

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC4213

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: $R_{ON} = 1 \ \Omega \text{ (typ.)}$ ($I_B = 5 \text{ mA}$)
- High DC current gain: $h_{FE} = 200 \text{ to } 1200$
- Small package

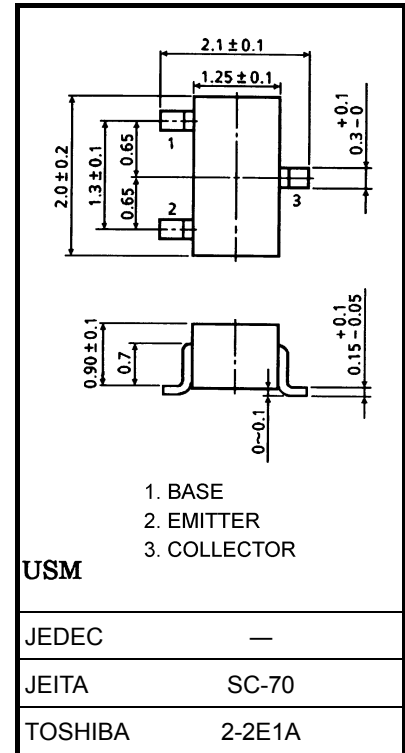
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	100	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 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.

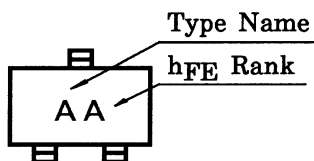
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



Weight: 0.006 g (typ.)

Marking

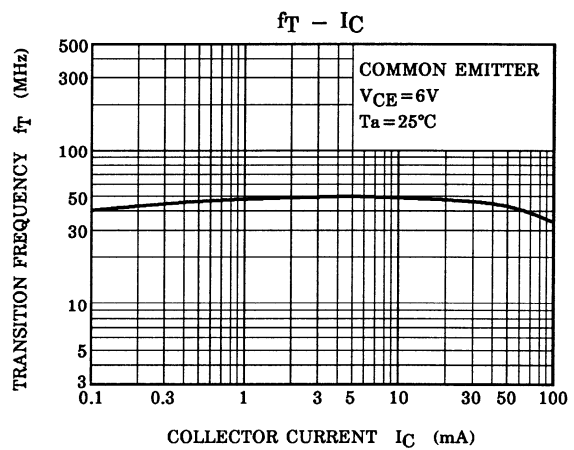
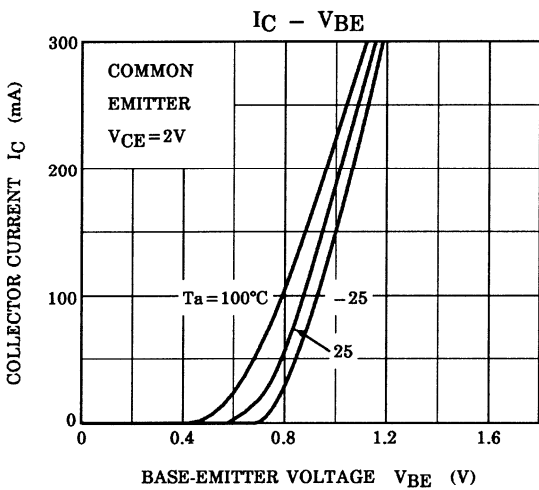
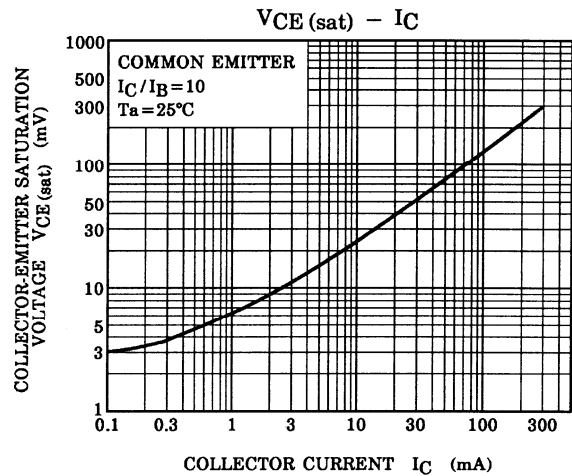
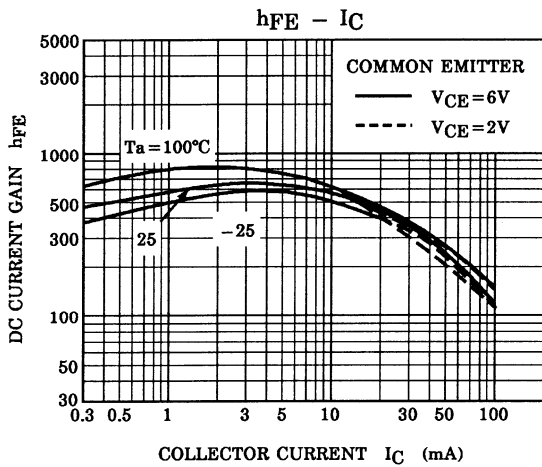
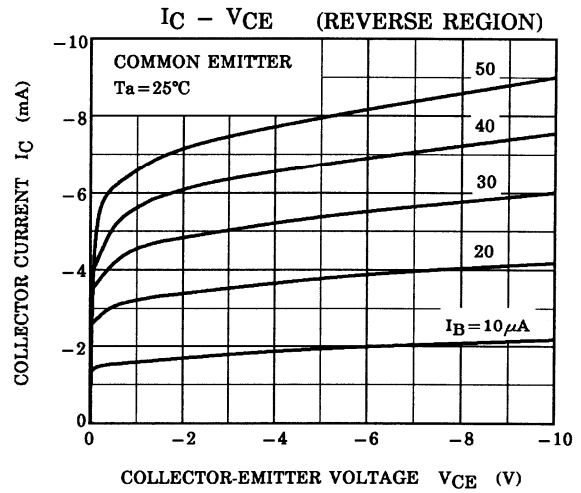
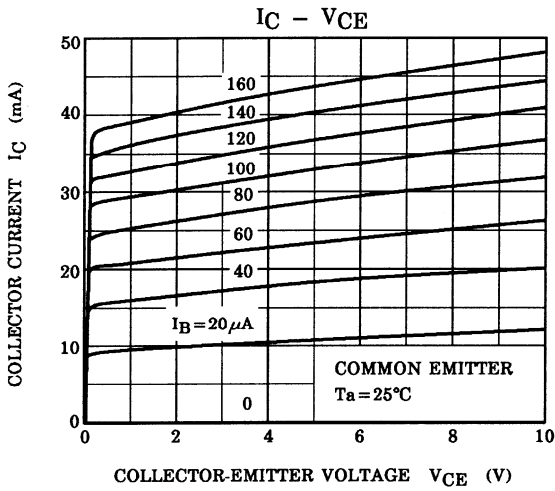


