

TOSHIBA Transistor Silicon NPN Triple Diffused Type

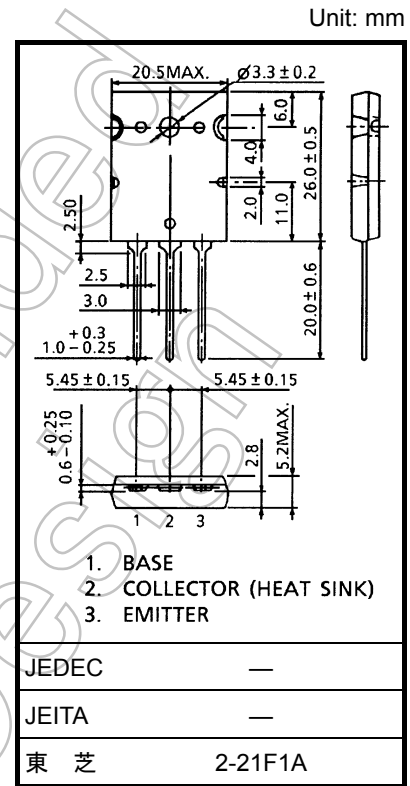
TTC0002

○ Power Amplifier Applications

- High collector voltage: $V_{CEO} = 160 \text{ V (min)}$
- Complementary to TTA0002
- Recommended for 100-W high-fidelity audio frequency amplifier 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	DC	I_C	18	A
	Pulse	I_{CP}	35	A
Base current		I_B	9	A
Collector power dissipation		P_C	180	W
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to 150	$^\circ\text{C}$



Weight: 9.75 g (typ.)

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.

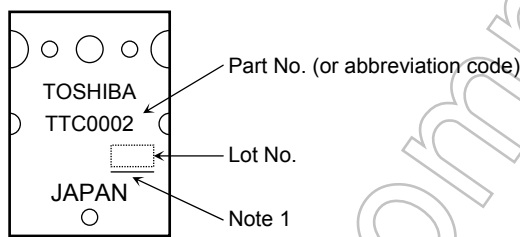
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Start of commercial production
2009-01

Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 160\text{ V}, I_E = 0$	—	—	1.0	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$	—	—	1.0	μA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	160	—	—	V
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	80	—	160	
	$h_{FE(2)}$	$V_{CE} = 5\text{ V}, I_C = 9\text{ A}$	35	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 9\text{ A}, I_B = 0.9\text{ A}$	—	—	2.0	V
Base-emitter voltage	V_{BE}	$V_{CE} = 5\text{ V}, I_C = 9\text{ A}$	—	—	1.5	V
Transition frequency	f_T	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	—	30	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	210	—	pF

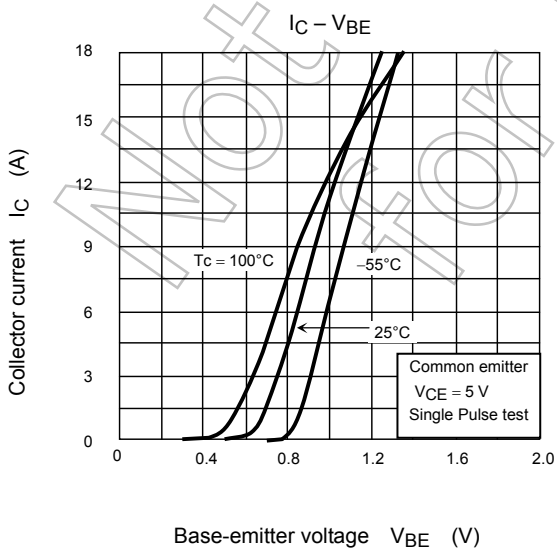
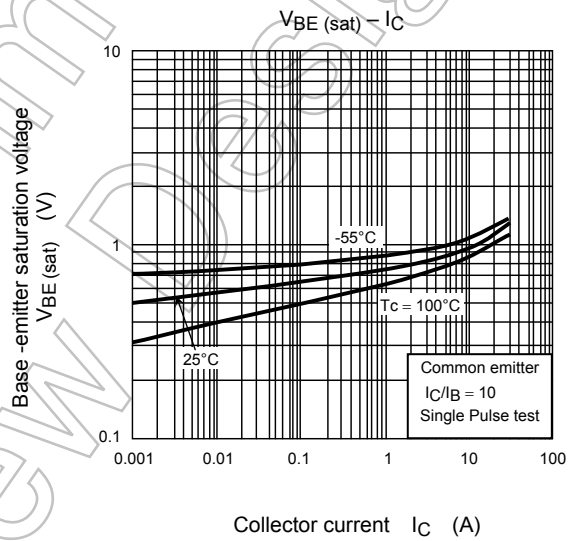
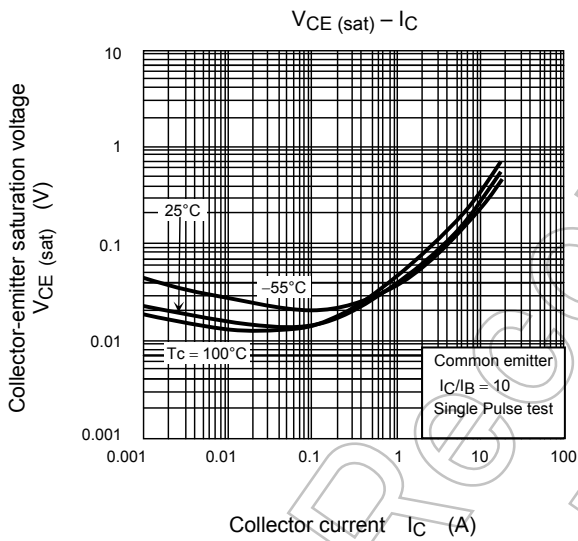
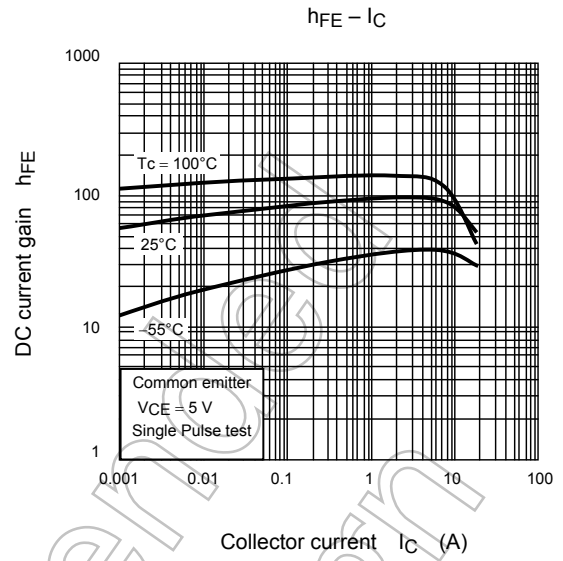
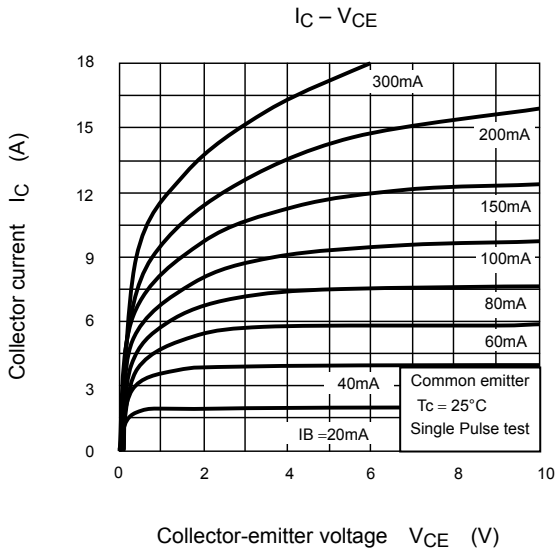
Marking



