

TOSHIBA Transistor Silicon PNP Epitaxial Type

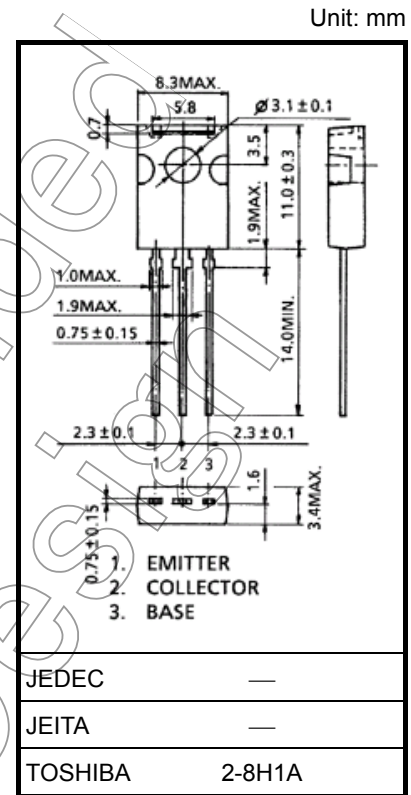
# TTA004

○ Audio Frequency Amplifier Applications

- High collector voltage :  $V_{CE0} = -160\text{ V (min)}$
- Complementary to TTC004
- Small collector output capacitance :  $C_{ob} = 17\text{ pF (typ.)}$
- High transition frequency :  $f_T = 100\text{ MHz (typ.)}$

**Absolute Maximum Ratings (Ta = 25°C)**

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CB0}$	-160	V
Collector-emitter voltage		$V_{CE0}$	-160	V
Emitter-base voltage		$V_{EB0}$	-6	V
Collector current	DC	$I_C$	-1.5	A
	Pulse	$I_{CP}$	-2.5	A
Base current		$I_B$	-0.5	A
Collector power dissipation	Ta = 25°C	$P_C$	1.5	W
	Tc = 25°C	$P_C$	10	W
Junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	-55 to 150	°C



Weight : 0.82 g (typ.)

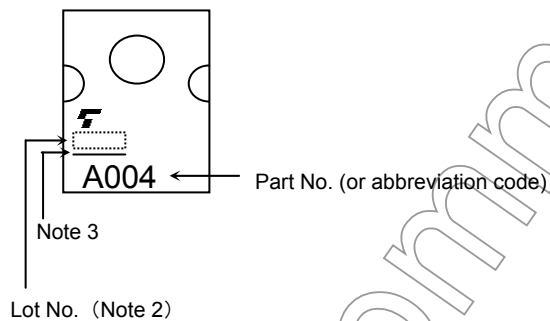
Note1: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

This transistor is an electrostatic-sensitive device. Handle with care.

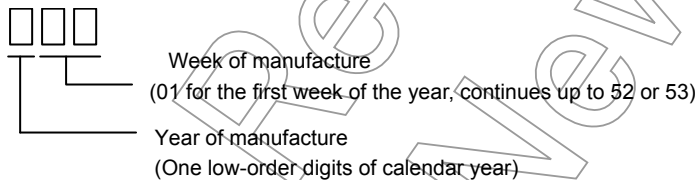
## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -160V, I_E = 0$	—	—	-1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -6V, I_C = 0$	—	—	-1	$\mu A$
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -10mA, I_B = 0$	-160	—	—	V
DC current gain	$h_{FE} (1)$	$V_{CE} = -5V, I_C = -1mA$	80	—	—	
	$h_{FE} (2)$	$V_{CE} = -5V, I_C = -0.1A$	140	—	280	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = -0.5A, I_B = -50mA$	—	—	-0.5	V
Base-emitter saturation voltage	$V_{BE (sat)}$	$I_C = -0.5A, I_B = -50mA$	—	—	-1.3	V
Collector output capacitance	$C_{ob}$	$V_{CB} = -10V, I_C = 0, f = 1MHz$	—	17	—	pF
Transition frequency	$f_T$	$V_{CE} = -10V, I_C = -100mA$	—	100	—	MHz

