

# 2SC2878

## For Muting and Switching Applications

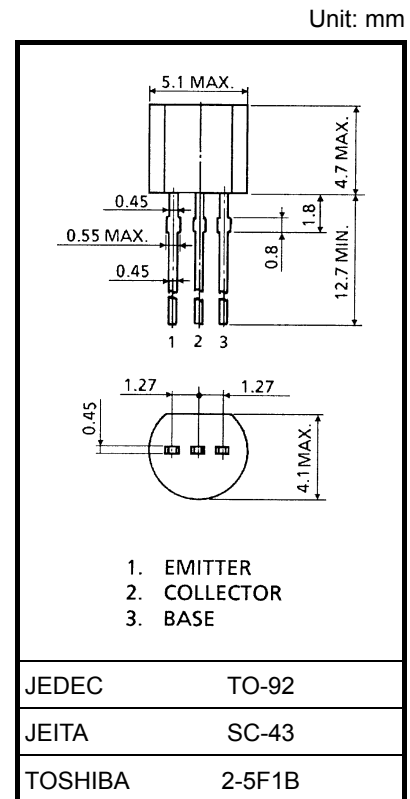
- High emitter-base voltage:  $V_{EBO} = 25 \text{ V (min)}$
- High reverse  $h_{FE}$ : Reverse  $h_{FE} = 150 \text{ (typ.)}$  ( $V_{CE} = -2 \text{ V}$ ,  $I_C = -4 \text{ mA}$ )
- Low on resistance:  $R_{ON} = 1 \Omega \text{ (typ.)}$  ( $I_B = 5 \text{ mA}$ )

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	50	V
Collector-emitter voltage	$V_{CEO}$	20	V
Emitter-base voltage	$V_{EBO}$	25	V
Collector current	$I_C$	300	mA
Base current	$I_B$	60	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~125	$^\circ\text{C}$

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.

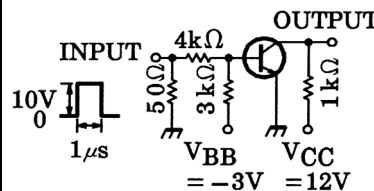
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).



Weight: 0.21 g (typ.)

