TOSHIBA Transistor Silicon PNP Epitaxial (PCT process)

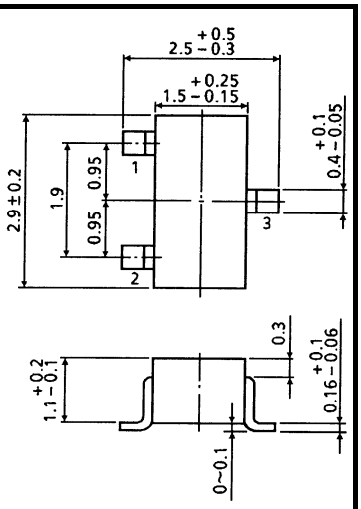
2SA1298

Low Frequency Power Amplifier Application

Power Switching Applications

- High DC current gain: h_{FE} = 100 to 320
- Low saturation voltage: $V_{CE\ (sat)}$ = −0.4 V (max)
  (I_C = −500 mA, I_B = −20 mA)
- Suitable for driver stage of small motor
- Complementary to 2SC3265
- Small package

Unit: mm



1. BASE
2. EMITTER
3. COLLECTOR

S-MINI	
JEDEC	TO-236MOD
JEITA	SC-59
TOSHIBA	2-3F1A

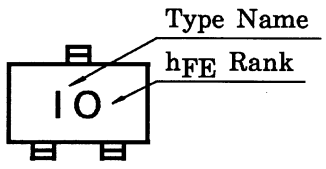
Weight: 0.012 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	−30	V
Collector-emitter voltage	V_{CEO}	−25	V
Emitter-base voltage	V_{EBO}	−5	V
Collector current	I_C	−800	mA
Base current	I_B	−160	mA
Collector power dissipation	P_C	200	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).

Marking



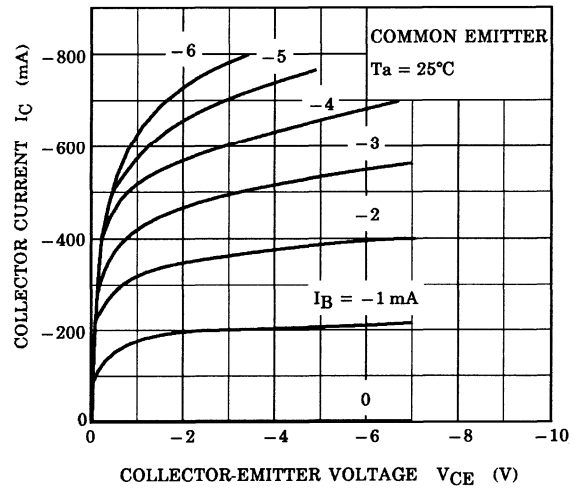
Start of commercial production
1982-10

Electrical Characteristics (Ta = 25°C)

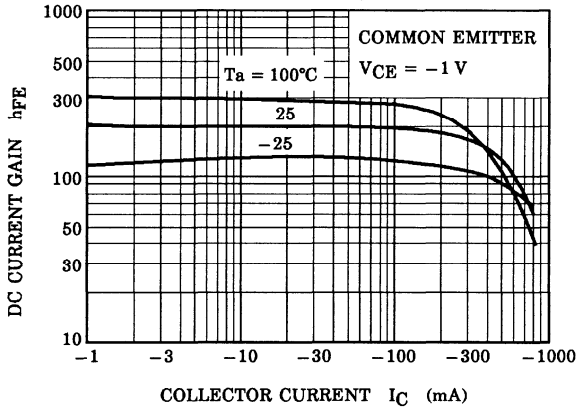
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −30 V, I_E = 0	—	—	−0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB} = −50 V, I_C = 0	—	—	−0.1	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −10 mA, I_B = 0	−25	—	—	V
Emitter-base breakdown voltage	$V_{(BR)\ EBO}$	I_E = −0.1 mA, I_C = 0	−5	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note)	V_{CE} = −1 V, I_C = −100 mA	100	—	320	
	$h_{FE\ (2)}$	V_{CE} = −1 V, I_C = −800 mA	40	—	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = −500 mA, I_B = −20 mA	—	—	−0.4	V
Base-emitter voltage	V_{BE}	V_{CE} = −1 V, I_C = −10 mA	−0.5	—	−0.8	V
Transition frequency	f_T	V_{CE} = −5 V, I_C = −10 mA	—	120	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10 V, I_E = 0, f = 1 MHz	—	13	—	pF

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

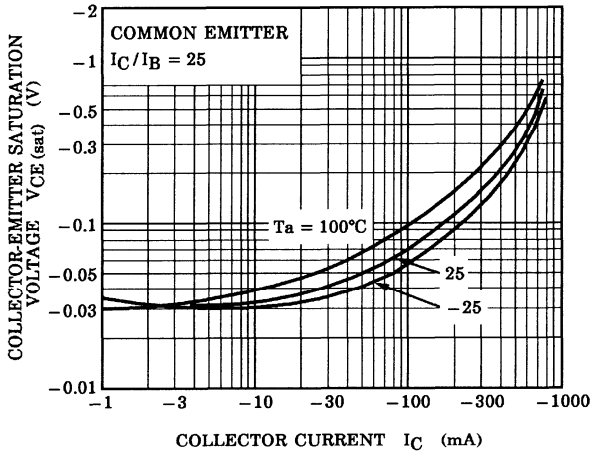
$I_C - V_{CE}$



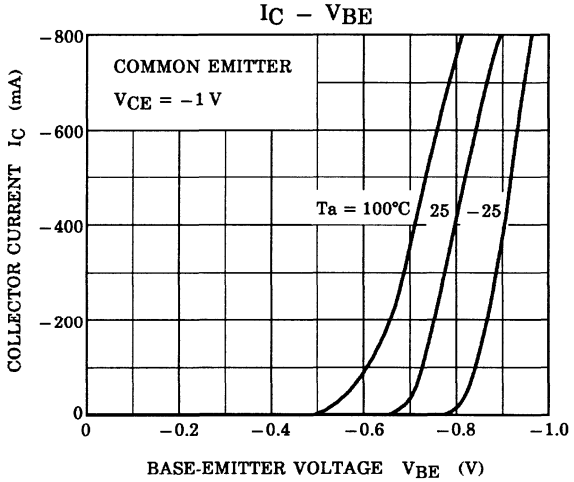
$h_{FE} - I_C$



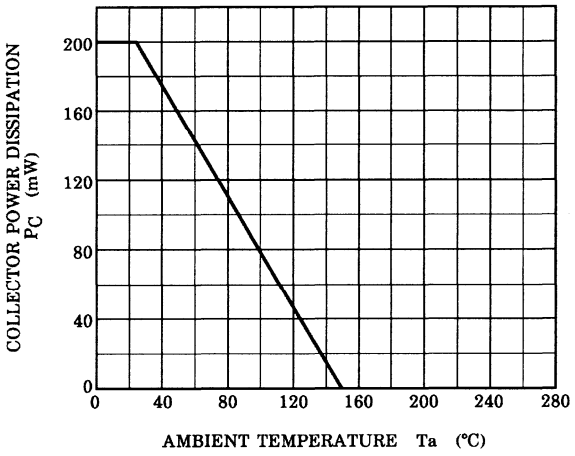
$V_{CE\,(sat)} - I_C$



$I_C - V_{BE}$



$P_C - Ta$



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