TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT Process)

2SC3963

High-Voltage General Amplifier Applications
Color TV Class B Sound Output Applications

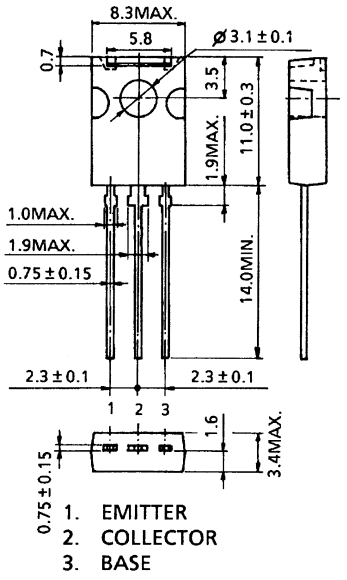
- High voltage: V_{CEO} = 160 V

Absolute Maximum Ratings (Tc = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	200	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	200	mA
Base current	I_B	100	mA
Collector power dissipation	P_C	1.5	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).

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-8H1A

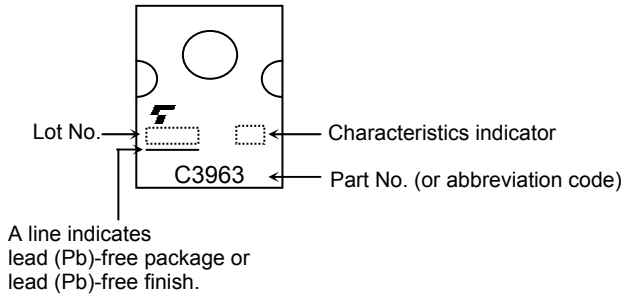
Weight: 0.82 g (typ.)

Electrical Characteristics (Tc = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 200 V, I_E = 0	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	0.1	μA
DC current gain	$h_{FE\ (1)}$ (Note)	V_{CE} = 10 V, I_C = 50 mA	100	—	320	
	$h_{FE\ (2)}$	V_{CE} = 10 V, I_C = 150 mA	80	—	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 200 mA, I_B = 20 mA	—	—	1.0	V
Base-emitter voltage	V_{BE}	V_{CE} = 10 V, I_C = 5 mA	0.55	0.65	0.75	V
Transition frequency	f_T	V_{CE} = 10 V, I_C = 50 mA	50	—	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	—	10	pF

Note: $h_{FE\ (1)}$ classification O: 100 to 200, Y: 160 to 320

Marking



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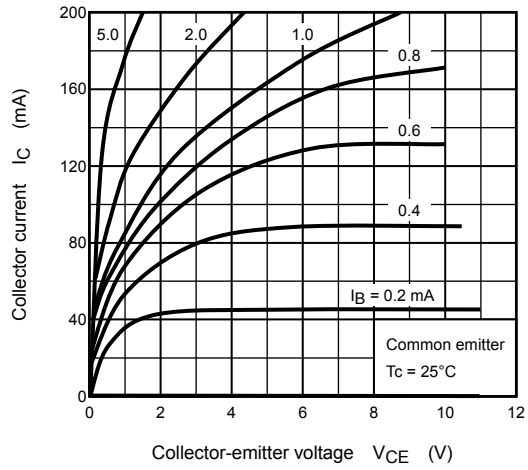
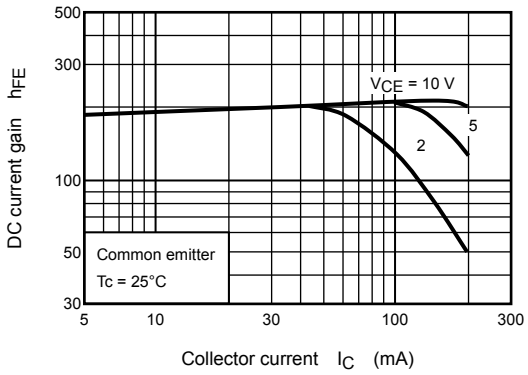
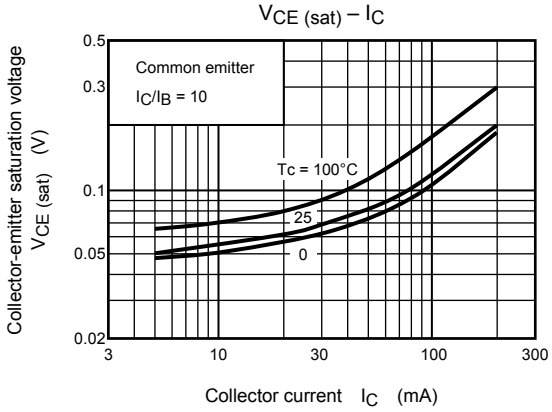
$I_C - V_{CE}$



