
Collector current	$I_C$	-100	mA
Base current	$I_B$	-20	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~150	$^\circ\text{C}$

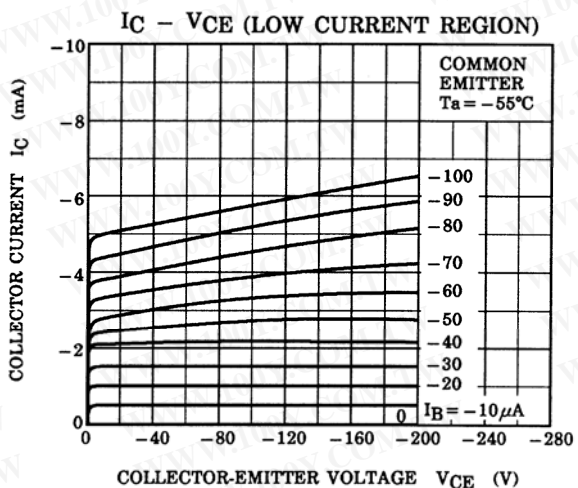
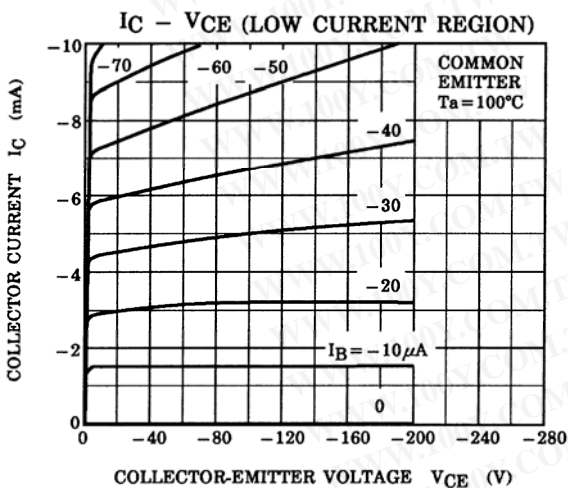
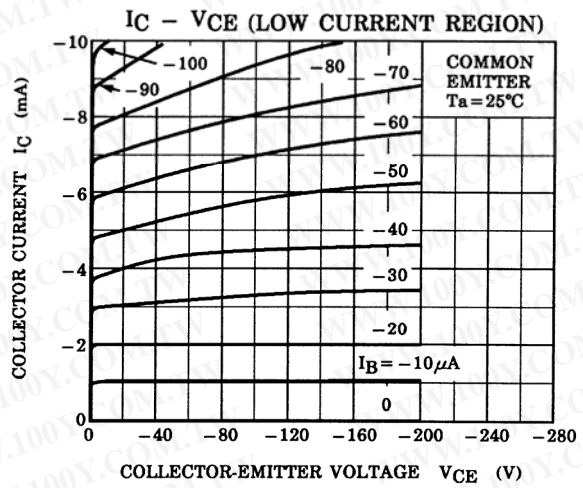
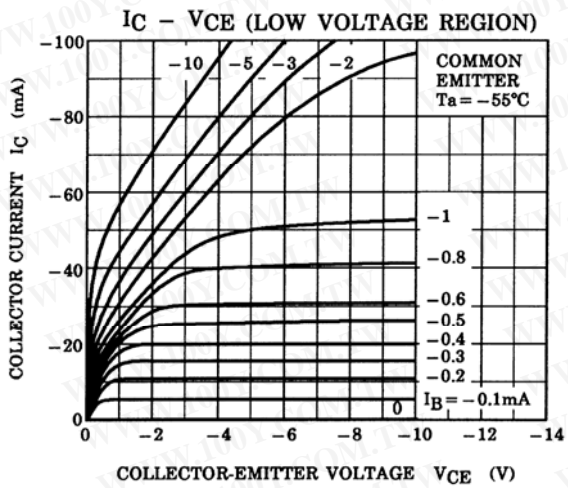
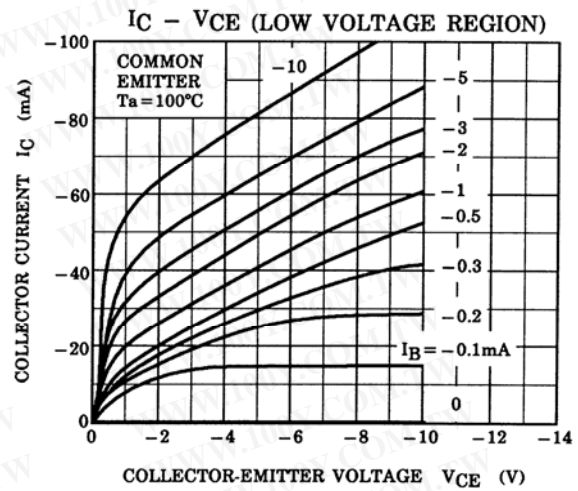
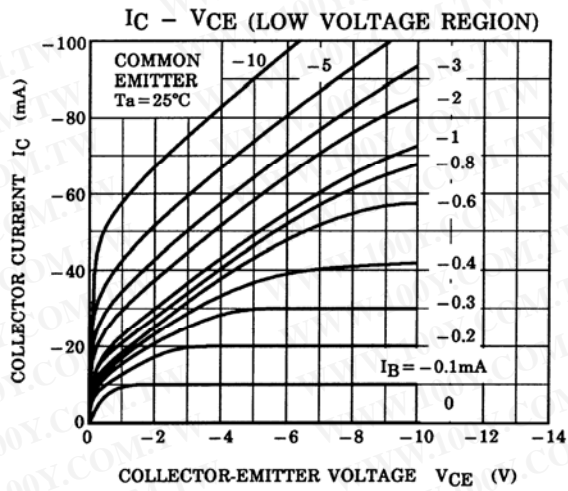
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

