

TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC5199

Power Amplifier Applications

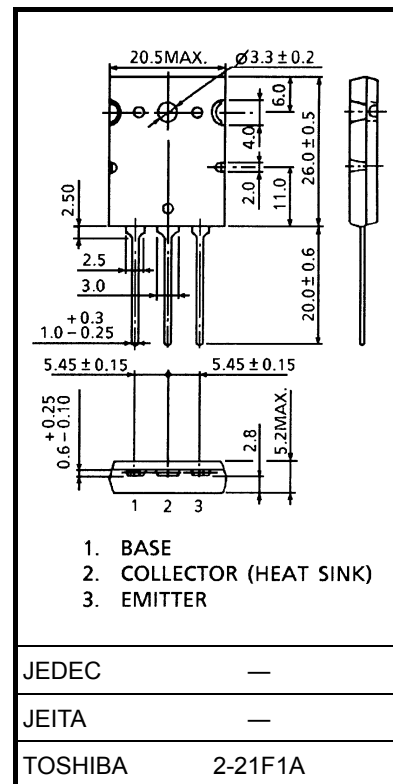
Unit: mm

- High breakdown voltage: $V_{CEO} = 160\text{ V (min)}$
- Complementary to 2SA1942
- Suitable for use in 80-W high fidelity audio amplifier's output stage.

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	160	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	12	A
Base current	I_B	1.2	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	120	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).



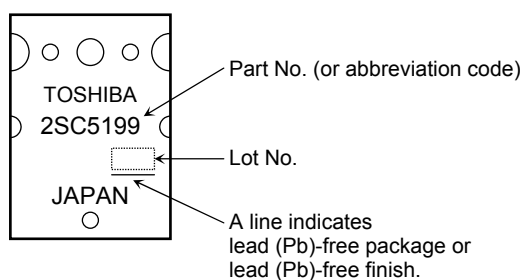
Weight: 9.75 g (typ.)

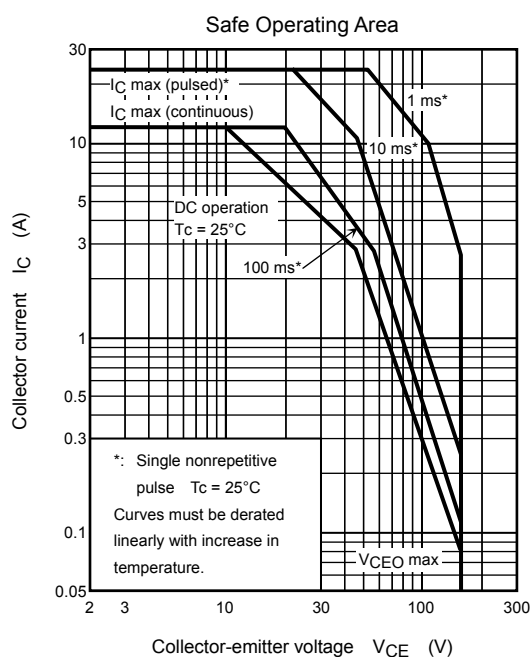
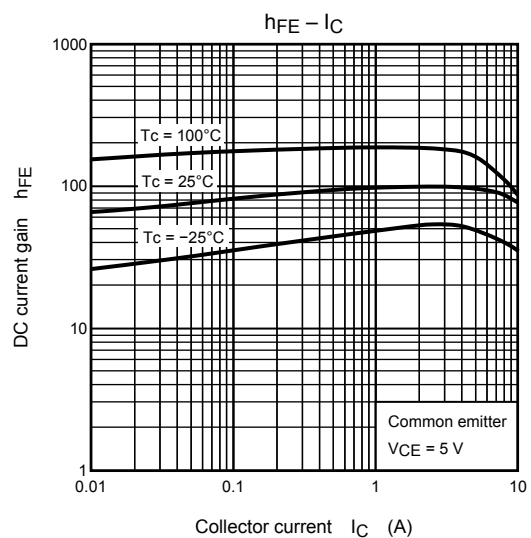
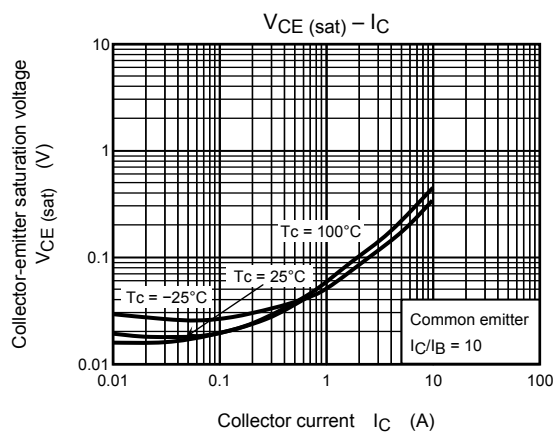
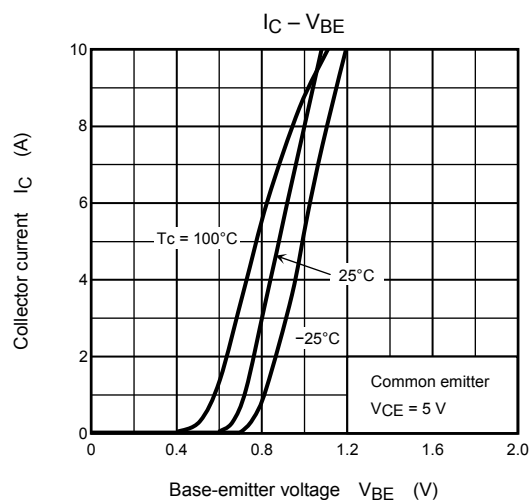
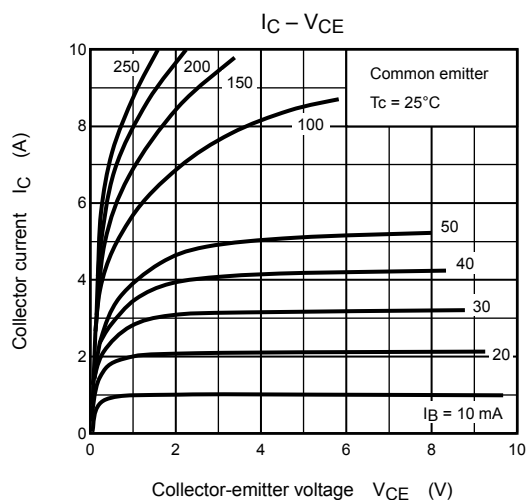
Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 160\text{ V}, I_E = 0$	—	—	5.0	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	5.0	μA
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = 50\text{ mA}, I_B = 0$	160	—	—	V
DC current gain	$h_{FE (1)}$ (Note)	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	55	—	160	
	$h_{FE (2)}$	$V_{CE} = 5\text{ V}, I_C = 6\text{ A}$	35	74	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = 8\text{ A}, I_B = 0.8\text{ A}$	—	0.35	2.5	V
Base-emitter voltage	V_{BE}	$V_{CE} = 5\text{ V}, I_C = 6\text{ A}$	—	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}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	170	—	pF

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

Marking





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20070701-EN

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