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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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TOSHIBA Transistor Silicon PNP Triple Diffused Type

# 2SA949

Driver-Stage Audio Amplifier Applications  
 High-Voltage Switching Applications

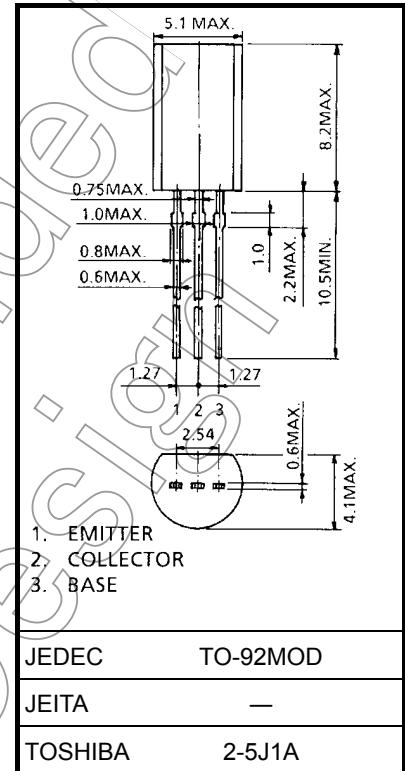
- High breakdown voltage:  $V_{CEO} = -150\text{ V}$
- Low output capacitance:  $C_{ob} = 4.0\text{ pF (typ.)}$
- High transition frequency:  $f_T = 120\text{ MHz (typ.)}$

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

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-150	V
Collector-emitter voltage	$V_{CEO}$	-150	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-50	mA
Base current	$I_B$	5	mA
Collector power dissipation	$P_C$	800	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$

Note1: 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: 0.36 g (typ.)

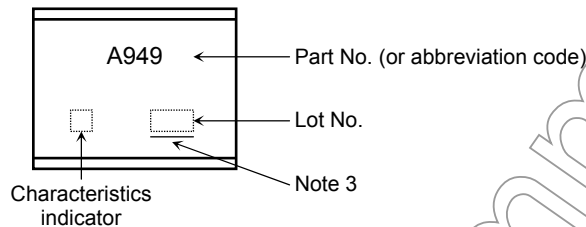
Not for New

## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -150\text{ V}, I_E = 0$	—	—	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$	—	—	-0.1	$\mu\text{A}$
DC current gain	$h_{FE}$ (Note 2)	$V_{CE} = -5\text{ V}, I_C = -10\text{ mA}$	70	—	240	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$	—	—	-0.8	V
Base-emitter voltage	$V_{BE}$	$V_{CE} = -5\text{ V}, I_C = -30\text{ mA}$	—	—	-0.9	V
Transition frequency	$f_T$	$V_{CE} = -30\text{ V}, I_C = -10\text{ mA}$	—	120	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	4.0	5.0	pF

