

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT process)

2SC3515

HIGH Voltage Control Applications

Plasma Display, Nixie Tube Driver Applications

Cathode Ray Tube Brightness Control Applications

- High voltage: $V_{CBO} = 300\text{ V}$, $V_{CEO} = 300\text{ V}$
- Low saturation voltage: $V_{CE(sat)} = 0.5\text{ V (max)}$
- Small collector output capacitance: $C_{ob} = 3\text{ pF (typ.)}$
- Complementary to 2SA1384
- Small flat package
- $P_C = 1.0\text{ to }2.0\text{ W}$ (mounted on a ceramic substrate)

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

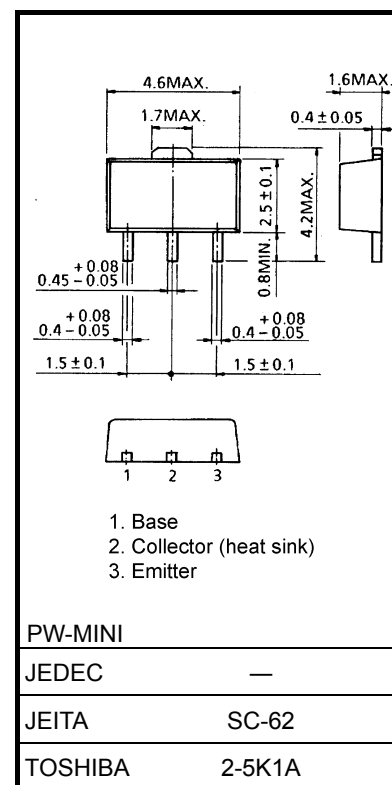
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	300	V
Collector-emitter voltage	V_{CEO}	300	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	100	mA
Base current	I_B	20	mA
Collector power dissipation	P_C	500	mW
	P_C (Note 1)	1000	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

Note 1: Mounted on a ceramic substrate ($250\text{ mm}^2 \times 0.8\text{ mm}$)

Note 2: 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



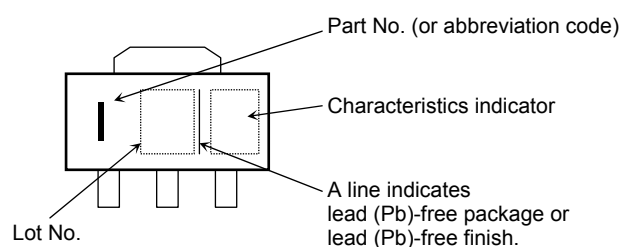
Weight: 0.05 g (typ.)

