

TOSHIBA Transistor Silicon PNP Diffused Type (PCT process)

# 2SB906

## Audio Frequency Power Amplifier Application

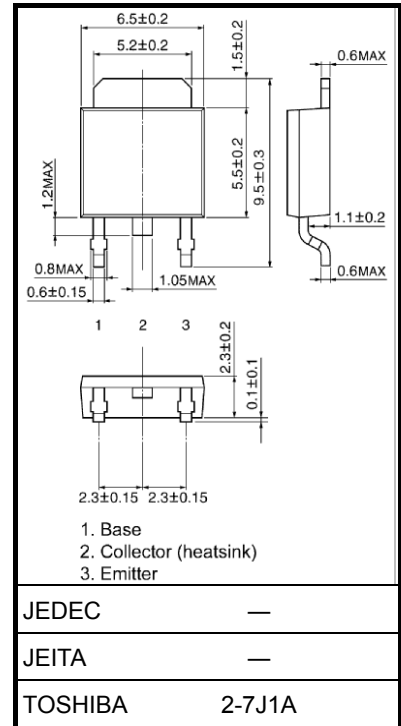
- Low collector saturation voltage  
:  $V_{CE(sat)} = -1.0\text{ V (typ.)}$  ( $I_C = -3\text{ A}$ ,  $I_B = -0.3\text{ A}$ )
- High power dissipation:  $P_C = 20\text{ W}$  ( $T_c = 25^\circ\text{C}$ )
- Complementary to 2SD1221

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

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	-60	V
Collector-emitter voltage		$V_{CEO}$	-60	V
Emitter-base voltage		$V_{EBO}$	-7	V
Collector current		$I_C$	-3	A
Base current		$I_B$	-0.5	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1.0	W
	$T_c = 25^\circ\text{C}$		20	
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: 0.36 g (typ.)

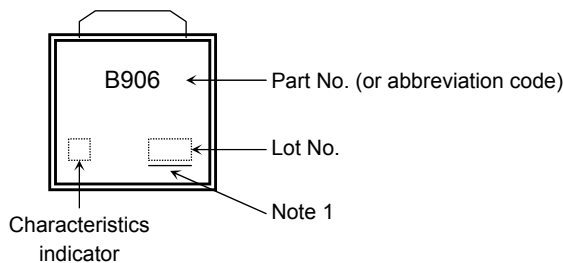
Start of commercial production  
1985-11

## Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = -60\text{ V}, I_E = 0$	—	—	-100	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-100	$\mu\text{A}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -50\text{ mA}, I_B = 0$	-60	—	—	V
DC current gain	$h_{FE(1)}$ (Note)		$V_{CE} = -5\text{ V}, I_C = -0.5\text{ A}$	60	—	200	
	$h_{FE(2)}$		$V_{CE} = -5\text{ V}, I_C = -3\text{ A}$	20	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -3\text{ A}, I_B = -0.3\text{ A}$	—	-1.0	-1.7	V
Base-emitter voltage		$V_{BE}$	$V_{CE} = -5\text{ V}, I_C = -0.5\text{ A}$	—	-1.0	-1.5	V
Transition frequency		$f_T$	$V_{CE} = -5\text{ V}, I_C = -0.5\text{ A}$	—	9	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	90	—	pF
Switching time	Turn-on time	$t_{on}$		—	0.4	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	1.7	—	
	Fall time	$t_f$		—	0.5	—	

