

TOSHIBA Transistor Silicon PNP Triple Diffused (PCT process)

# 2SA1255

## High Voltage Switching Applications

- High voltage:  $V_{CBO} = -200\text{ V (min)}$   
 $V_{CEO} = -200\text{ V (min)}$
- Small package
- Complementary to 2SC3138

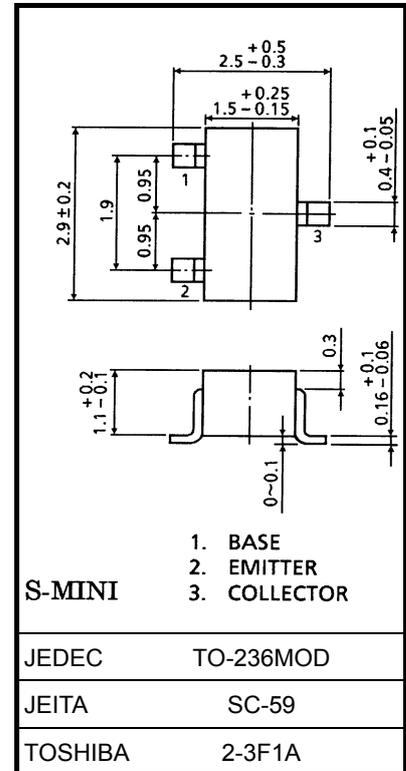
## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-200	V
Collector-emitter voltage	$V_{CEO}$	-200	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-50	mA
Base current	$I_B$	-20	mA
Collector power dissipation	$P_C$	150	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.

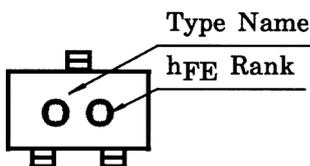
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



Weight: 0.012 g (typ.)

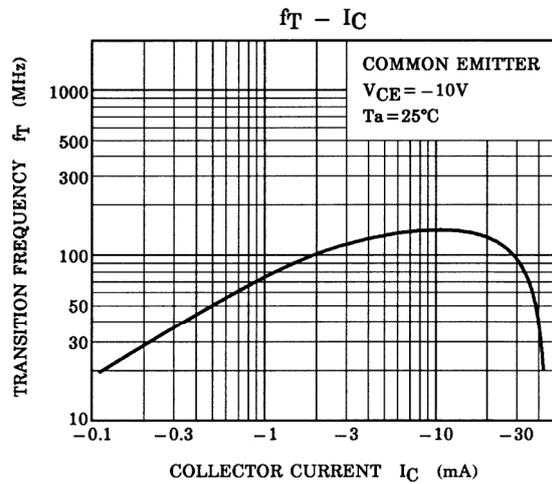
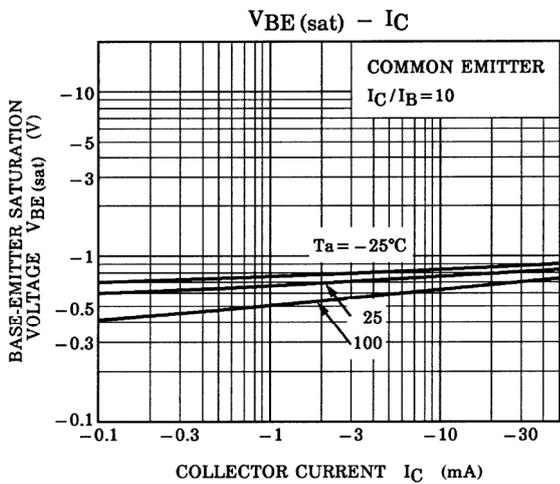
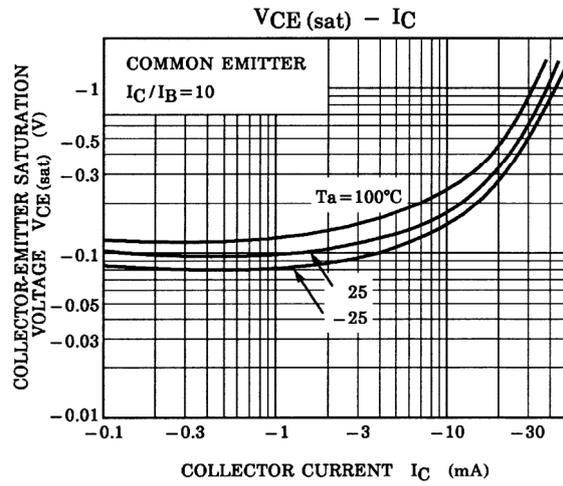
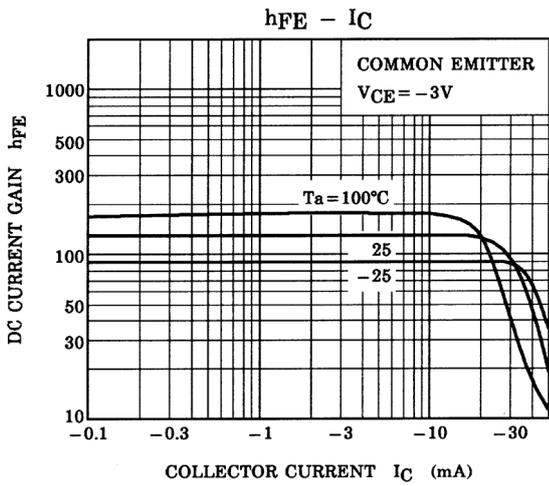
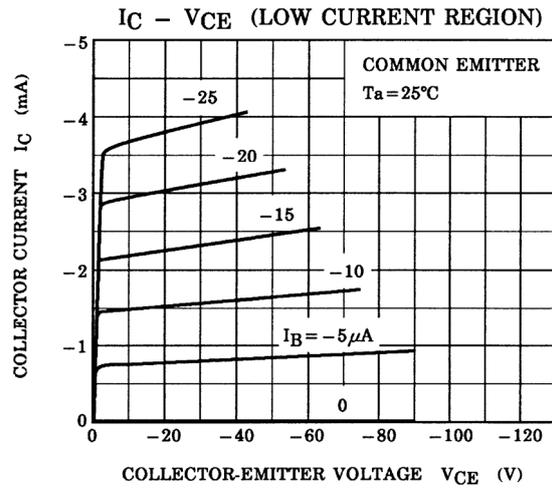
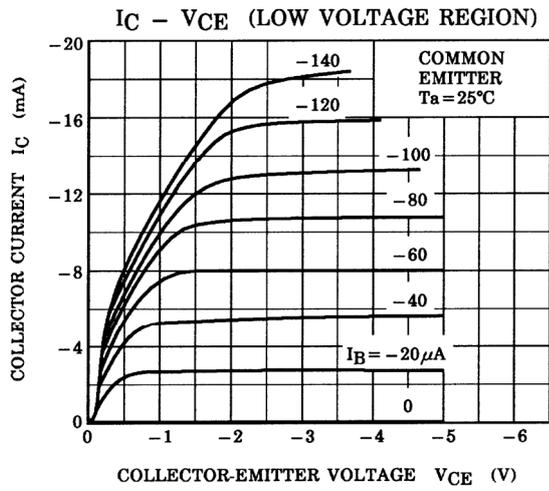
## Marking

