

TOSHIBA Transistor Silicon NPN Triple Diffused Type

# 2SD2406

## Power Amplifier Applications

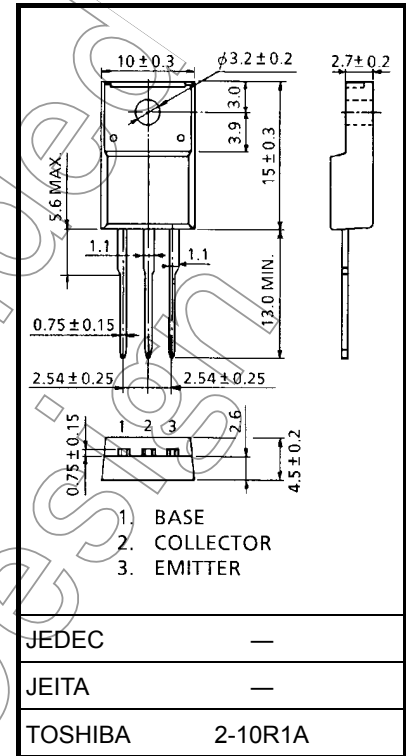
- High power dissipation:  $P_C = 25\text{ W}$  ( $T_c = 25^\circ\text{C}$ )
- Good  $h_{FE}$  linearity

## Absolute Maximum Ratings ( $T_c = 25^\circ\text{C}$ )

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 ( $T_c = 25^\circ\text{C}$ )	$P_C$	25	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$

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



Weight: 1.7 g (typ.)

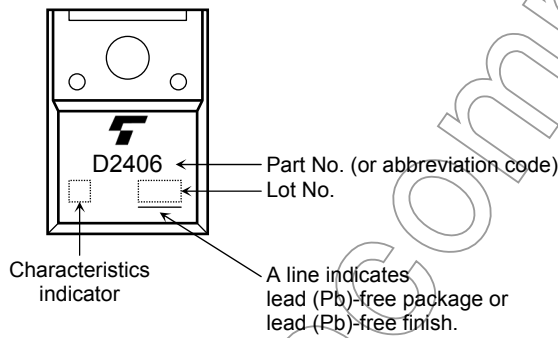
Not for New

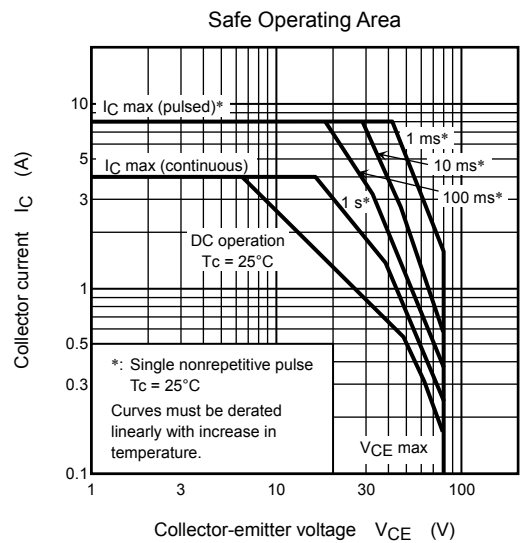
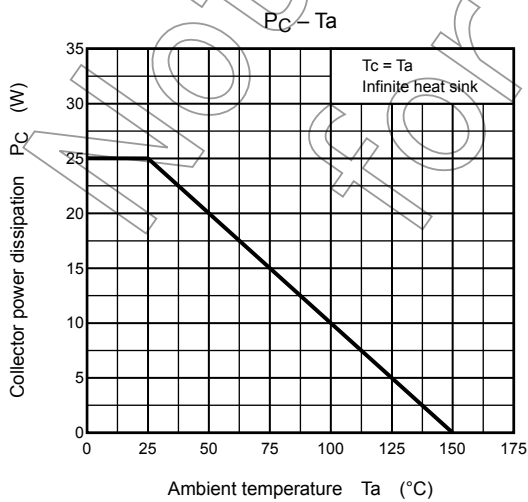
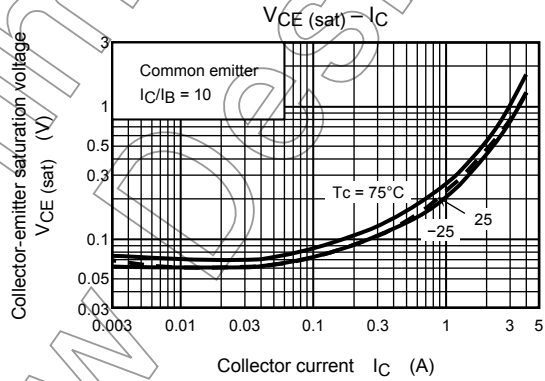
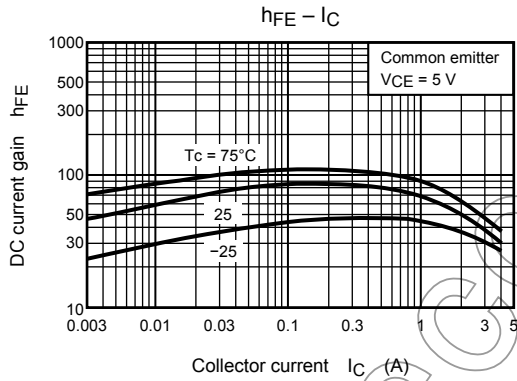
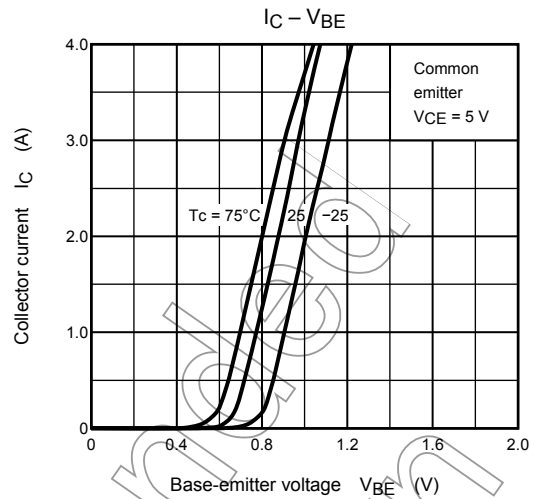
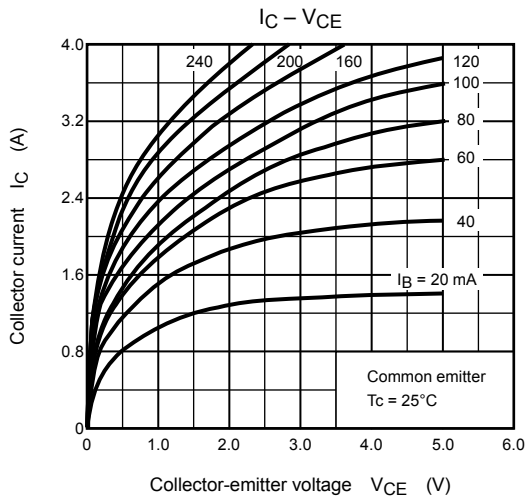
**Electrical Characteristics (Tc = 25°C)**

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

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

**Marking**





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