

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC4213

For Muting and Switching Applications

- High emitter-base voltage: $V_{EBO} = 25\text{ V}$
- High reverse h_{FE} : Reverse $h_{FE} = 150$ (typ.) ($V_{CE} = -2\text{ V}$, $I_C = -4\text{ mA}$)
- Low on resistance: $R_{ON} = 1\ \Omega$ (typ.) ($I_B = 5\text{ mA}$)
- High DC current gain: $h_{FE} = 200$ to 1200
- Small package

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	50	V
Collector-emitter voltage	V_{CE0}	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 (Note 1, 3)	200	mW
	P_C (Note 2)	100	
Junction temperature	T_j (Note 1)	150	$^\circ\text{C}$
	T_j (Note 2)	125	
Storage temperature range	T_{stg} (Note 1)	-55 to 150	$^\circ\text{C}$
	T_{stg} (Note 2)	-55 to 125	

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.

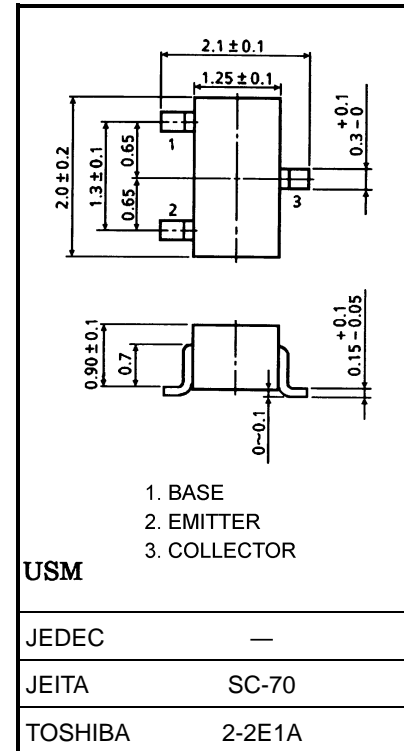
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1 : For devices with the ordering part number ending in LF(T).

Note 2 : For devices with the ordering part number in other than LF(T).

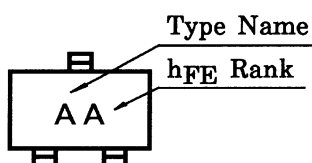
Note 3 : Mounted on a FR4 board. (25.4 mm x 25.4 mm x 1.6 mm, Cu pad: 0.5 mm² x 3)

Unit: mm



Weight: 0.006 g (typ.)