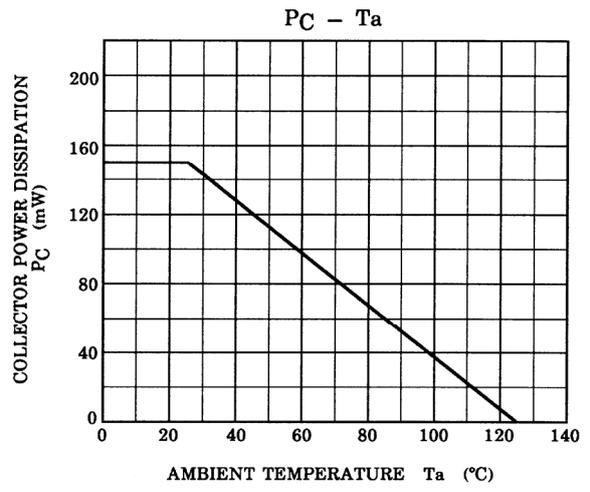
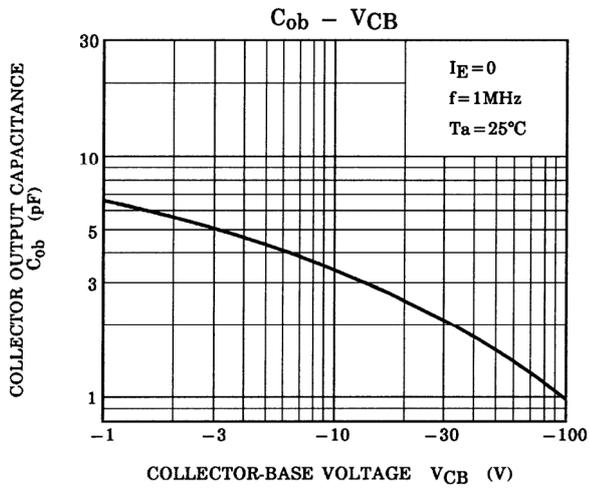


## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit	
Collector cut-off current	$I_{CBO}$	$V_{CB} = -200\text{ V}, I_E = 0$	—	—	-0.1	$\mu\text{A}$	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-0.1	$\mu\text{A}$	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -0.1\text{ mA}, I_E = 0$	-200	—	—	V	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{ mA}, I_B = 0$	-200	—	—	V	
DC current gain	$h_{FE}$ (Note)	$V_{CE} = -3\text{ V}, I_C = -10\text{ mA}$	70	—	240		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$	—	-0.2	-1	V	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$	—	-0.75	-1.5	V	
Transition frequency	$f_T$	$V_{CE} = -10\text{ V}, I_C = -2\text{ mA}$	50	100	—	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3	7	pF	
Switching time	Turn-on time	$t_{on}$	$V_{CC} = -50\text{ V}, I_C = -6\text{ mA}$ $-I_{B1} = I_{B2} = 0.6\text{ mA}$ Pulse width = 5 $\mu\text{s}$ Duty cycle $\leq 2\%$	—	0.3	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	2	—	
	Fall time	$t_f$		—	0.4	—	

Note:  $h_{FE}$  classification O: 70~140, Y: 120~240





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20070701-EN GENERAL

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