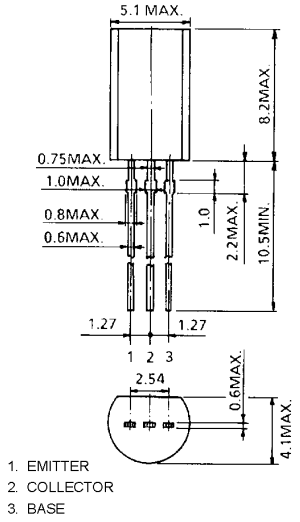
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1145

Audio Frequency Amplifier Applications

- Complementary to 2SC2705.
- Small Collector Output Capacitance: C_{ob} = 2.5 pF (typ.)
- High Transition Frequency: f_T = 200 MHz (typ.)

Unit: mm



JEDEC	TO-92MOD
JEITA	—
TOSHIBA	2-5J1A

Weight: 0.36 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−150	V
Collector-emitter voltage	V_{CEO}	−150	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−50	mA
Base current	I_B	−5	mA
Collector power dissipation	P_C	800	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

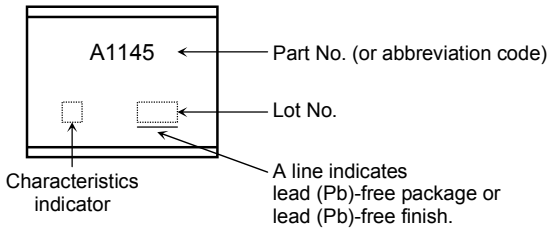
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Electrical Characteristics (Ta = 25°C)

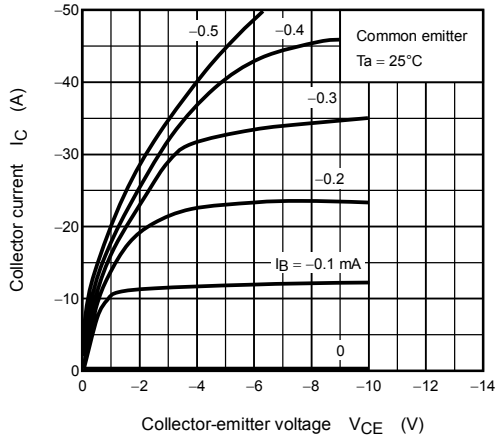
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −150 V, I_E = 0	—	—	−0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = −5 V, I_C = 0	—	—	−0.1	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −1 mA, I_B = 0	−150	—	—	V
DC current gain	h_{FE} (Note)	V_{CE} = −5 V, I_C = −10 mA	80	—	240	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = −10 mA, I_B = −1 mA	—	—	−1.0	V
Base-emitter voltage	V_{BE}	V_{CE} = −5 V, I_C = −10 mA	—	—	−0.8	V
Transition frequency	f_T	V_{CE} = −5 V, I_C = −10 mA	—	200	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10 V, I_E = 0, f = 1 MHz	—	2.5	—	pF