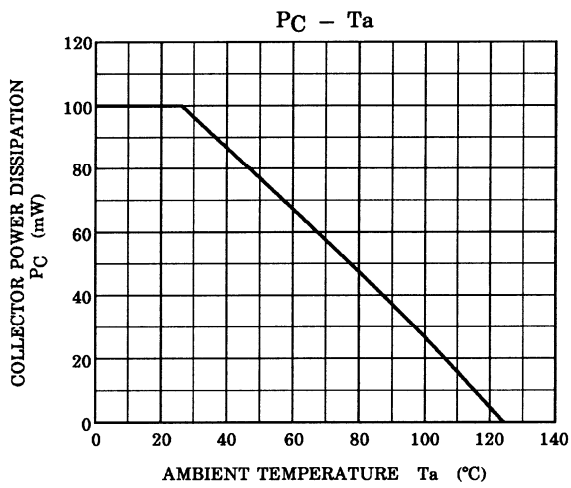
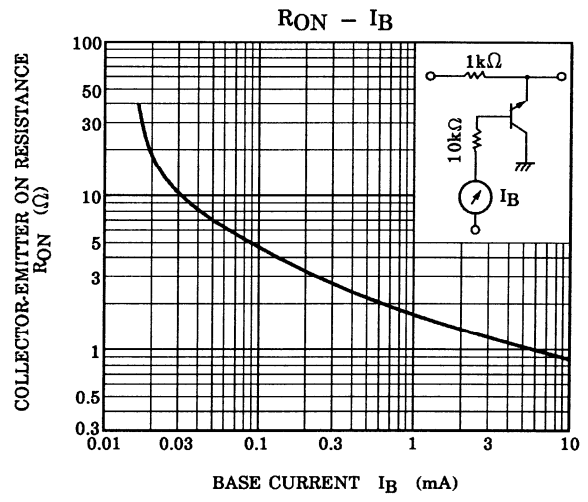
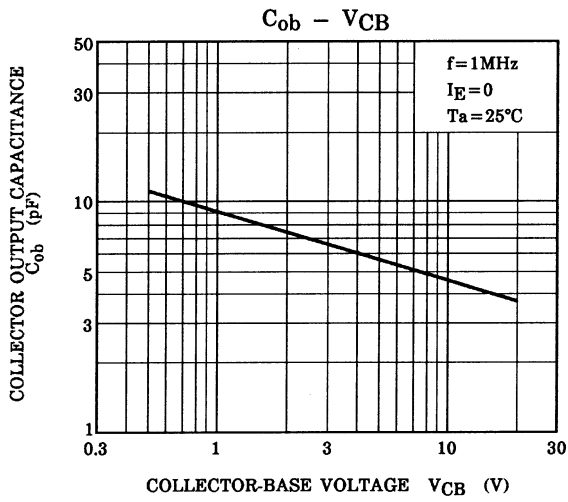
Start of commercial production
1987-05

Electrical Characteristics (Ta = 25°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	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 25\text{ V}, I_C = 0$	—	—	0.1	μA
DC current gain		h_{FE} (Note)	$V_{CE} = 2\text{ V}, I_C = 4\text{ mA}$	200	—	1200	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 30\text{ A}, I_B = 3\text{ mA}$	—	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}	<p>Duty cycle $\leq 2\%$</p>	—	160	—	ns
	Storage time	t_{stg}		—	500	—	
	Fall time	t_f		—	130	—	

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





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