Note 2:  $h_{FE}$  classification O: 70 to 140, Y: 120 to 240

## Marking

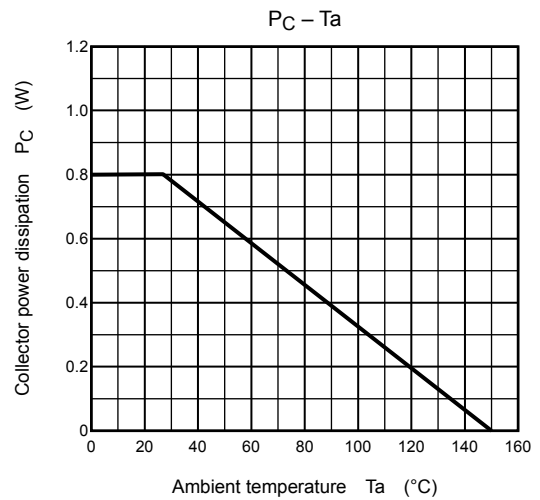
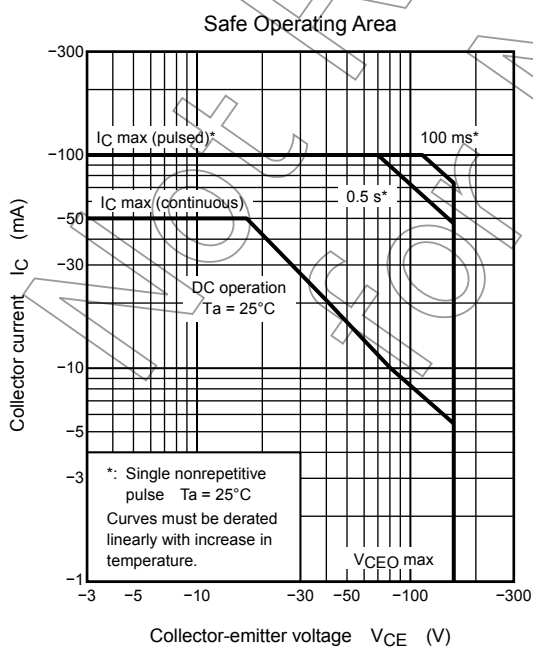
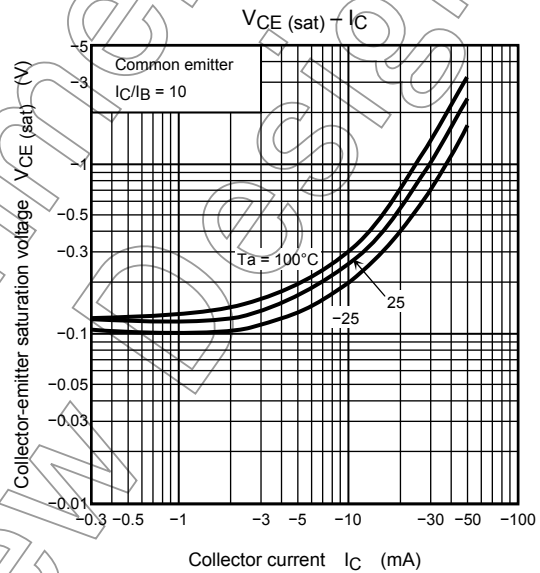
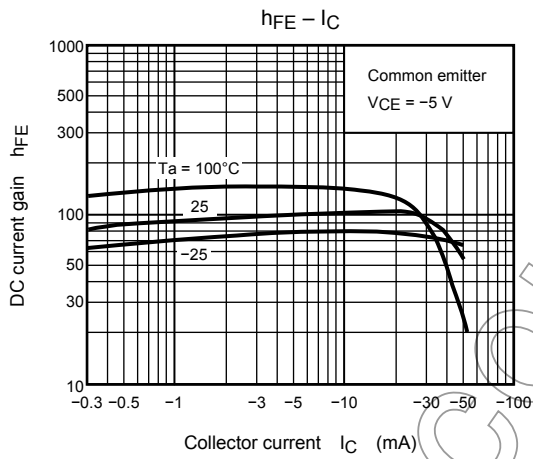
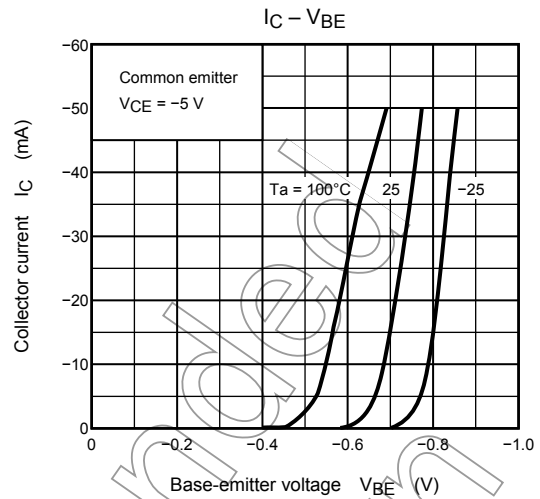
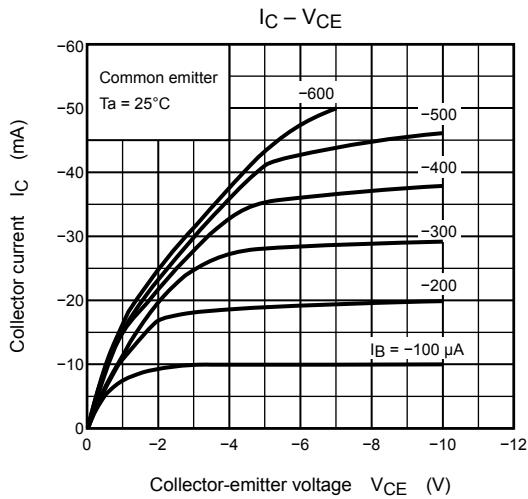


Note 3: A line under a Lot No. identifies the indication of product Labels.

Not underlined:  $[[Pb]]/INCLUDES > MCV$

Underlined:  $[[G]]/RoHS\ COMPATIBLE$  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 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



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