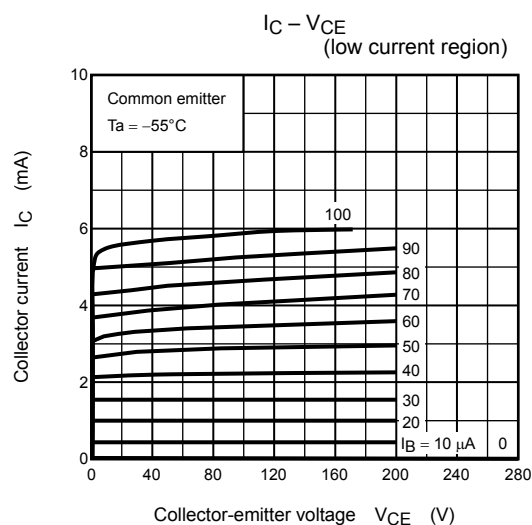
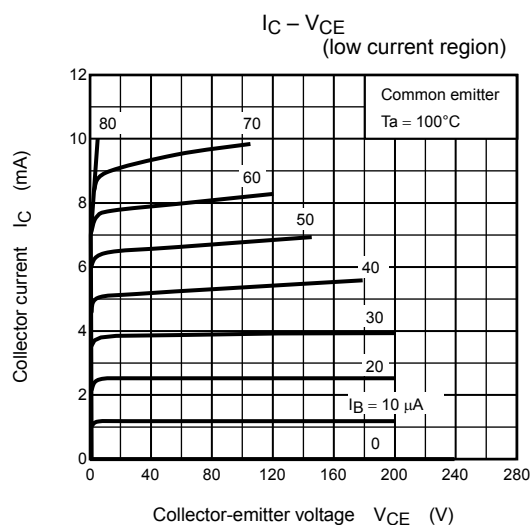
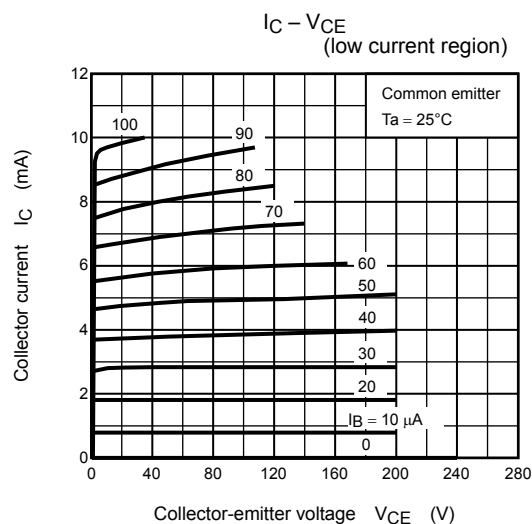
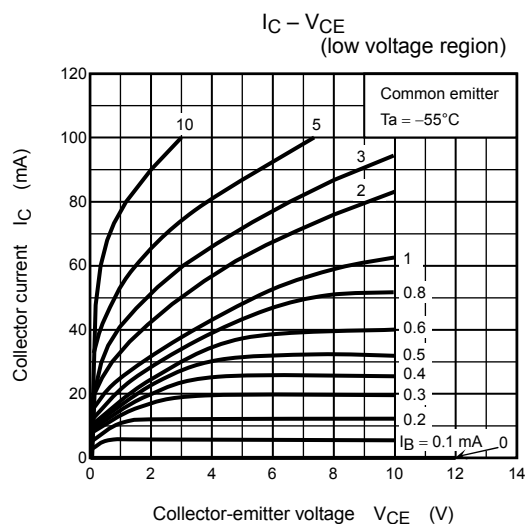
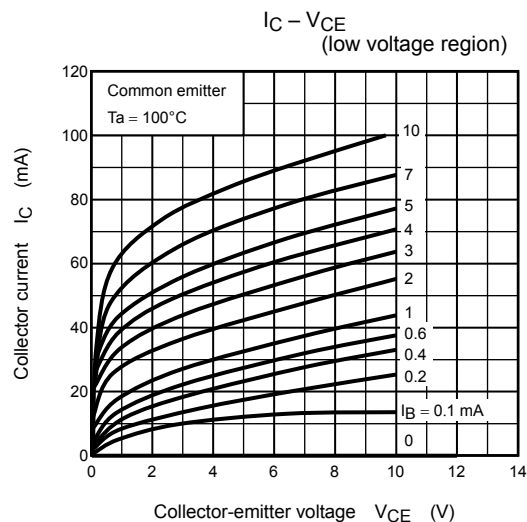
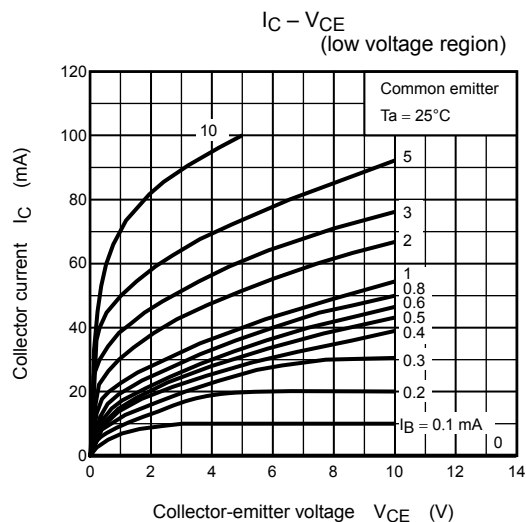
Electrical Characteristics (Ta = 25°C)