## Marking



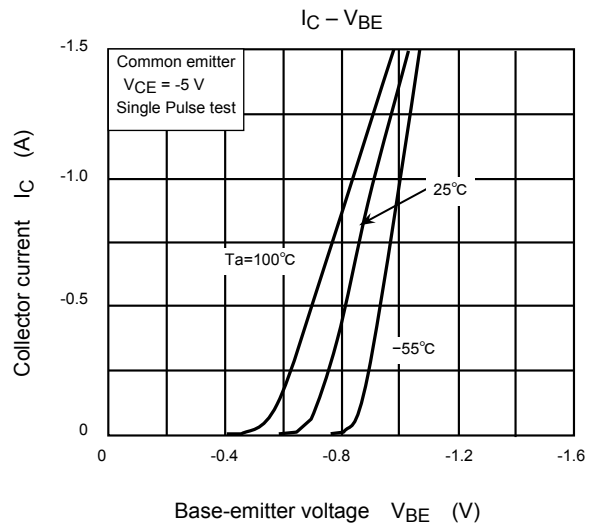
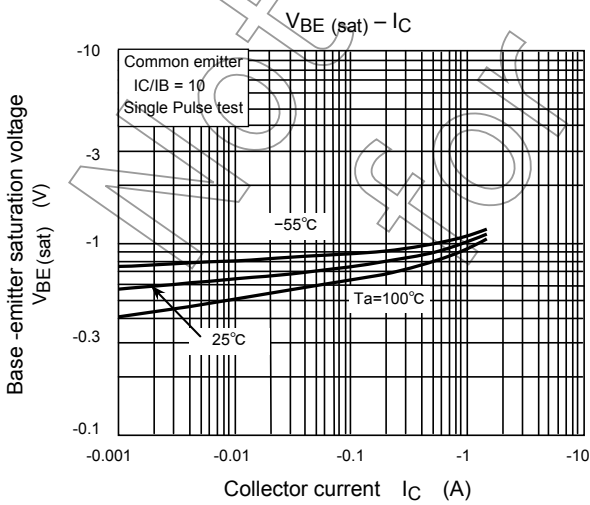
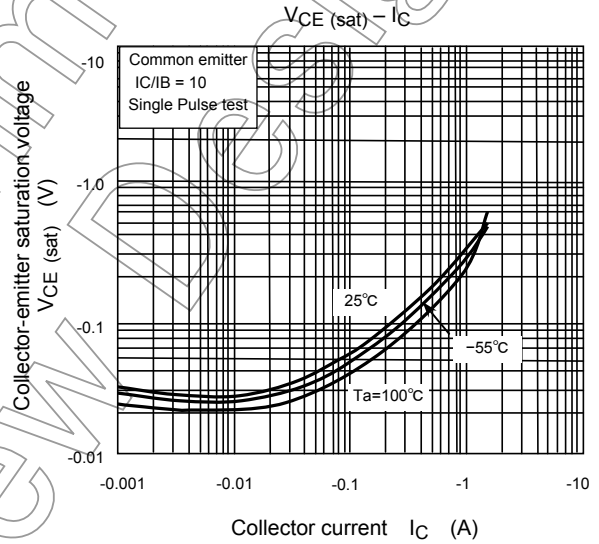
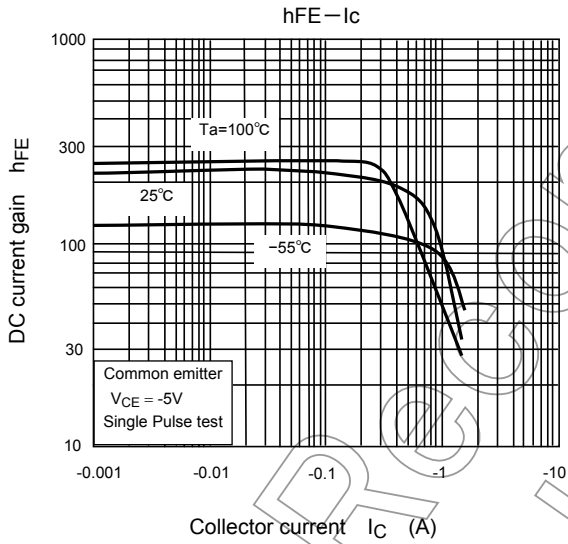
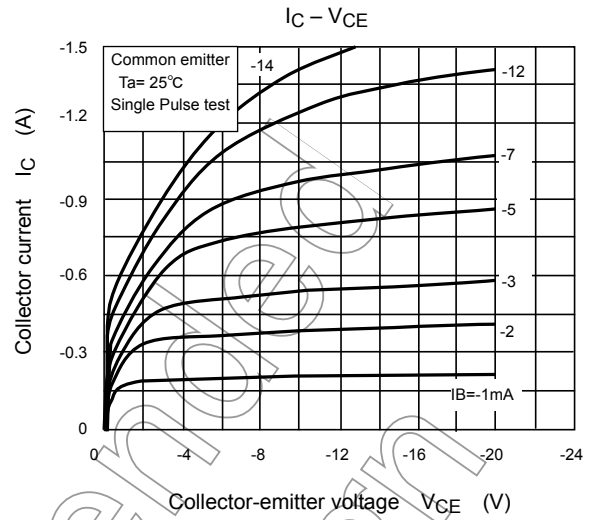
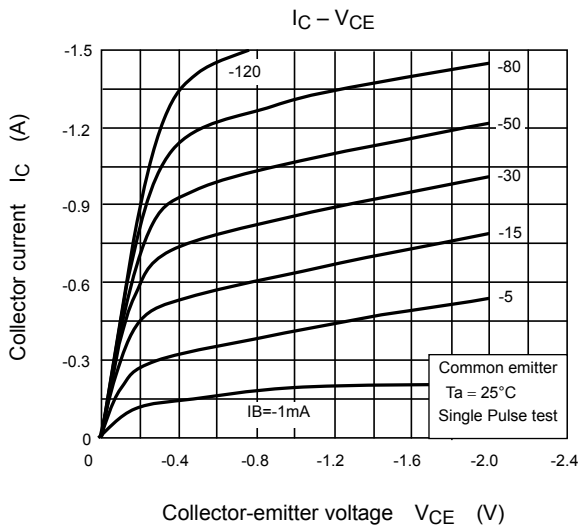
Note 2 : Weekly code: (Three digits)

