

TOSHIBA Transistor Silicon PNP Triple Diffused Type

# 2SA1943

## Power Amplifier Applications

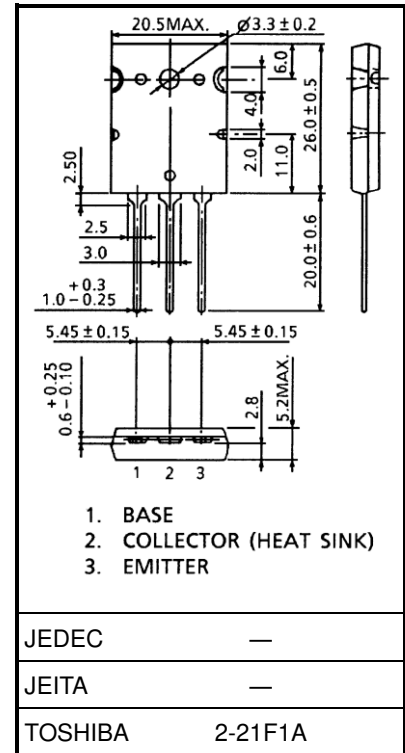
- High collector voltage:  $V_{CEO} = -230 \text{ V (min)}$
- Complementary to 2SC5200
- Recommended for 100-W high-fidelity audio frequency amplifier output stage.

## 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.)

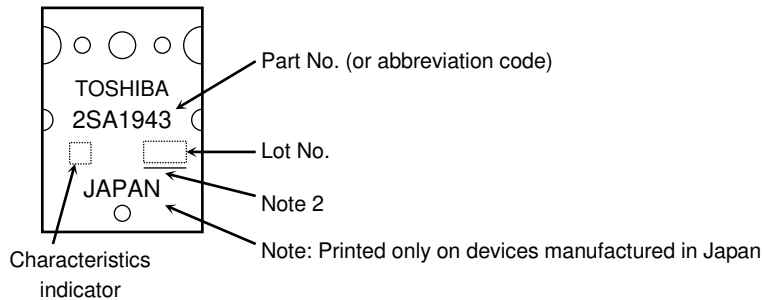
Start of commercial production  
1994-09