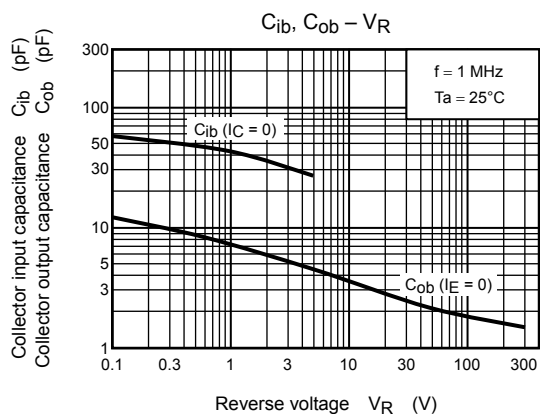
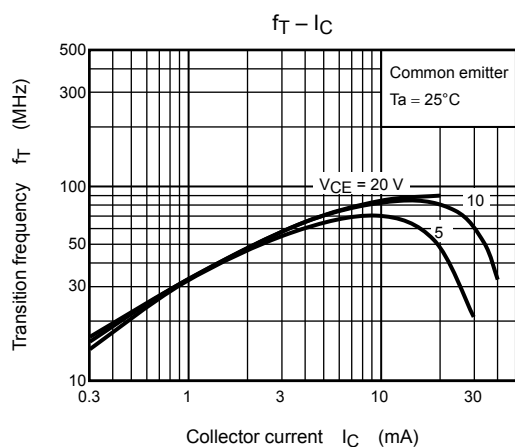
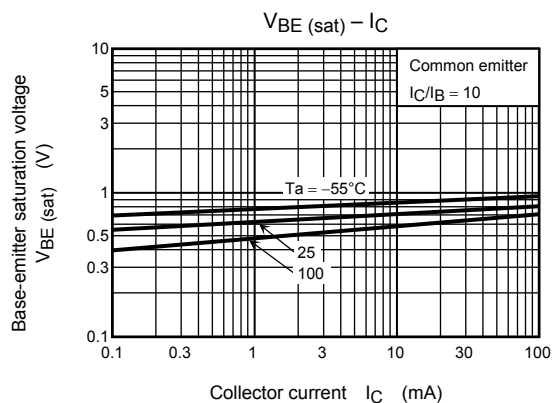
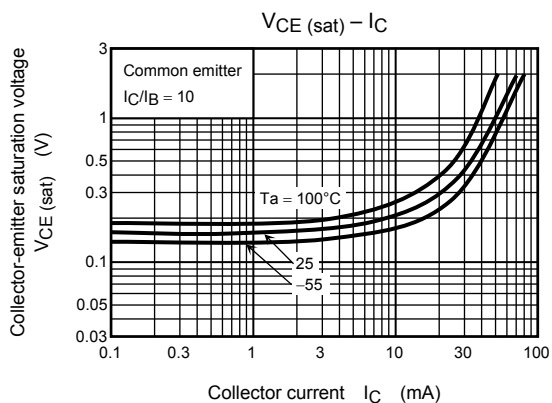
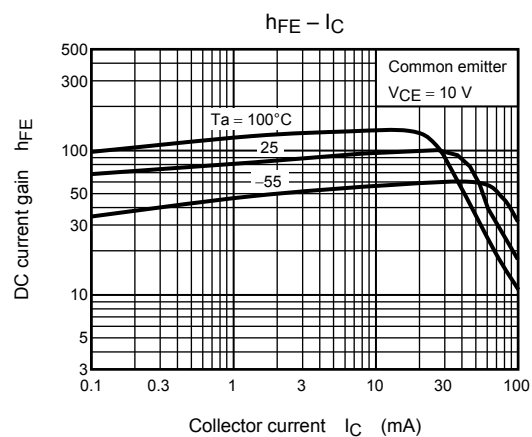
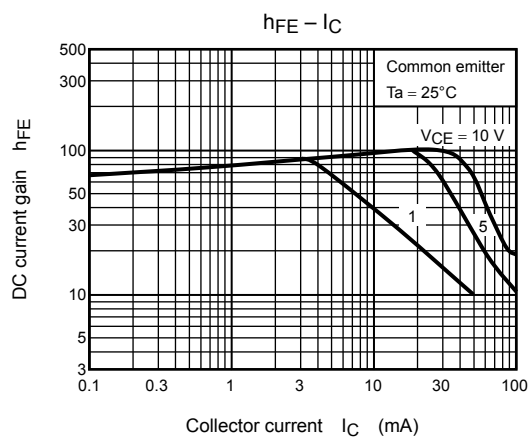
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 300\text{ V}, I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6\text{ V}, I_C = 0$	—	—	0.1	μA
Collector-base breakdown voltage	$V_{(BR) CBO}$	$I_C = 0.1\text{ mA}, I_E = 0$	300	—	—	V
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = 1\text{ mA}, I_B = 0$	300	—	—	V
DC current gain	$h_{FE (1)}$ (Note 3)	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}$	30	—	150	—
	$h_{FE (2)}$	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}$	20	—	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = 20\text{ mA}, I_B = 2\text{ mA}$	—	—	0.5	V
Base-emitter saturation voltage	$V_{BE (sat)}$	$I_C = 20\text{ mA}, I_B = 2\text{ mA}$	—	—	1.0	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 20\text{ mA}$	50	80	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 20\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	3	4	pF