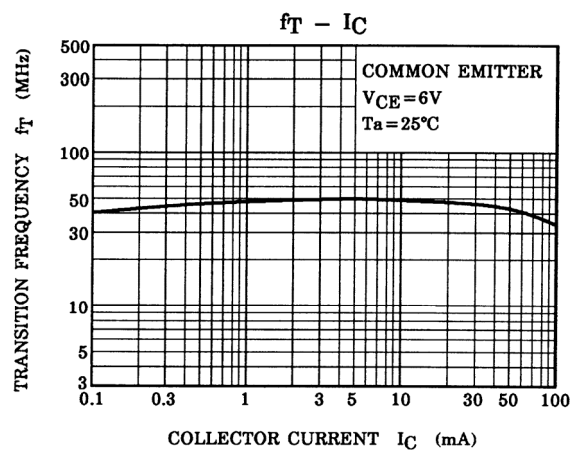
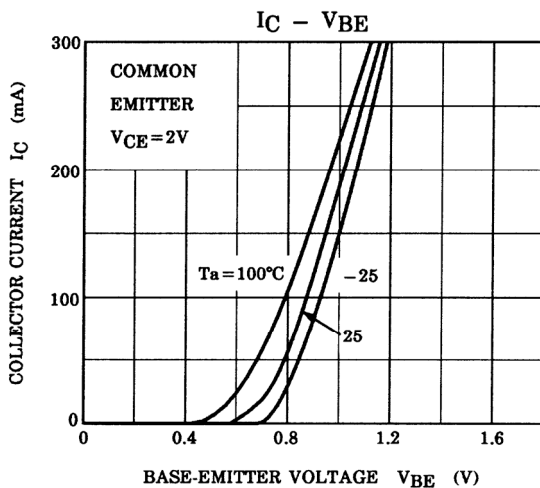
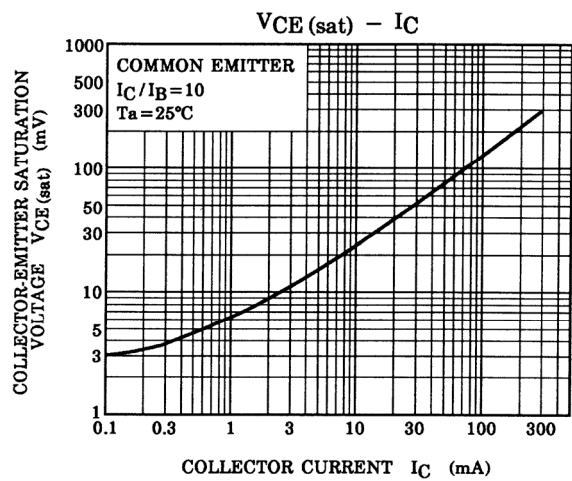
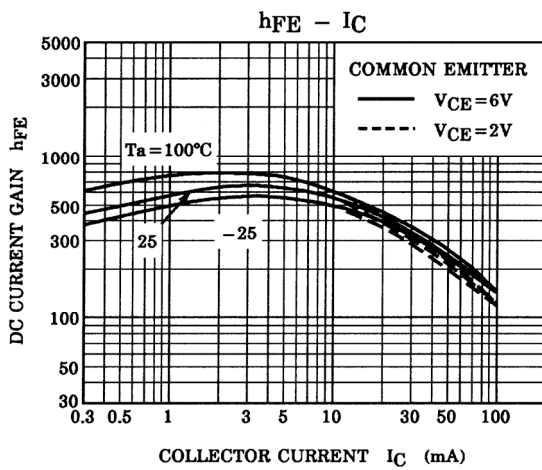
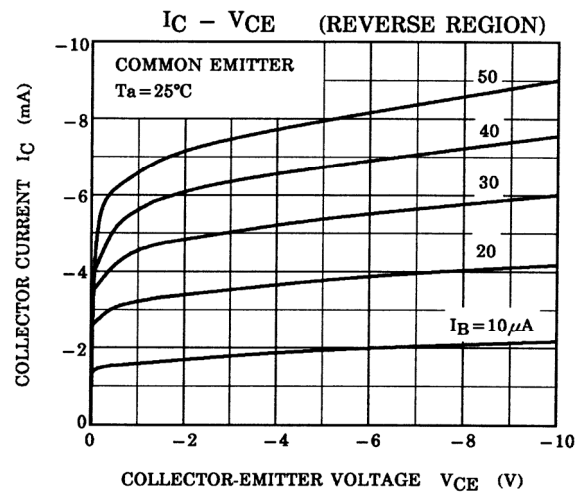
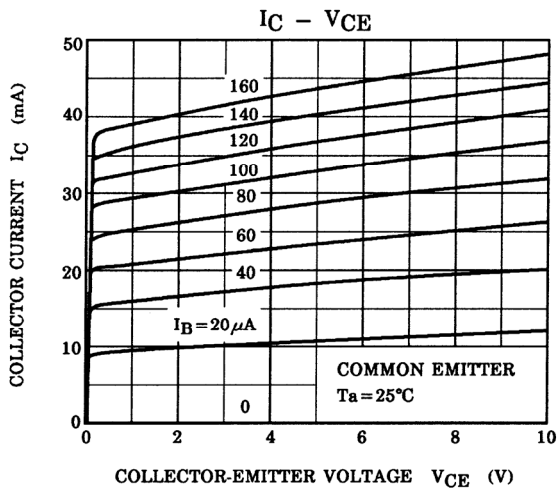
## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50 \text{ V}$ , $I_E = 0$	—	—	0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 25 \text{ V}$ , $I_C = 0$	—	—	0.1	$\mu\text{A}$
DC current gain	$h_{FE}$ (Note)	$V_{CE} = 2 \text{ V}$ , $I_C = 4 \text{ mA}$	200	—	1200	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 30 \text{ mA}$ , $I_B = 3 \text{ mA}$	—	0.042	0.1	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 2 \text{ V}$ , $I_C = 4 \text{ mA}$	—	0.61	—	V
Transition frequency	$f_T$	$V_{CE} = 6 \text{ V}$ , $I_C = 4 \text{ mA}$	—	30	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$	—	4.8	7	pF
Switching time	Turn-on time	$t_{on}$	—	160	—	ns
	Storage time	$t_{stg}$	—	500	—	
	Fall time	$t_f$	—	130	—	