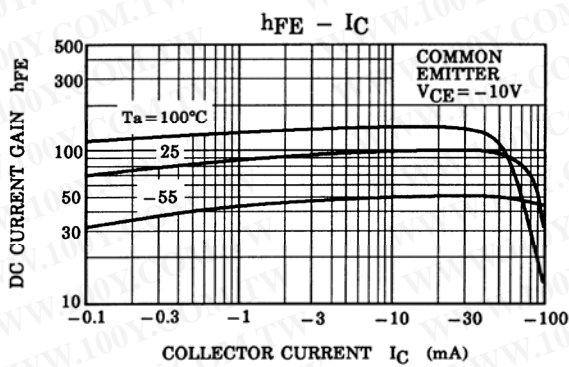
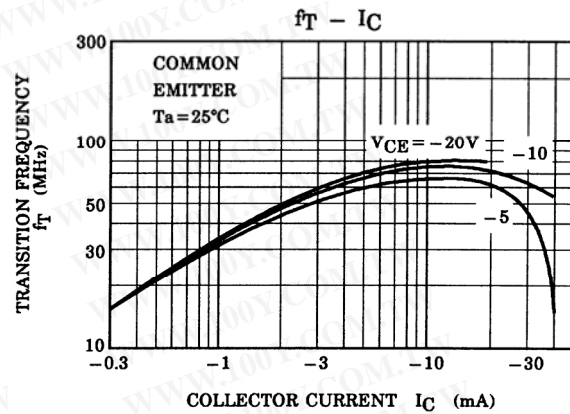
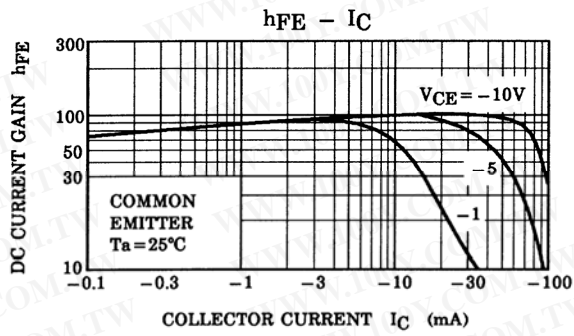
Weight: 0.21 g (typ.)

