

TOSHIBA Transistor Silicon PNP Triple Diffused Type

2SA1939

Power Amplifier Applications

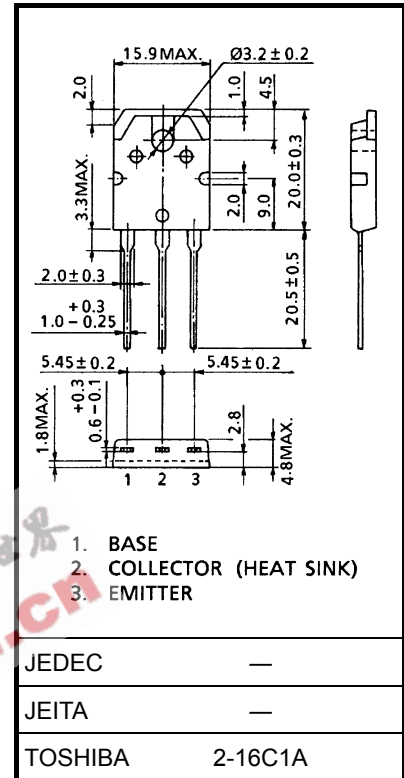
- Complementary to 2SC5196
- Recommend for 40-W high-fidelity audio frequency amplifier output stage.

Absolute Maximum Ratings (Tc = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	-80	V
Collector-emitter voltage	V _{CEO}	-80	V
Emitter-base voltage	V _{EBO}	-5	V
Collector current	I _C	-6	A
Base current	I _B	-0.6	A
Collector power dissipation (Tc = 25°C)	P _C	60	W
Junction temperature	T _j	150	°C
Storage temperature range	T _{stg}	-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



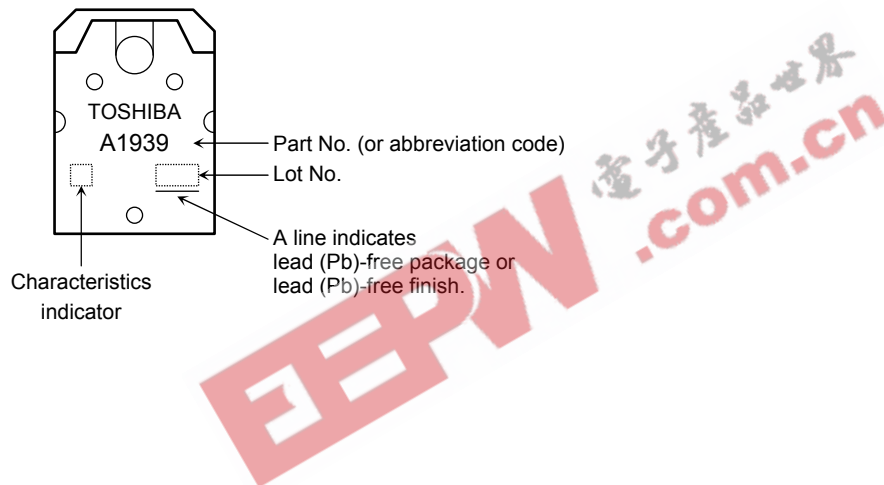
Weight: 4.7 g (typ.)

