

TOSHIBA Transistor Silicon PNP Triple Diffused Type

# 2SA1972

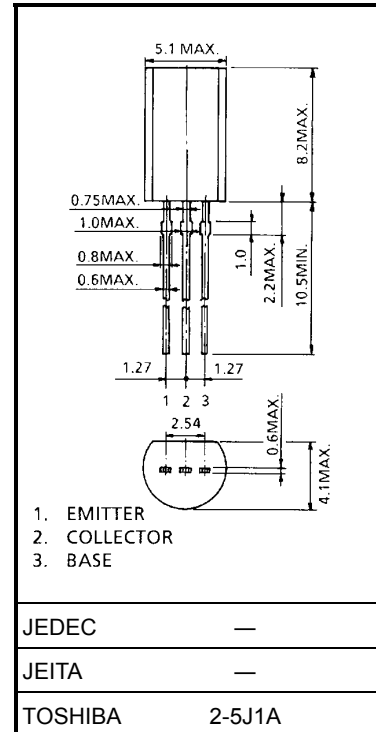
## High-Voltage Switching Applications

Unit: mm

- High breakdown voltage:  $V_{CEO} = -400\text{ V}$

### Maximum Ratings (Ta = 25°C)

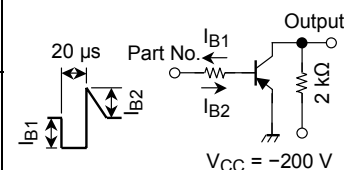
Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-400	V
Collector-emitter voltage	$V_{CEO}$	-400	V
Emitter-base voltage	$V_{EBO}$	-7	V
Collector current	DC	$I_C$	-0.5
	Pulse	$I_{CP}$	-1
Base current	$I_B$	-0.25	A
Collector power dissipation	$P_C$	900	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-55 to 150	°C



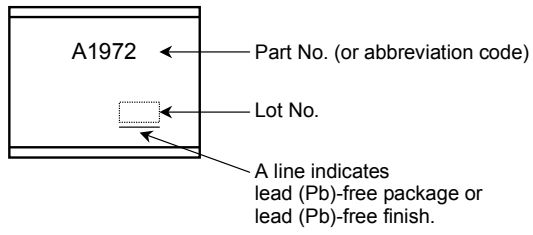
### Electrical Characteristics (Ta = 25°C)