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

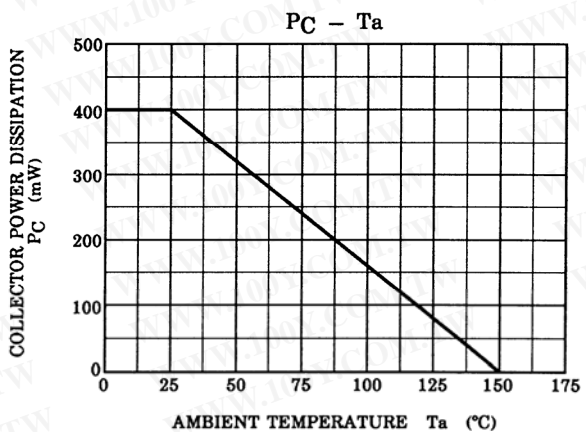
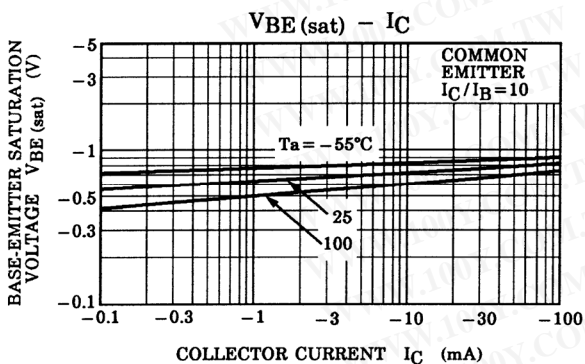
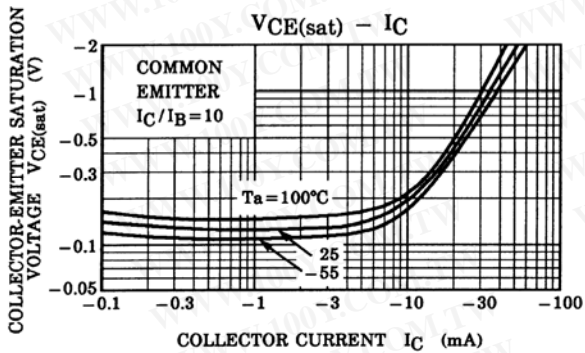
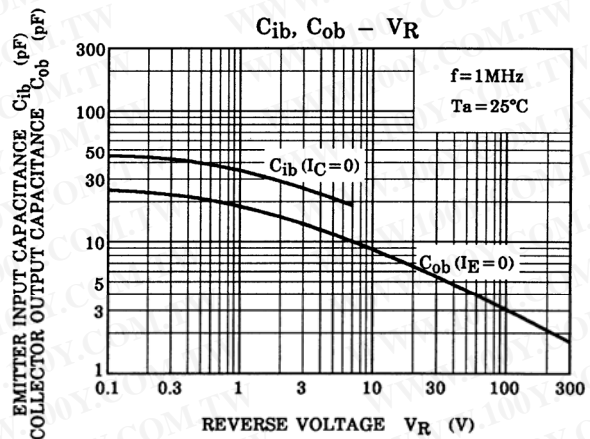
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -300\text{ V}$ , $I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -8\text{ V}$ , $I_C = 0$	—	—	-0.1	$\mu\text{A}$
Collector-base breakdown voltage	$V_{(BR) CBO}$	$I_C = -0.1\text{ mA}$ , $I_E = 0$	-300	—	—	V
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -1\text{ mA}$ , $I_B = 0$	-300	—	—	V
DC current gain	$h_{FE(1)}$ (Note)	$V_{CE} = -10\text{ V}$ , $I_C = -20\text{ mA}$	30	—	150	
	$h_{FE(2)}$	$V_{CE} = -10\text{ V}$ , $I_C = -1\text{ mA}$	20	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -20\text{ mA}$ , $I_B = -2\text{ mA}$	—	—	-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -20\text{ mA}$ , $I_B = -2\text{ mA}$	—	—	-1.2	V
Transition frequency	$f_T$	$V_{CE} = -10\text{ V}$ , $I_C = -20\text{ mA}$	40	60	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -20\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$	—	6	8	pF

Note:  $h_{FE(1)}$  classification R: 30~90 O: 50~150





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