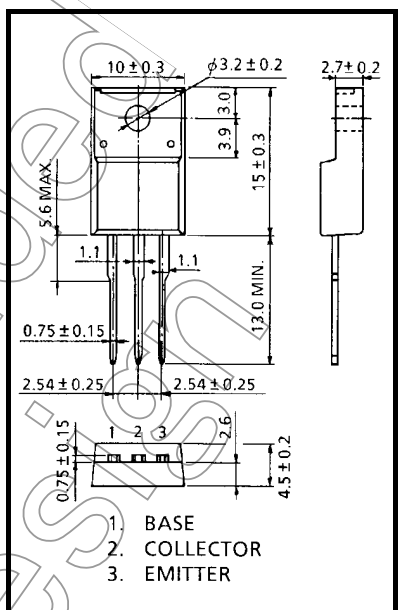
TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SD2406

Power Amplifier Applications

- High power dissipation: P_C = 25 W (Tc = 25°C)
- Good h_{FE} linearity

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-10R1A

Weight: 1.7 g (typ.)

Absolute Maximum Ratings (Tc = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	80	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	4	A
Base current	I_B	0.4	A
Collector power dissipation (Tc = 25°C)	P_C	25	W
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−55 to 150	°C

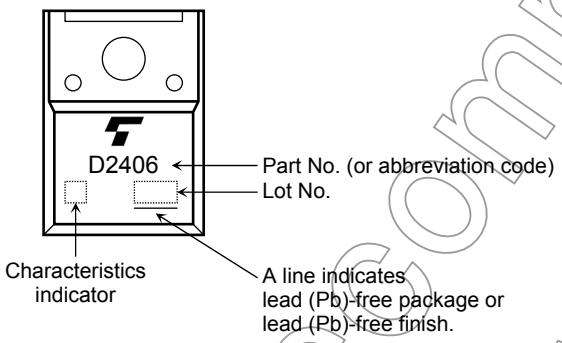
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Electrical Characteristics (Tc = 25°C)

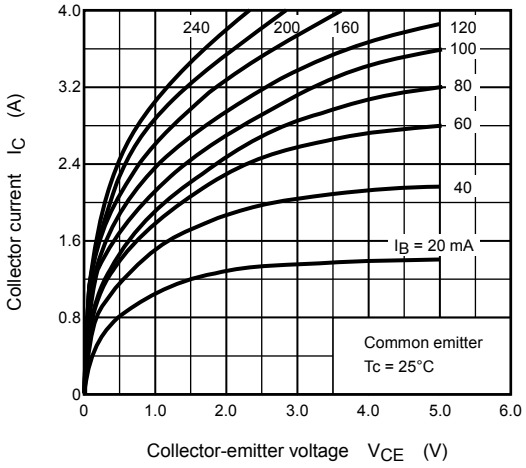
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 80 V, I_E = 0	—	—	30	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 5 V, I_C = 0	—	—	100	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = 50 mA, I_B = 0	80	—	—	V
Emitter-base breakdown voltage	$V_{(BR)\ EBO}$	I_E = 10 mA, I_C = 0	5	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note)	V_{CE} = 5 V, I_C = 0.5 A	70	—	240	
	$h_{FE\ (2)}$	V_{CE} = 5 V, I_C = 3 A	15	50	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 3 A, I_B = 0.3 A	—	0.45	1.5	V
Base-emitter voltage	V_{BE}	V_{CE} = 5 V, I_C = 3 A	—	1.0	1.5	V
Transition frequency	f_T	V_{CE} = 5 V, I_C = 0.5 A	—	8.0	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	90	—	pF