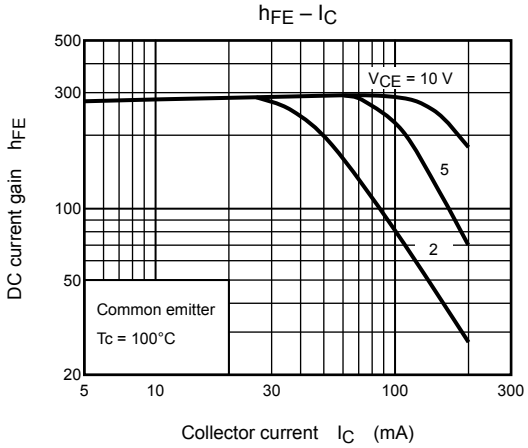
$h_{FE} - I_C$



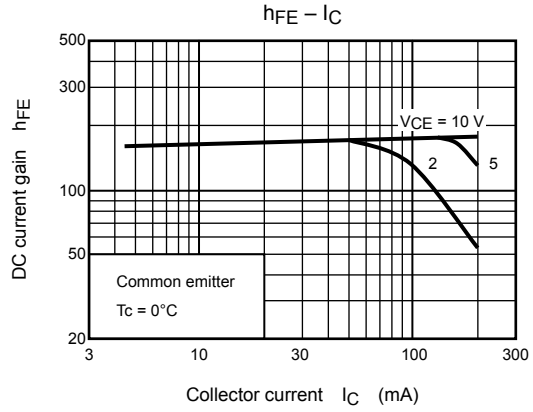
$V_{CE\ (sat)} - I_C$



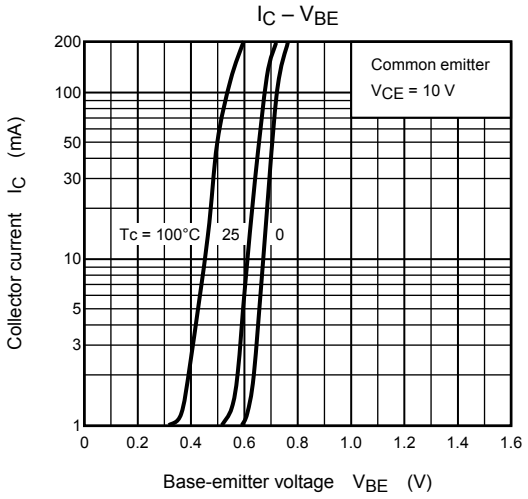
$h_{FE} - I_C$



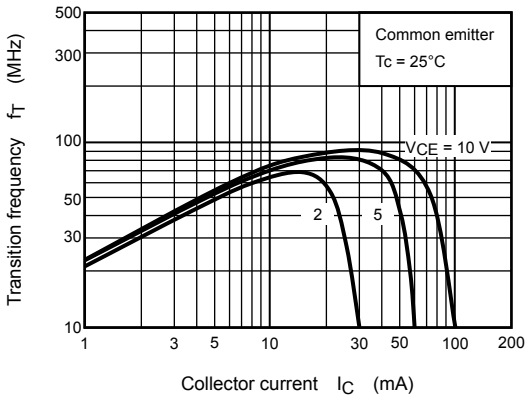
$h_{FE} - I_C$



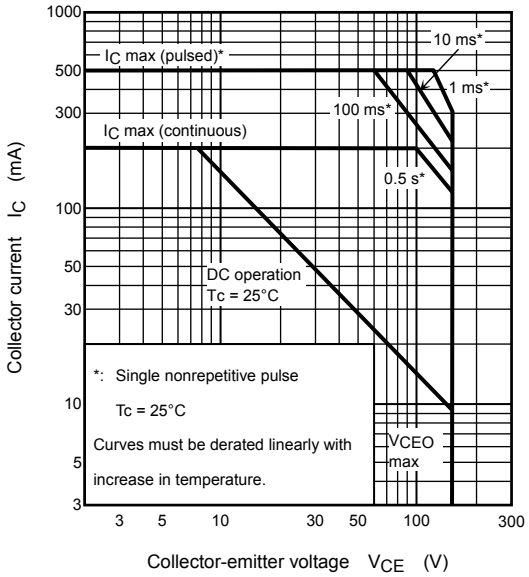
$I_C - V_{BE}$



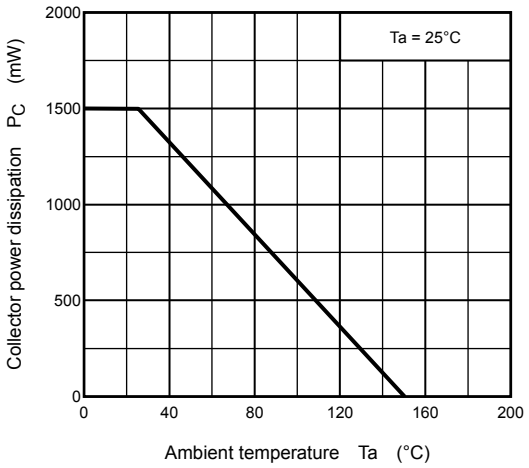
$f_T - I_C$



Safe Operating Area



$P_C - Ta$



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