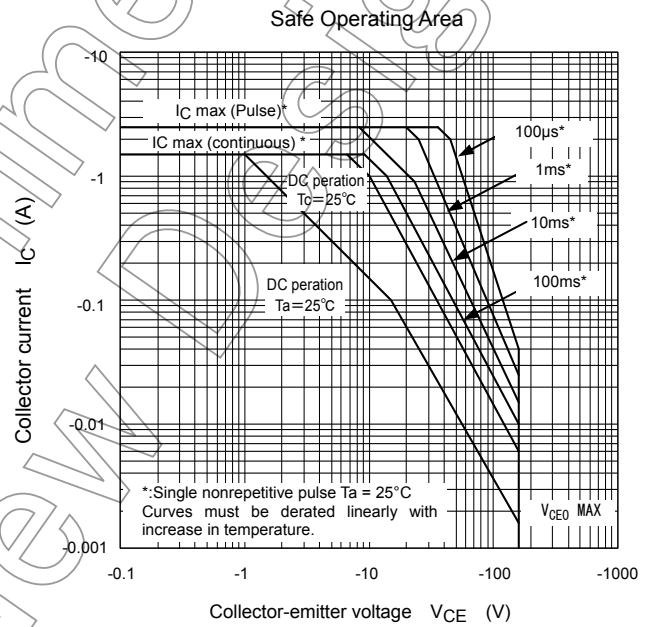
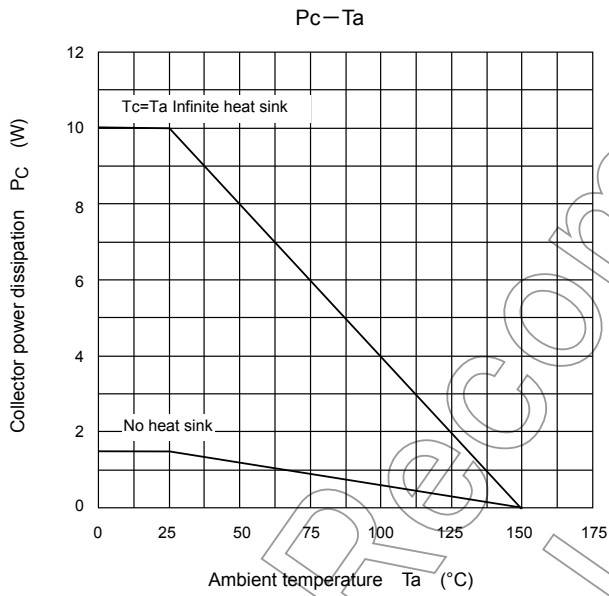
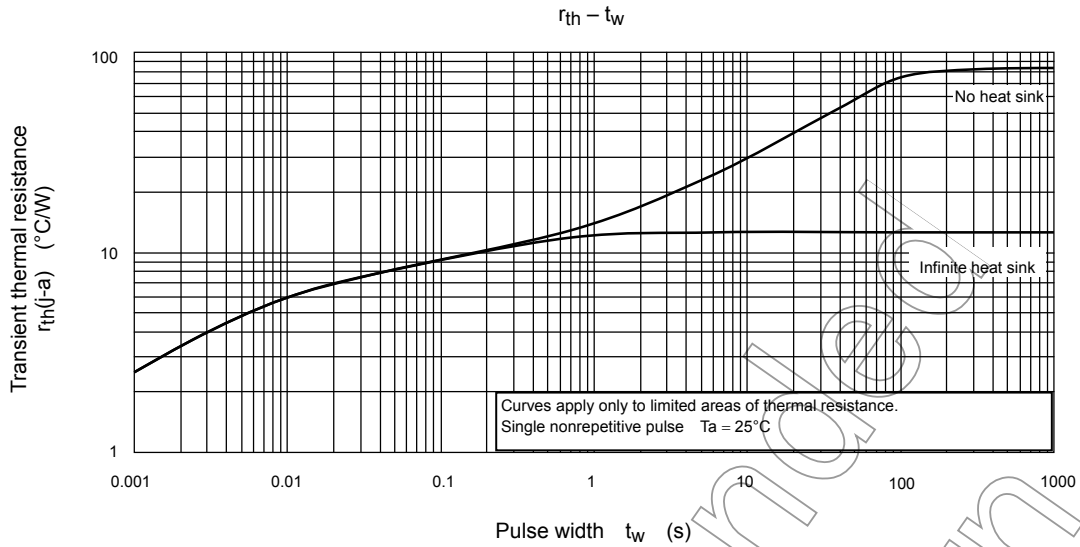


Note 3 : A line under a Lot No. identifies the indication of product Labels  
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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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