

TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC5200

Power Amplifier Applications

- High breakdown voltage: $V_{CEO} = 230 \text{ V (min)}$
- Complementary to 2SA1943
- Suitable for use in 100-W high fidelity audio amplifier's output stage

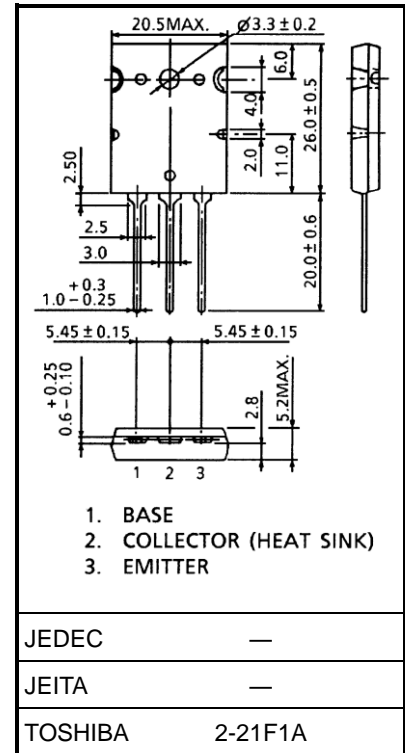
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	230	V
Collector-emitter voltage	V_{CEO}	230	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	15	A
Base current	I_B	1.5	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	150	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

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.

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Unit: mm



Weight: 9.75 g (typ.)

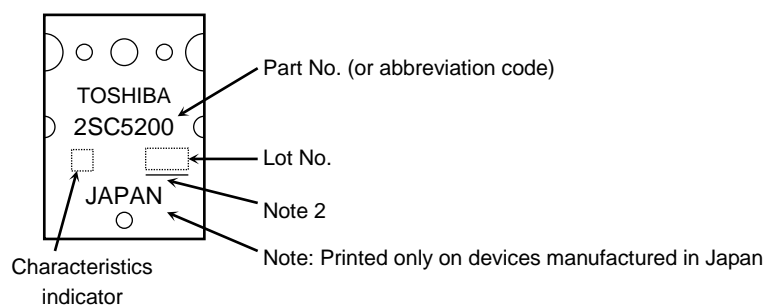
Start of commercial production
1994-09

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	V _{CB} = 230 V, I _E = 0 A	—	—	5.0	μA
Emitter cut-off current	IEBO	V _{EB} = 5 V, I _C = 0 A	—	—	5.0	μA
Collector-emitter breakdown voltage	V (BR) CEO	I _C = 50 mA, I _B = 0 A	230	—	—	V
DC current gain	h _{FE} (1) (Note)	V _{CE} = 5 V, I _C = 1 A	55	—	160	
	h _{FE} (2)	V _{CE} = 5 V, I _C = 7 A	35	60	—	
Collector-emitter saturation voltage	V _{CE} (sat)	I _C = 8 A, I _B = 0.8 A	—	0.4	3.0	V
Base-emitter voltage	V _{BE}	V _{CE} = 5 V, I _C = 7 A	—	1.0	1.5	V
Transition frequency	f _T	V _{CE} = 5 V, I _C = 1 A	—	30	—	MHz
Collector output capacitance	C _{ob}	V _{CB} = 10 V, I _E = 0 A, f = 1 MHz	—	200	—	pF