Marking

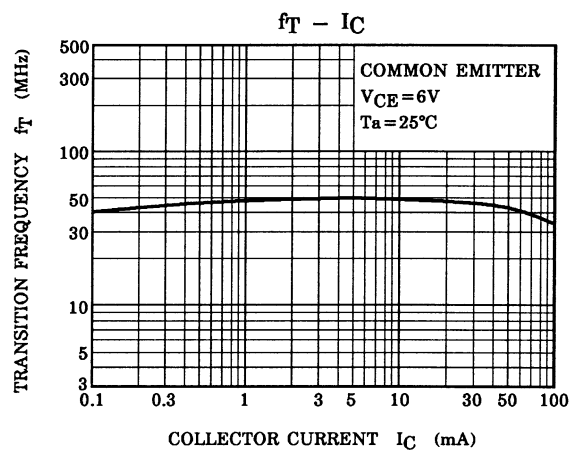
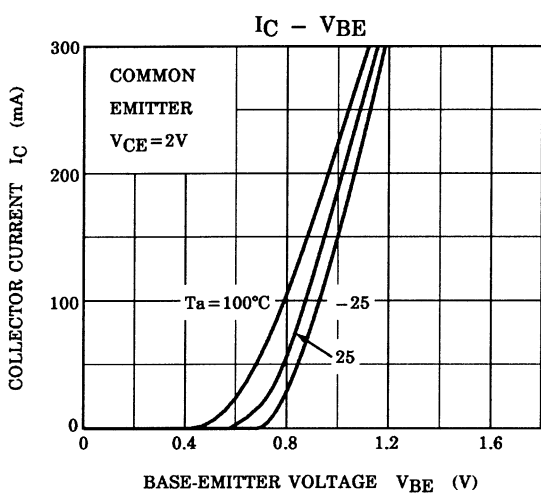
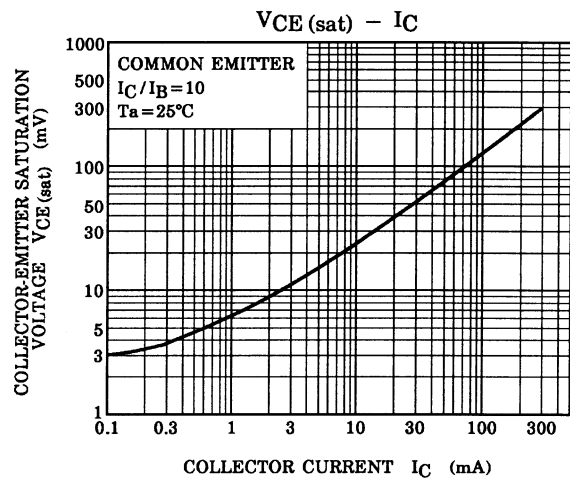
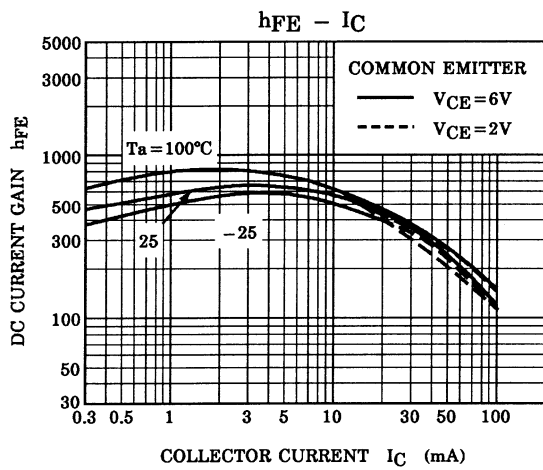
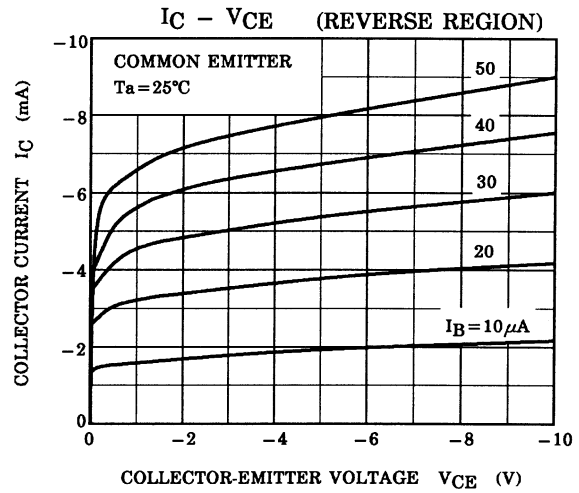
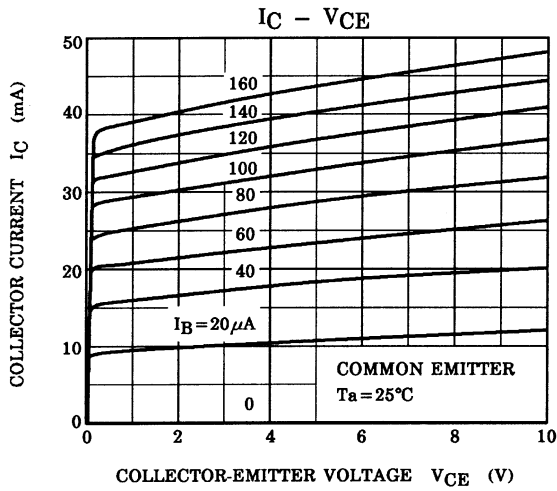


