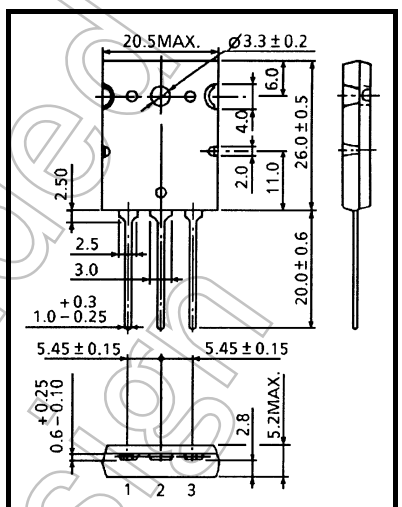
TOSHIBA Transistor Silicon NPN Triple Diffused Type

TTC0002

○ Power Amplifier Applications

- High collector voltage: V_{CEO} = 160 V (min)
- Complementary to TTA0002
- Recommended for 100-W high-fidelity audio frequency amplifier output stage.

Unit: mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
JEITA	—
東 芝	2-21F1A

Weight: 9.75 g (typ.)

Absolute Maximum Ratings (Tc = 25°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	°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).

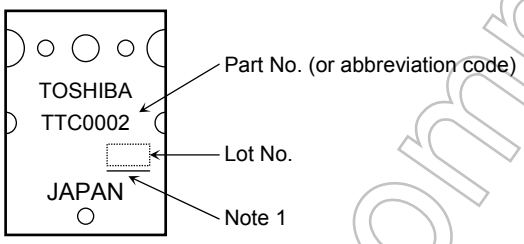
Not Recommended for New Design

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

Marking

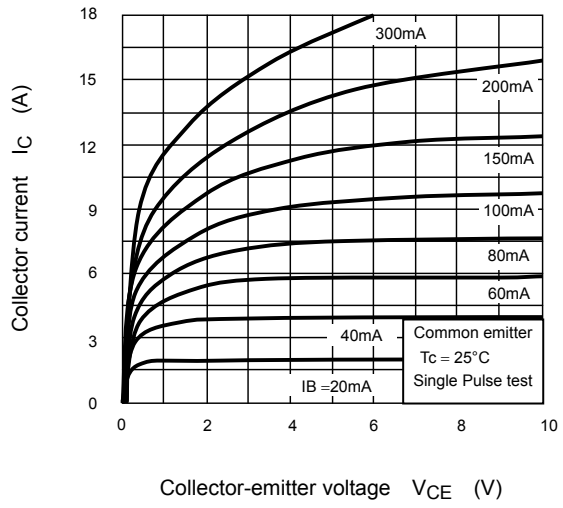


Note 1: Marking for identifying the indication of product Labels
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

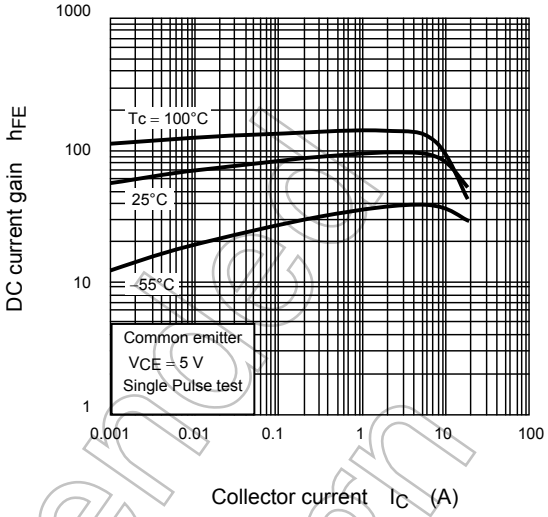
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.
The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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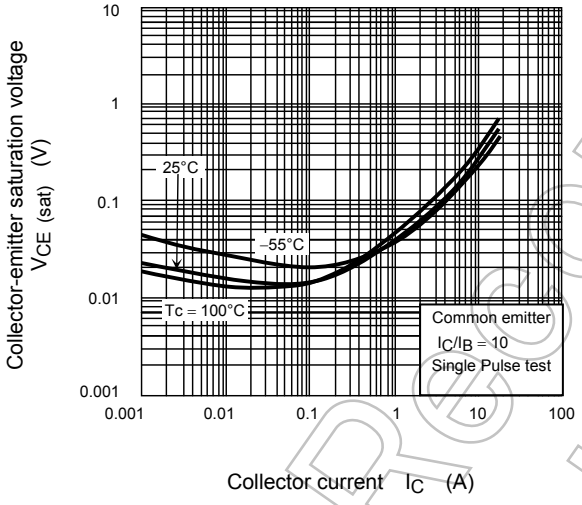
$I_C - V_{CE}$