Note: h_{FE} (1) classification R: 55 to 110, O: 80 to 160

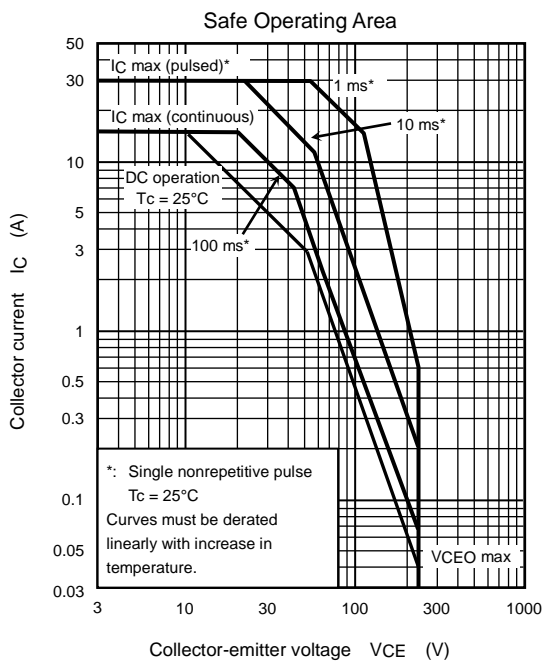
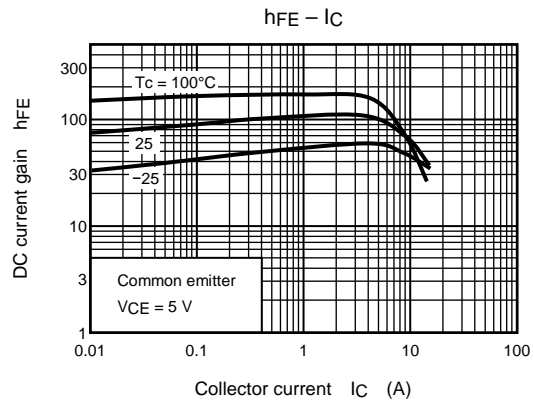
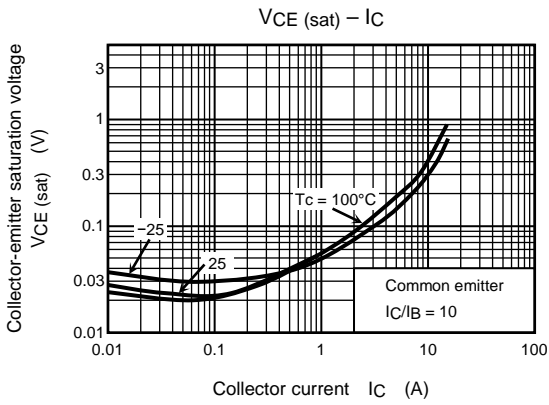
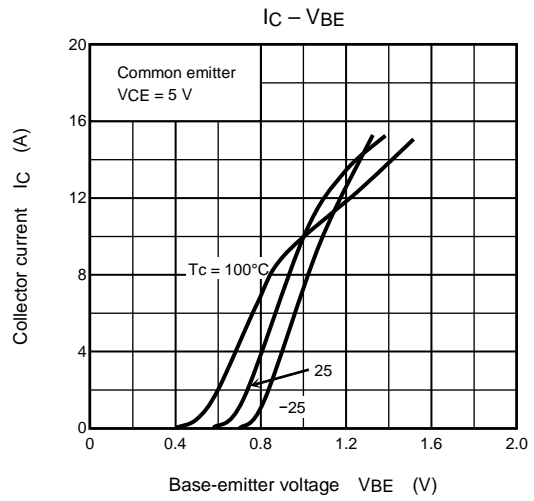
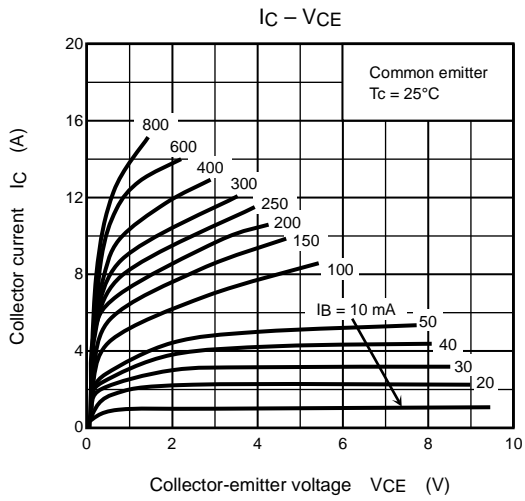
Marking

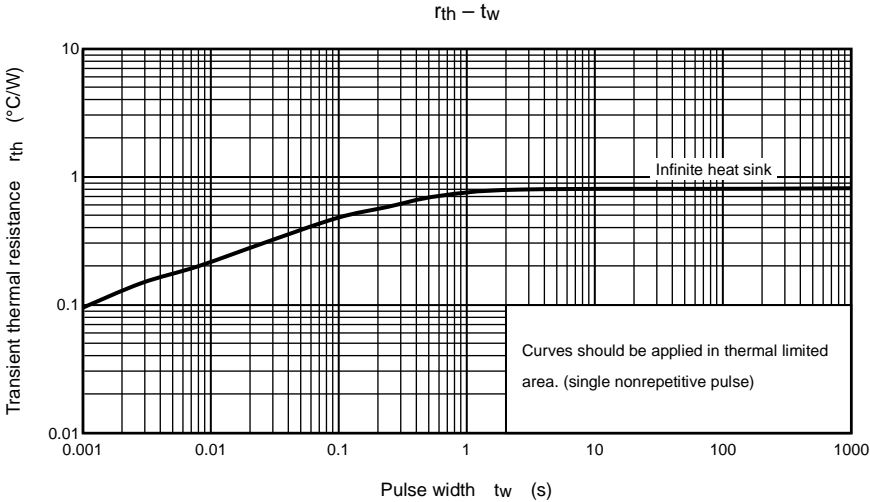


Note 2 : A line under a Lot No. identifies the indication of product Labels.
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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TOSHIBA Transistor Silicon PNP Triple Diffused Type