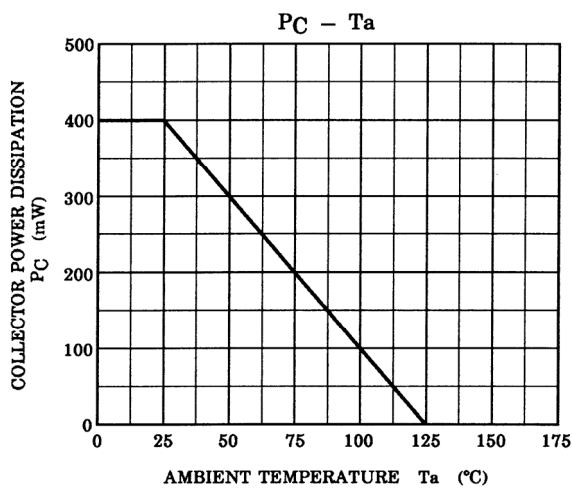
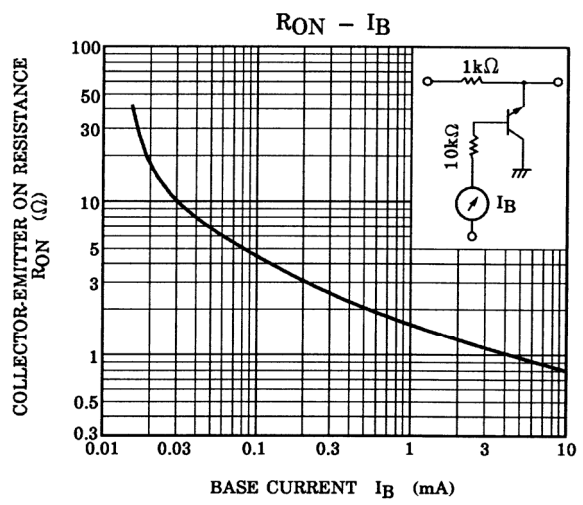
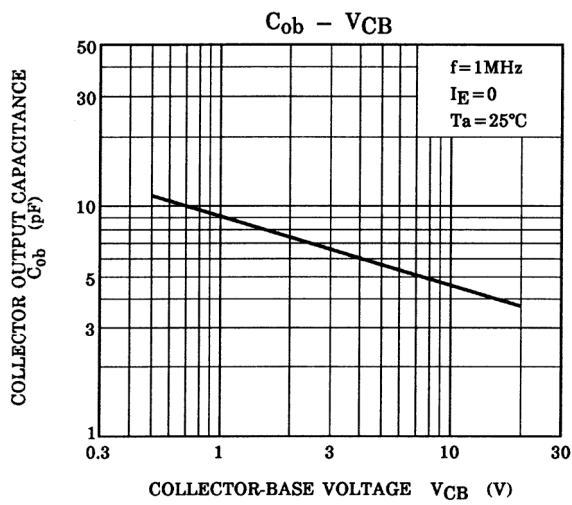


Duty cycle  $\leq 2\%$

Note:  $h_{FE}$  classification A: 200~700, B: 350~1200

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20070701-EN GENERAL

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