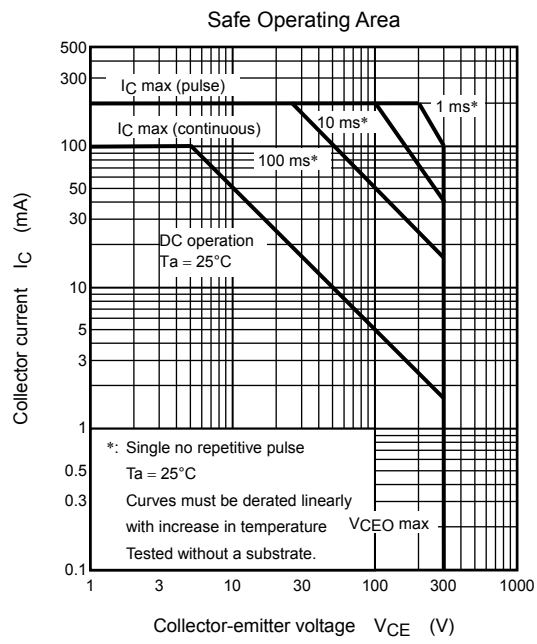
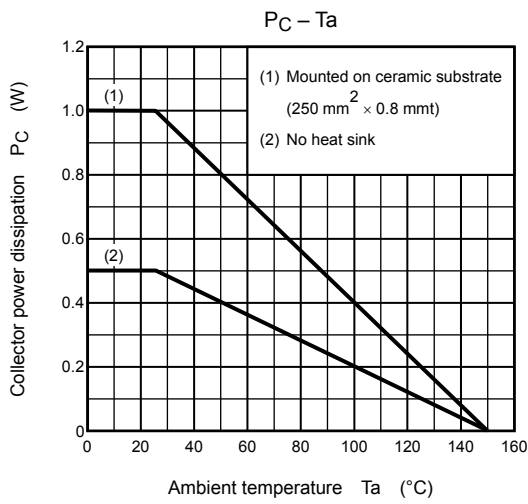
Note 3: $h_{FE (1)}$ classification R: 30 to 90, O: 50 to 150

Marking









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