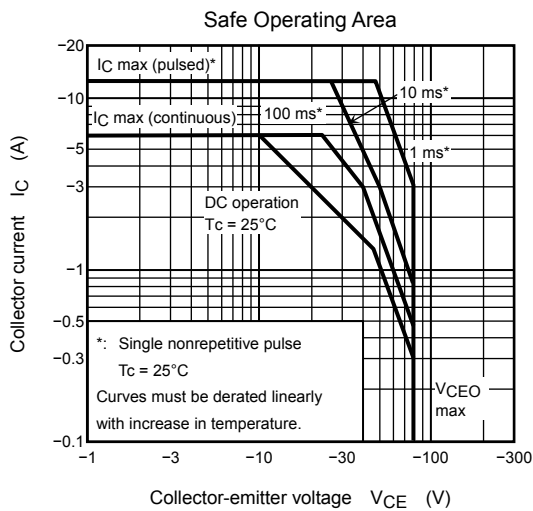
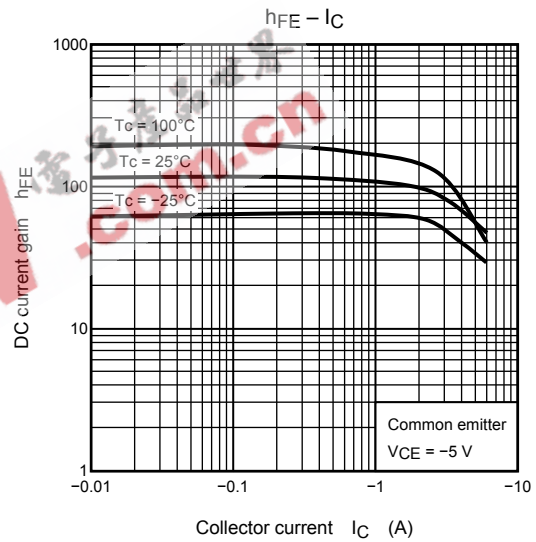
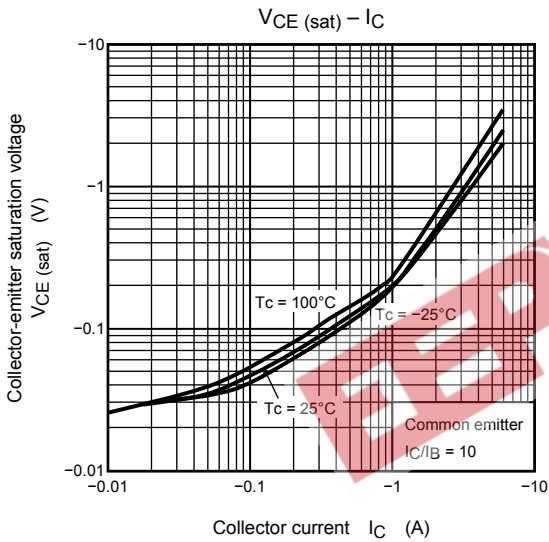
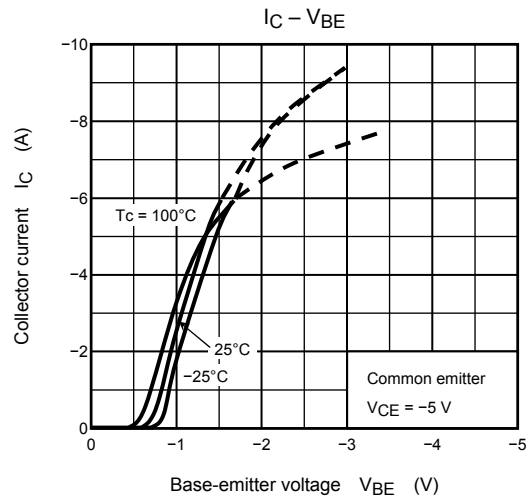
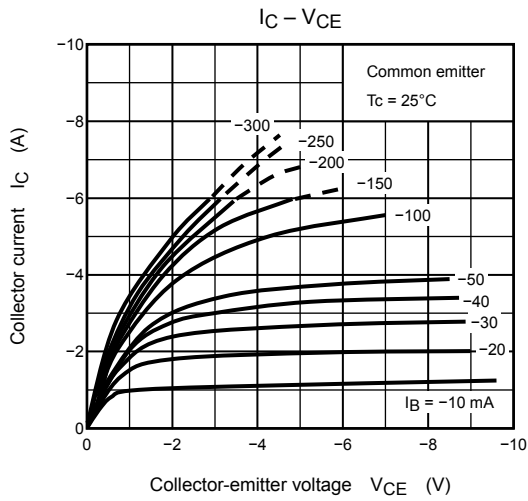
Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = -80\text{ V}, I_E = 0$	—	—	-5.0	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-5.0	μA
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -50\text{ mA}, I_B = 0$	-80	—	—	V
DC current gain	$h_{FE (1)}$ (Note)	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	55	—	160	
	$h_{FE (2)}$	$V_{CE} = -5\text{ V}, I_C = -3\text{ A}$	35	80	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = -5\text{ A}, I_B = -0.5\text{ A}$	—	-1.0	-2.0	V
Base-emitter voltage	V_{BE}	$V_{CE} = -5\text{ V}, I_C = -3\text{ A}$	—	-0.95	-1.5	V
Transition frequency	f_T	$V_{CE} = -5\text{ V}, I_C = -1\text{ A}$	—	30	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	180	—	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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