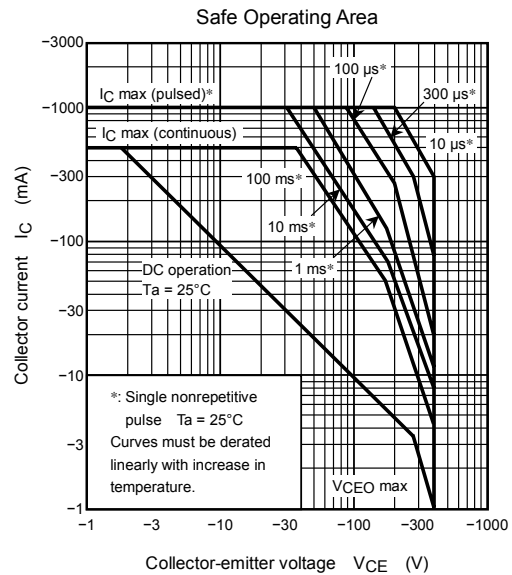
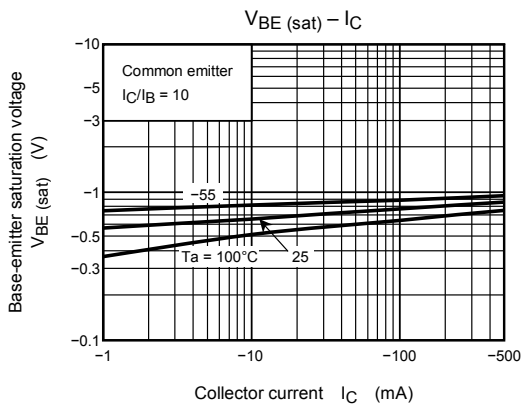
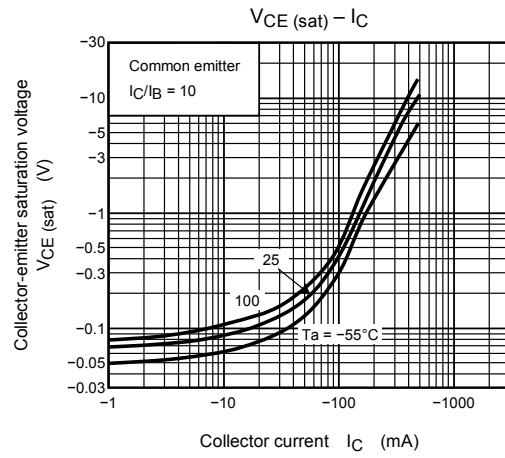
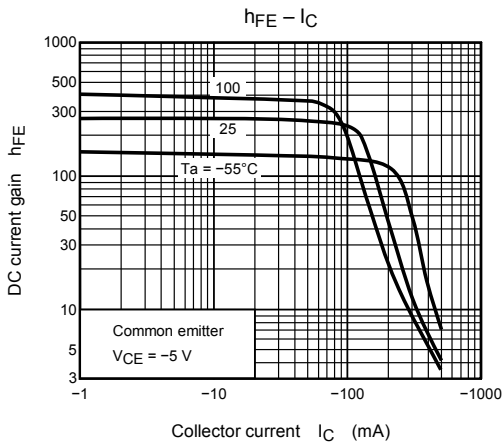
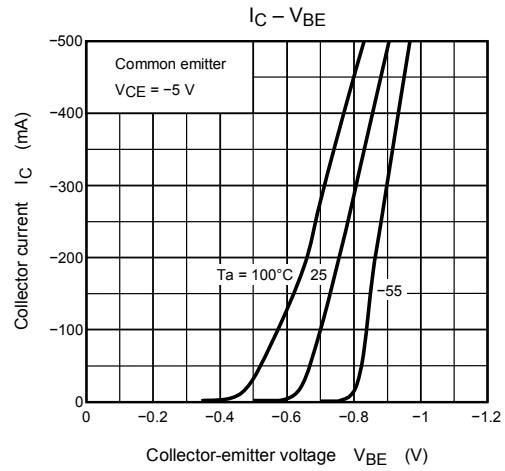
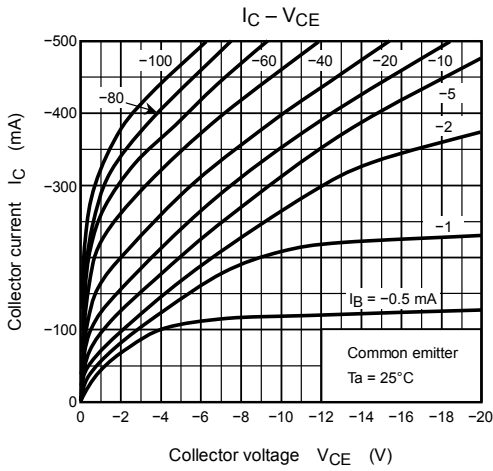
Weight: 0.36 g (typ.)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -400\text{ V}, I_E = 0$	—	—	-10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-400	—	—	V
DC current gain	$h_{FE(1)}$	$V_{CE} = -5\text{ V}, I_C = -20\text{ mA}$	140	—	450	
	$h_{FE(2)}$	$V_{CE} = -5\text{ V}, I_C = -100\text{ mA}$	140	—	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100\text{ mA}, I_B = -10\text{ mA}$	—	-0.4	-1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -100\text{ mA}, I_B = -10\text{ mA}$	—	-0.76	-0.9	V
Transition frequency	$f_T$	$V_{CE} = -5\text{ V}, I_C = -50\text{ mA}$	—	35	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	18	—	pF
Switching time	Turn-on time	$t_{on}$	—	0.2	—	$\mu\text{s}$
	Storage time	$t_{stg}$	—	2.3	—	
	Fall time	$t_f$	—	0.2	—	



## Marking





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