2SA1943

Power Amplifier Applications

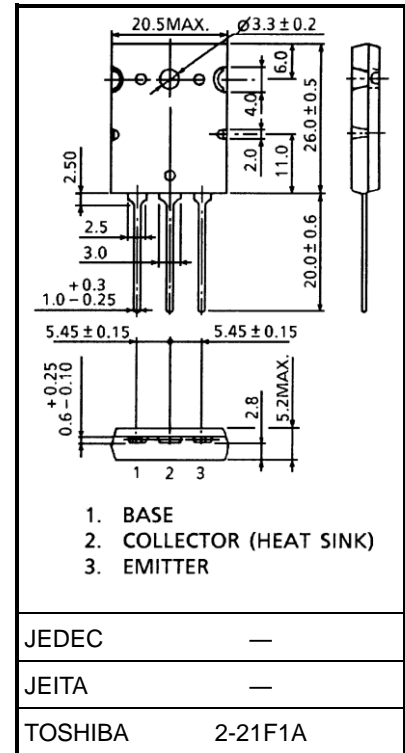
- High collector voltage: $V_{CEO} = -230$ V (min)
- Complementary to 2SC5200
- Recommended for 100-W high-fidelity audio frequency amplifier output stage.

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-230	V
Collector-emitter voltage	V_{CEO}	-230	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-15	A
Base current	I_B	-1.5	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	150	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

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: 9.75 g (typ.)

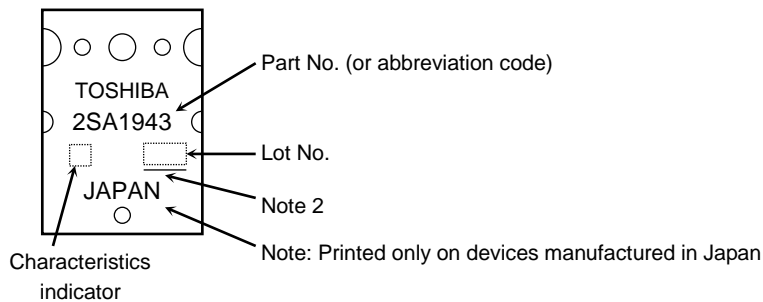
Start of commercial production
1994-09

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	ICBO	V _{CB} = -230 V, I _E = 0 A	—	—	-5.0	μA
Emitter cut-off current	IEBO	V _{EB} = -5 V, I _C = 0 A	—	—	-5.0	μA
Collector-emitter breakdown voltage	V (BR) CEO	I _C = -50 mA, I _B = 0 A	-230	—	—	V
DC current gain	h _{FE} (1) (Note 1)	V _{CE} = -5 V, I _C = -1 A	55	—	160	
	h _{FE} (2)	V _{CE} = -5 V, I _C = -7 A	35	60	—	
Collector-emitter saturation voltage	V _{CE} (sat)	I _C = -8 A, I _B = -0.8 A	—	-1.5	-3.0	V
Base-emitter voltage	V _{BE}	V _{CE} = -5 V, I _C = -7 A	—	-1.0	-1.5	V
Transition frequency	f _T	V _{CE} = -5 V, I _C = -1 A	—	30	—	MHz
Collector output capacitance	C _{ob}	V _{CB} = -10 V, I _E = 0 A, f = 1 MHz	—	360	—	pF