Note: $h_{FE\ (1)}$ classification O: 70 to 140, Y: 120 to 240

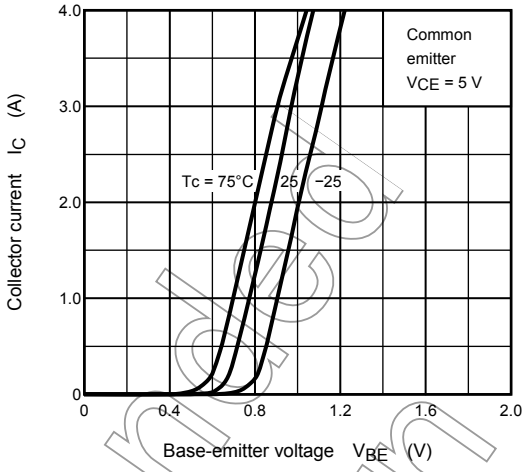
Marking



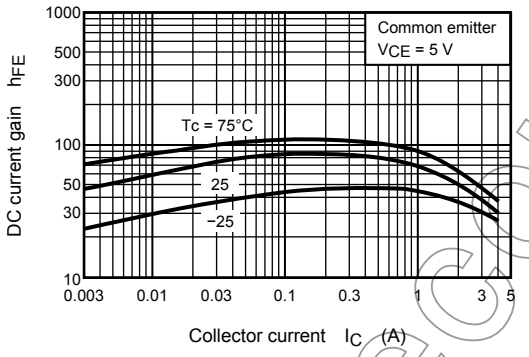
$I_C - V_{CE}$



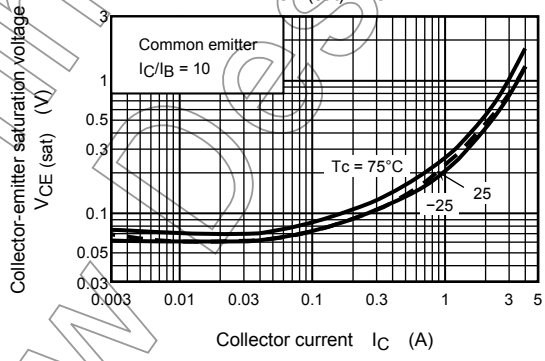
$I_C - V_{BE}$



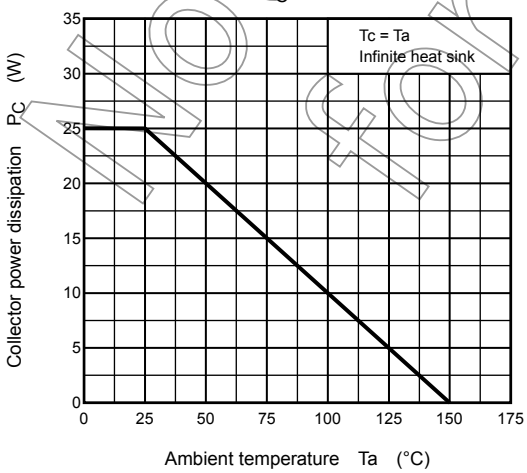
$h_{FE} - I_C$



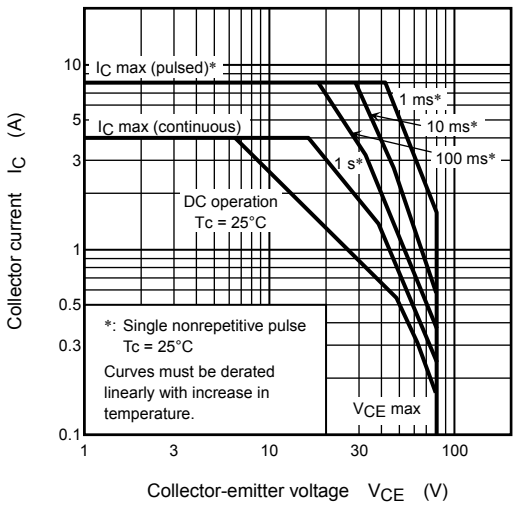
$V_{CE\ (sat)} - I_C$



$P_C - Ta$



Safe Operating Area



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