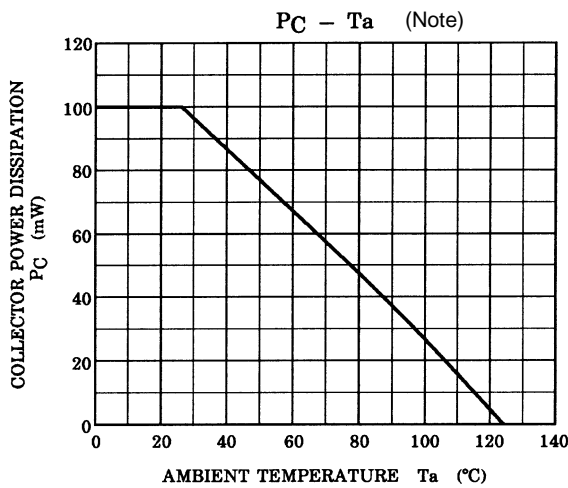
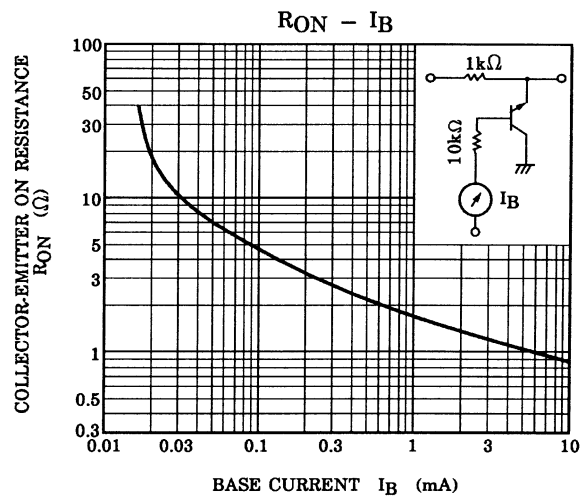
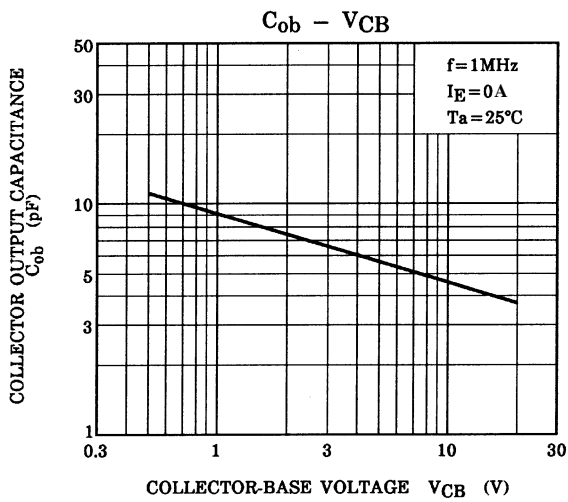
Start of commercial production
1987-05

Electrical Characteristics (Ta = 25°C)

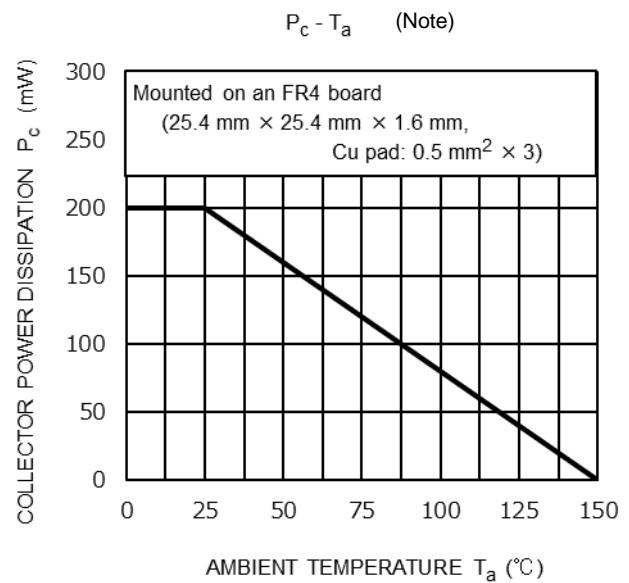
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		ICBO	V _{CB} = 50 V, I _E = 0 A	—	—	0.1	μA
Emitter cut-off current		IEBO	V _{EB} = 25 V, I _C = 0 A	—	—	0.1	μA
DC current gain		h _{FE} (Note)	V _{CE} = 2 V, I _C = 4 mA	200	—	1200	—
Collector-emitter saturation voltage		V _{CE (sat)}	I _C = 30 mA, I _B = 3 mA	—	0.042	0.1	V
Base-emitter voltage		V _{BE}	V _{CE} = 2 V, I _C = 4 mA	—	0.61	—	V
Transition frequency		f _T	V _{CE} = 6 V, I _C = 4 mA	—	30	—	MHz
Collector output capacitance		C _{ob}	V _{CB} = 10 V, I _E = 0 A, f = 1 MHz	—	4.8	7	pF
Switching time	Turn-on time	t _{on}	<p>Duty cycle ≤ 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





Note: Reference only with T_j of 125°C .



Note: Reference only with T_j of 150°C .

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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