

TOSHIBA Transistor Silicon NPN Triple Diffused Type

# 2SC5949

## Power Amplifier Applications

- Complementary to 2SA2121
- Recommended for audio frequency amplifier output stage.

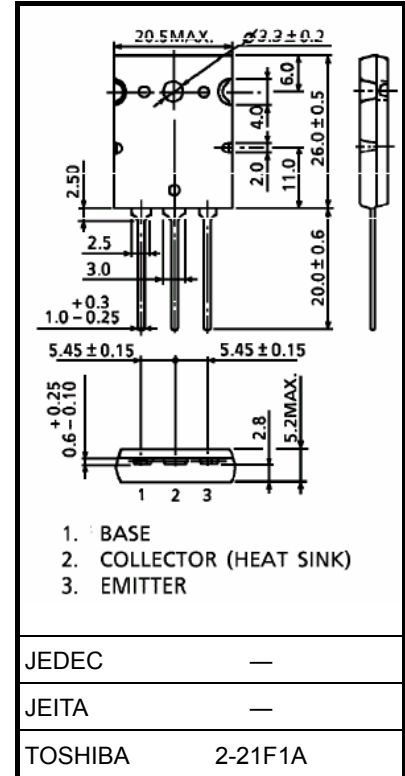
## Absolute Maximum Ratings (Tc = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CBO</sub>	200	V
Collector-emitter voltage	V <sub>CEO</sub>	200	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	15	A
Base current	I <sub>B</sub>	1.5	A
Collector power dissipation	P <sub>C</sub>	220	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-55 to 150	°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



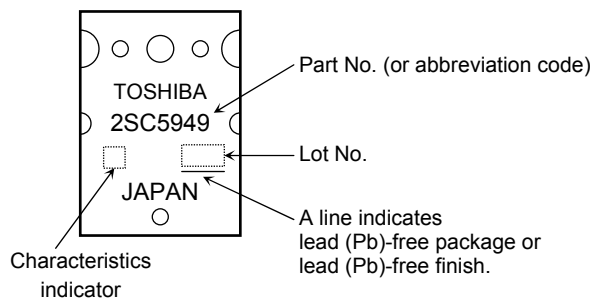
Weight: 9.75 g (typ.)