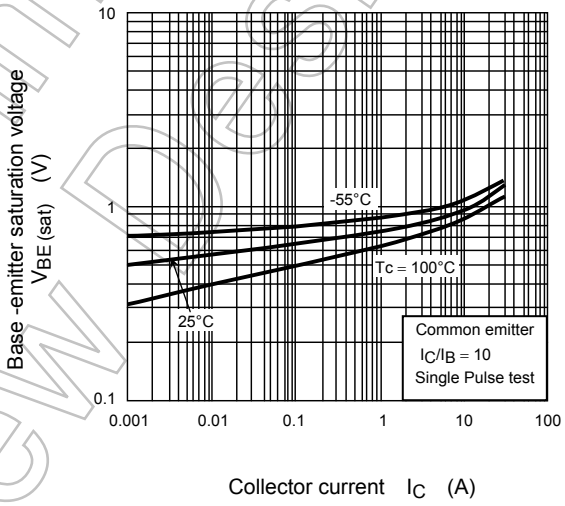
$h_{FE} - I_C$



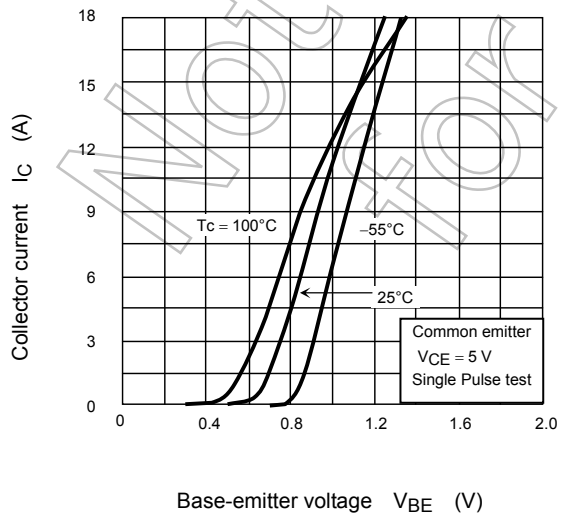
$V_{CE\ (sat)} - I_C$



$V_{BE\ (sat)} - I_C$

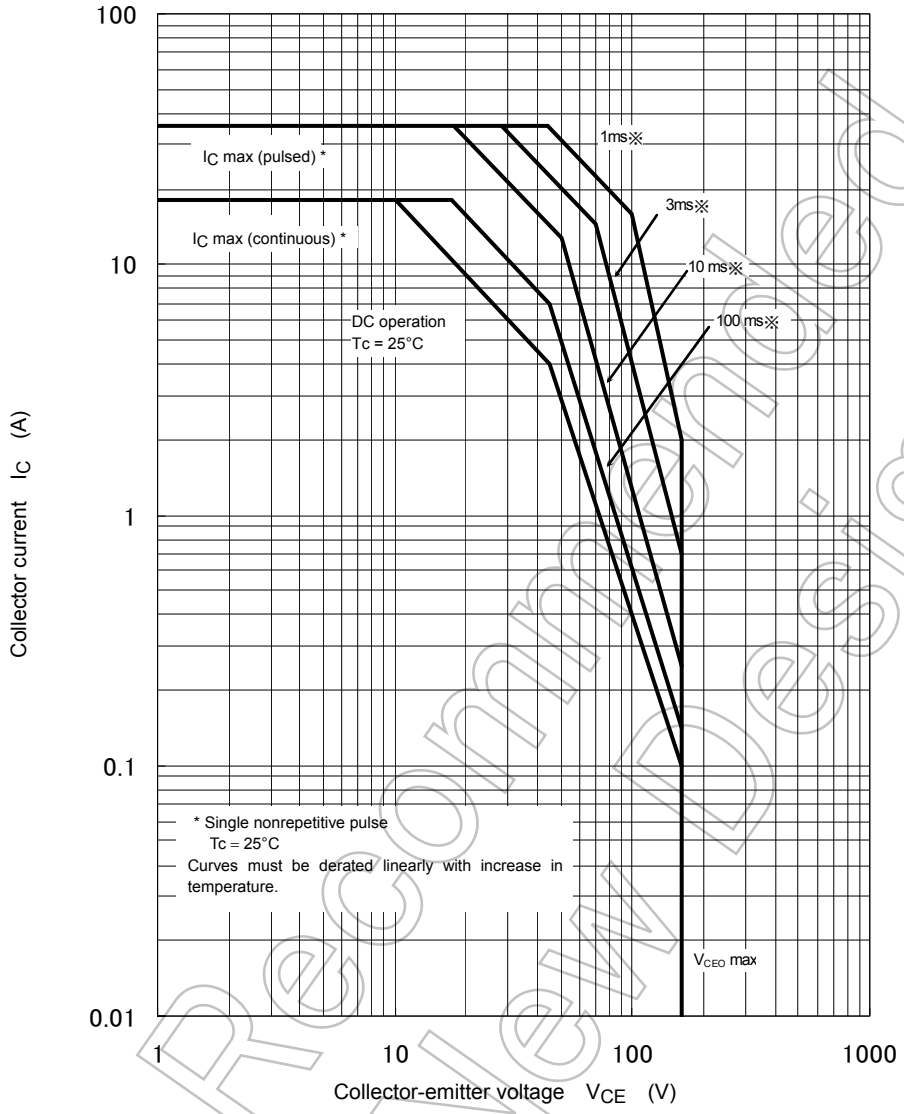


$I_C - V_{BE}$



Not Recommended for New Design

Safe Operating Area



Not Recommended for New Design

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