Note:  $h_{FE(1)}$  classification O: 60 to 120, Y: 100 to 200

## Marking

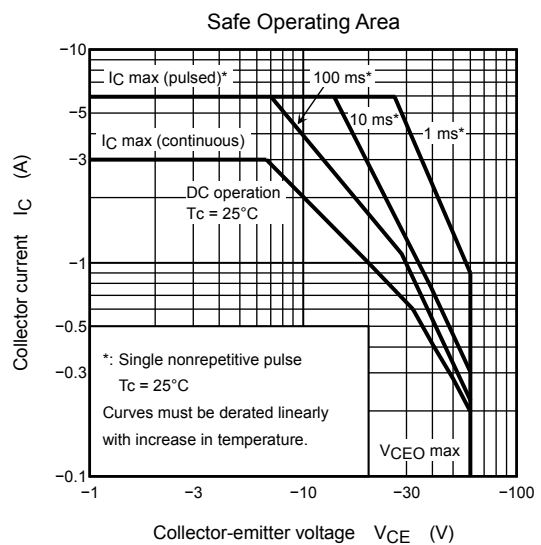
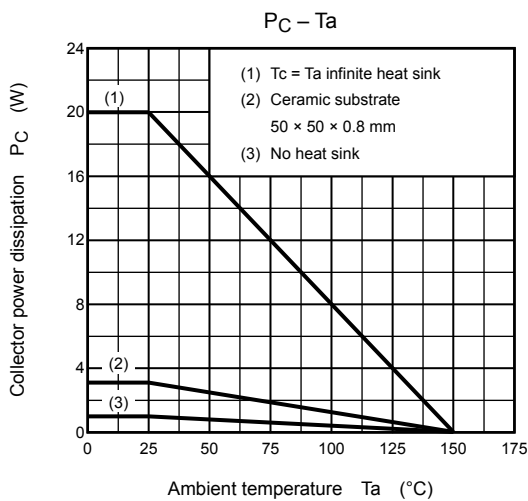
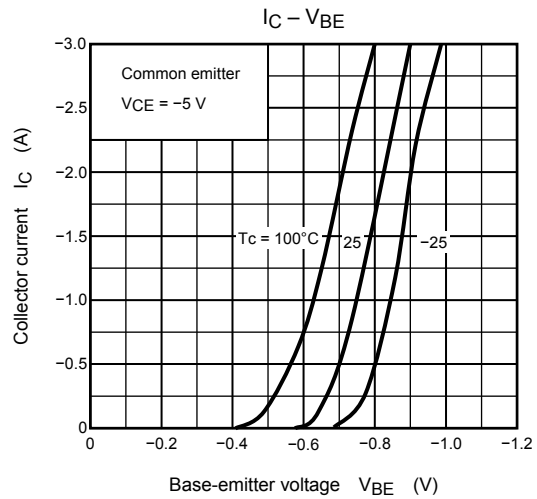
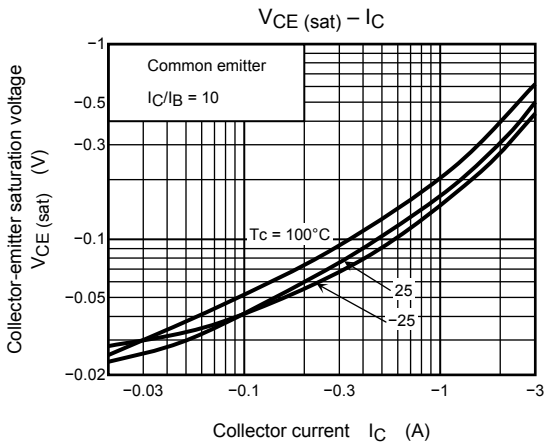
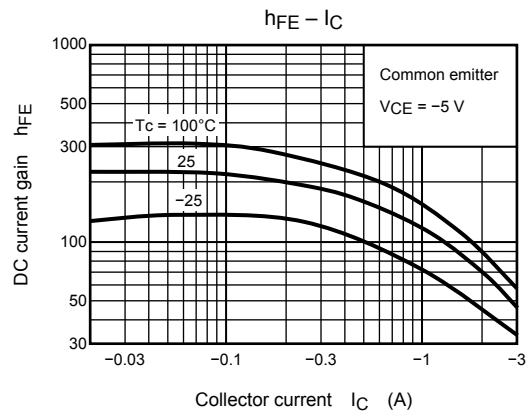
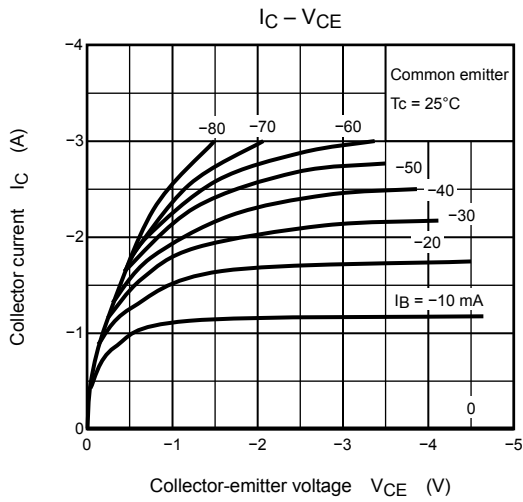


Note 1: A line under a Lot No. identifies the indication of product Labels.

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 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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