Note: h_{FE} classification O: 80 to 160, Y: 120 to 240

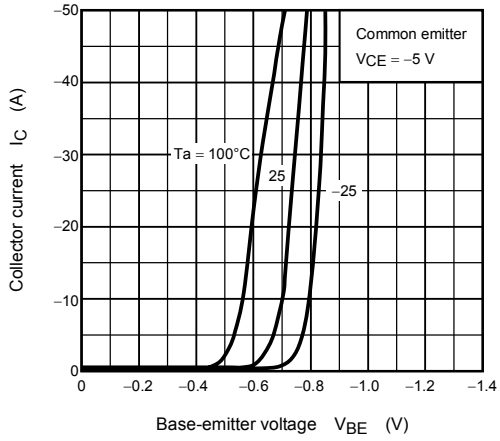
Marking



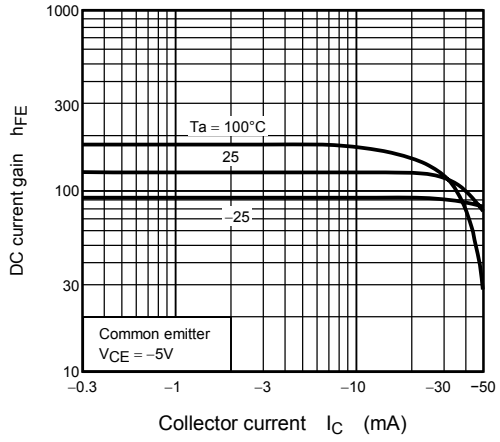
$I_C - V_{CE}$



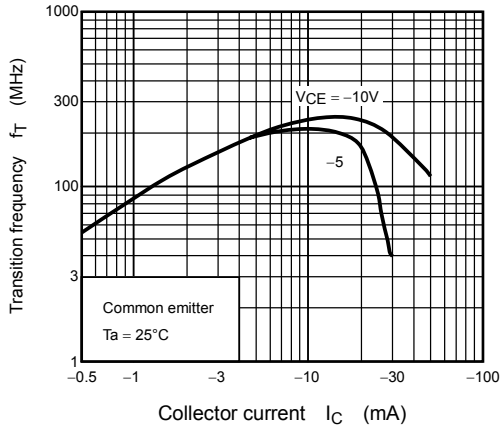
$I_C - V_{CE}$



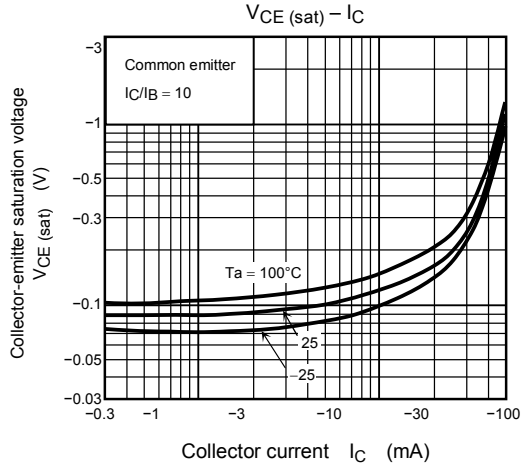
$h_{FE} - I_C$



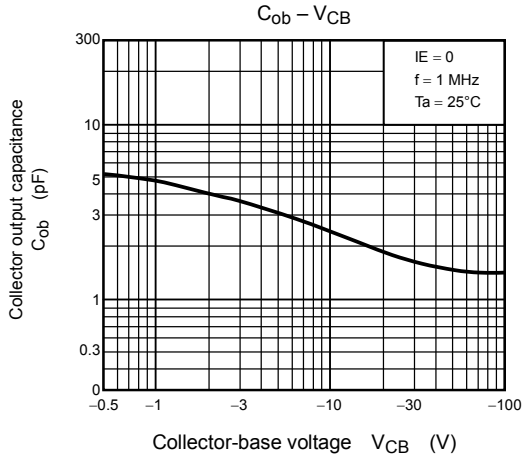
$f_T - I_C$

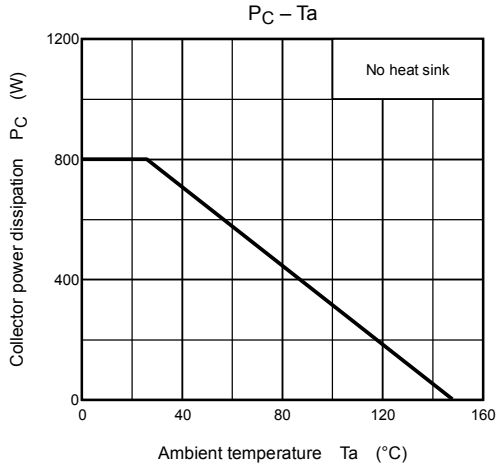


$V_{CE\ (sat)} - I_C$



$C_{ob} - V_{CB}$




P_C – Ta
1200
800
400
0
No heat sink
Collector power dissipation P_C (W)
0
40
80
120
160
Ambient temperature Ta (°C)

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