Note 1:hFE (1) classification R: 55 to 110, O: 80 to 160

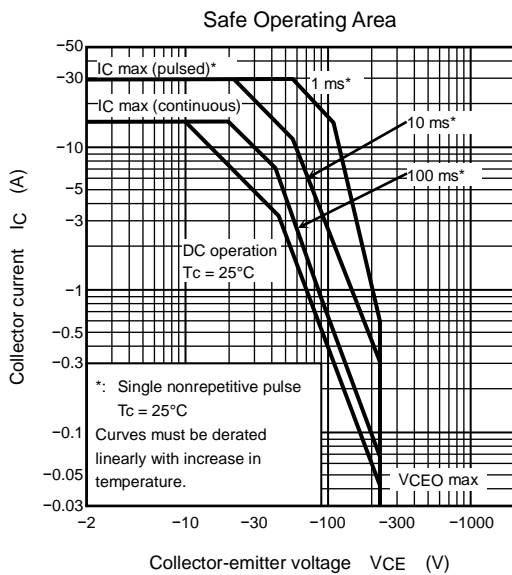
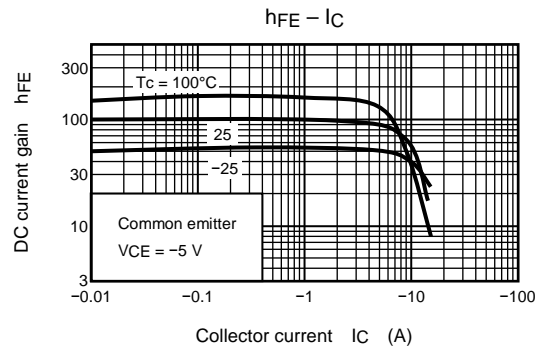
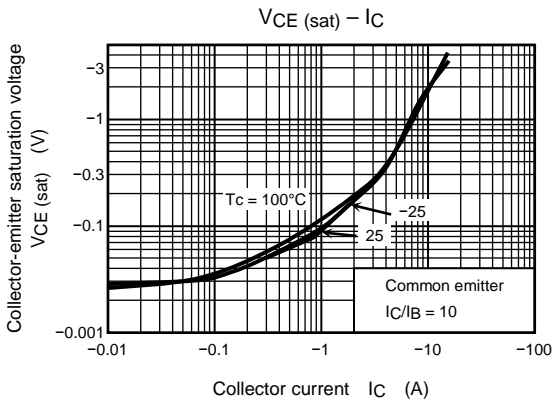
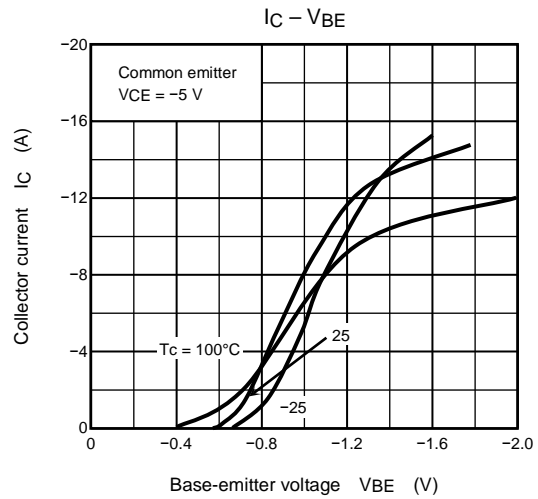
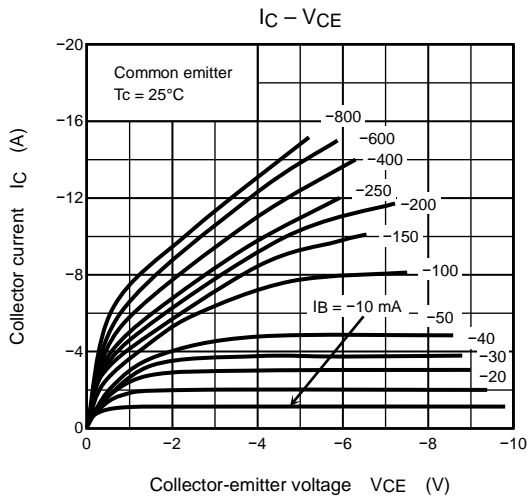
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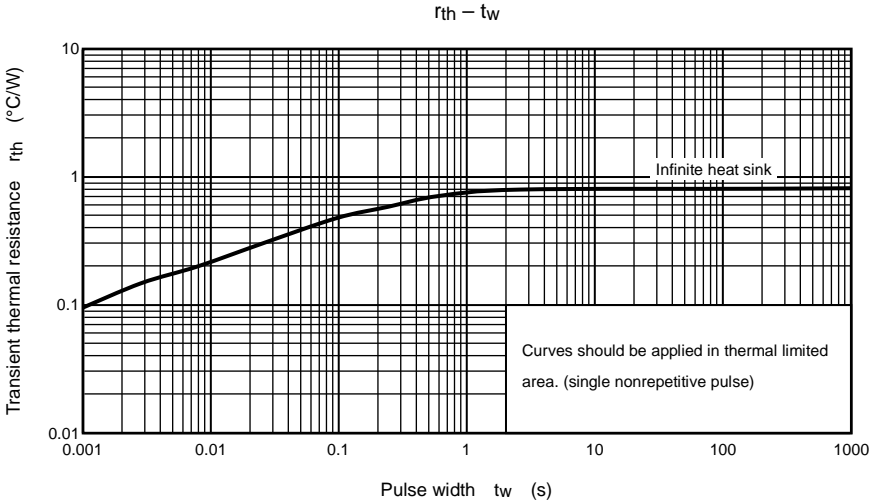


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