## Electrical Characteristics (Ta = 25°C)

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

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

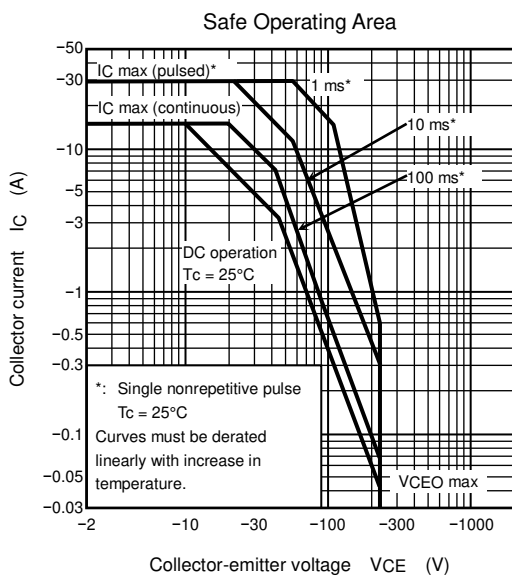
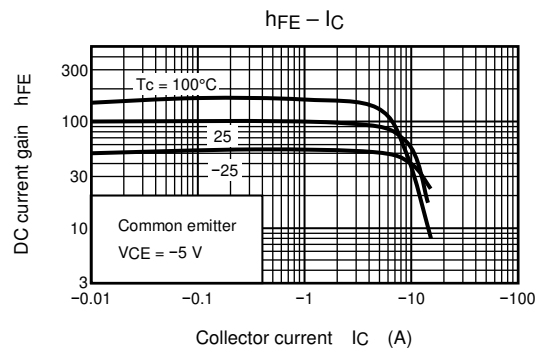
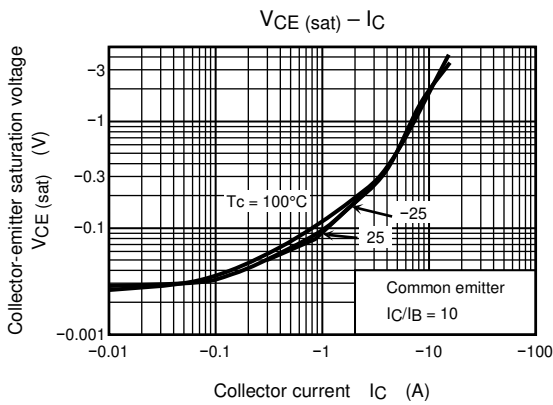
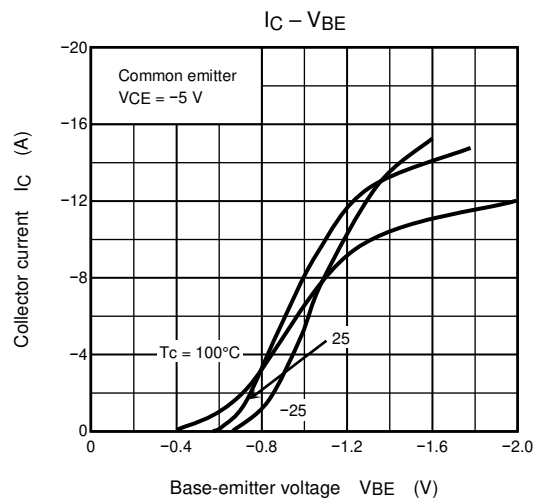
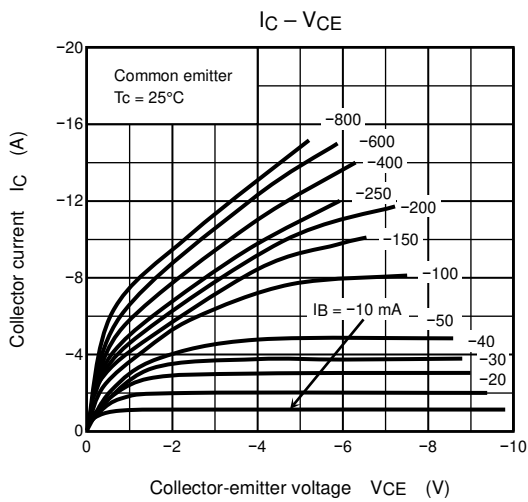
## Marking

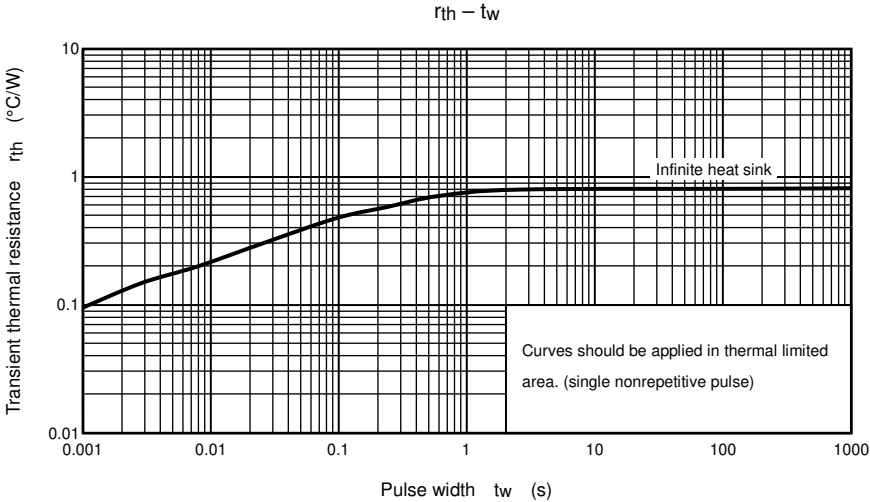


Note 2: A line under a Lot No. identifies the indication of product Labels.  
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





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