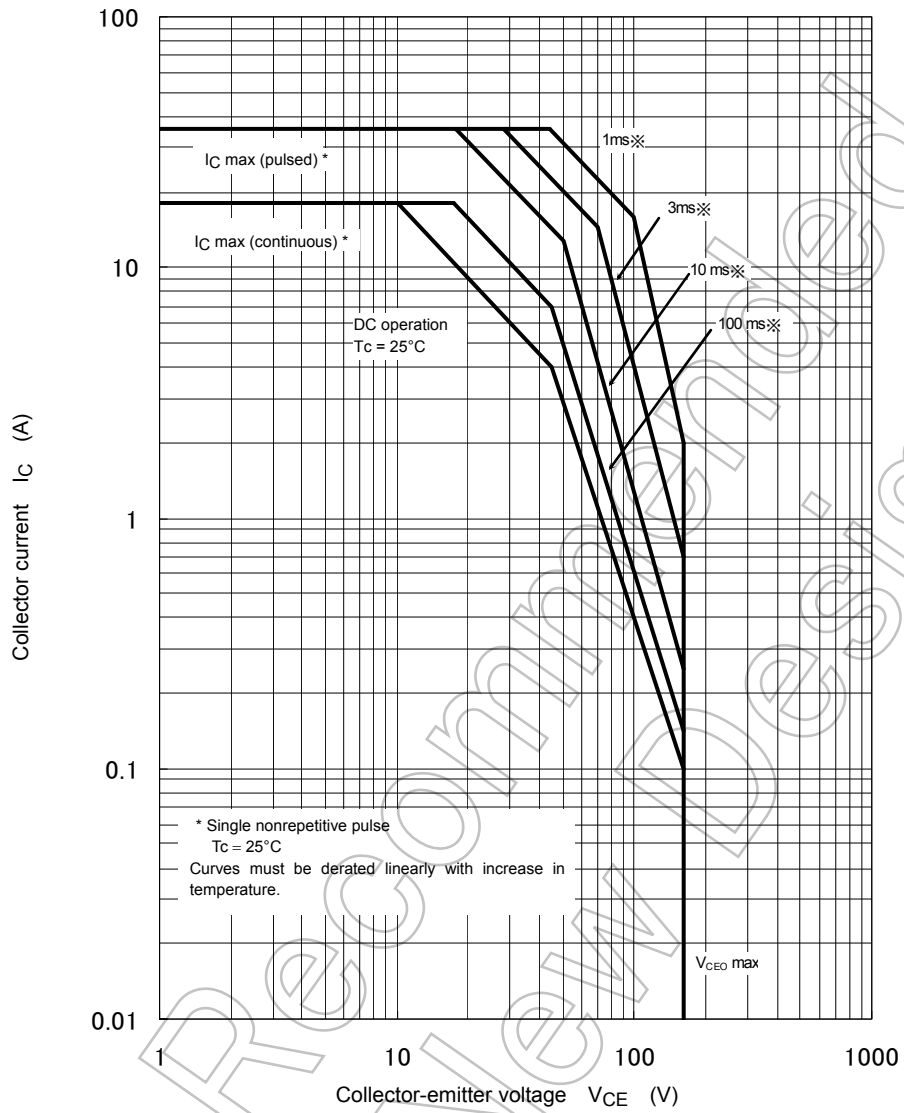
Note 1: Marking for identifying the indication of product Labels
 [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 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.



Safe Operating Area



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