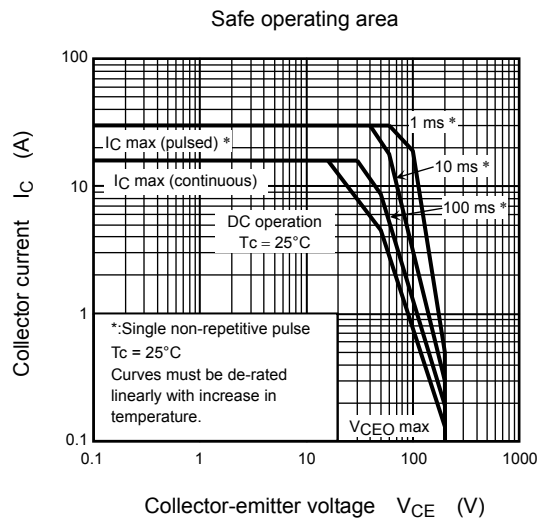
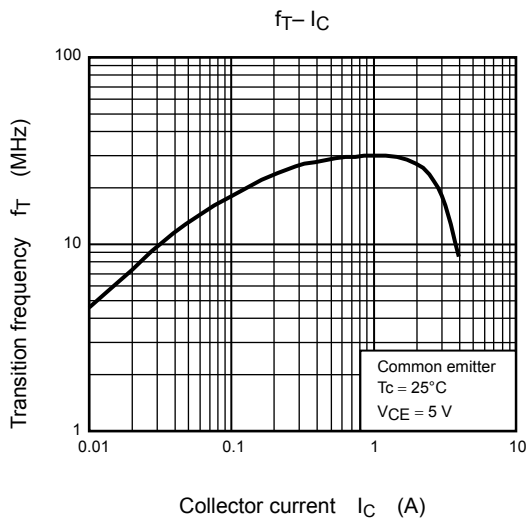
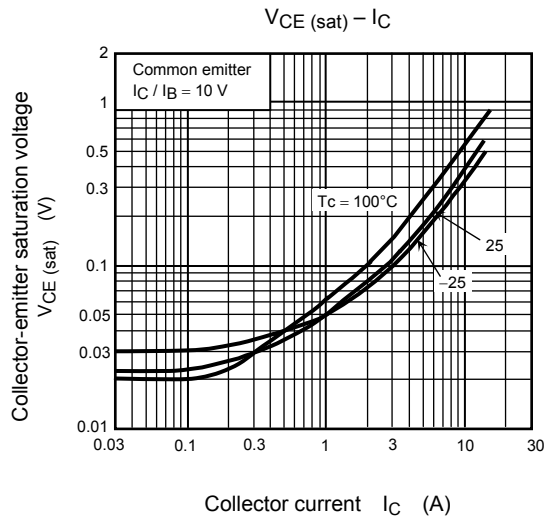
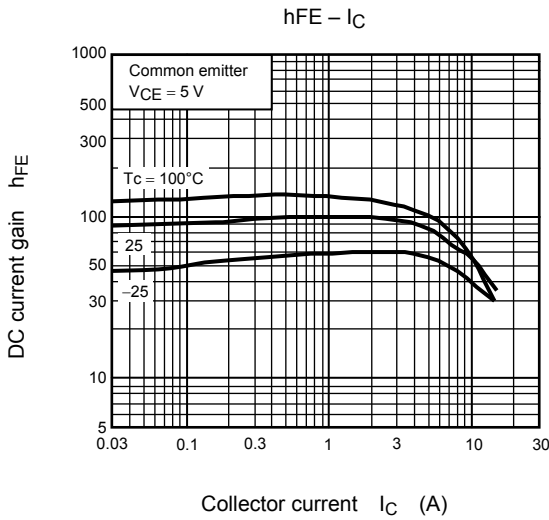
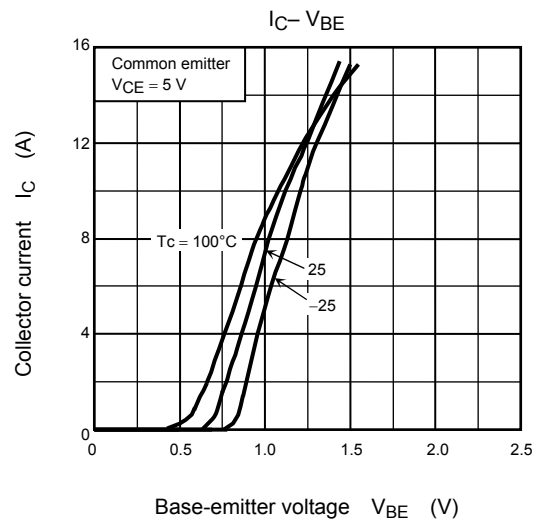
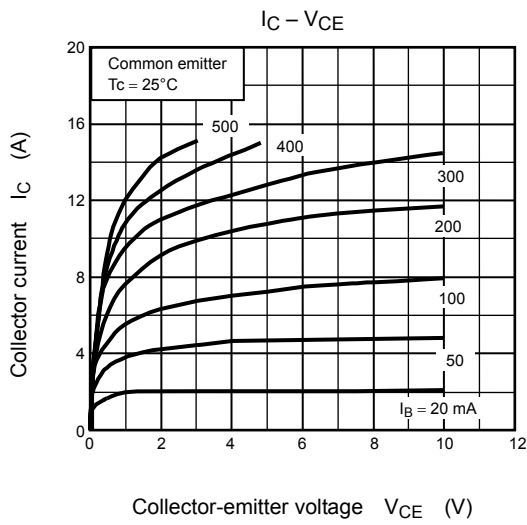
## Electrical Characteristics (Tc = 25°C)

Characteristic	Symbol	Test Conditions	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = 200\text{ V}, I_E = 0$	—	—	5.0	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	5.0	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	200	—	—	V
DC current gain	$h_{FE(1)}$ (Note 1)	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	55	—	160	
	$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 8\text{ A}$	35	60	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ A}, I_B = 1\text{ A}$	—	0.4	3.0	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 5\text{ V}, I_C = 8\text{ A}$	—	1.0	1.5	V
Transition frequency	$f_T$	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	—	30	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	270	—	pF

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

## Marking





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