



# 2SD1806

## High-Current Switching Applications

### Applications

- Relay control, motor control, switching.

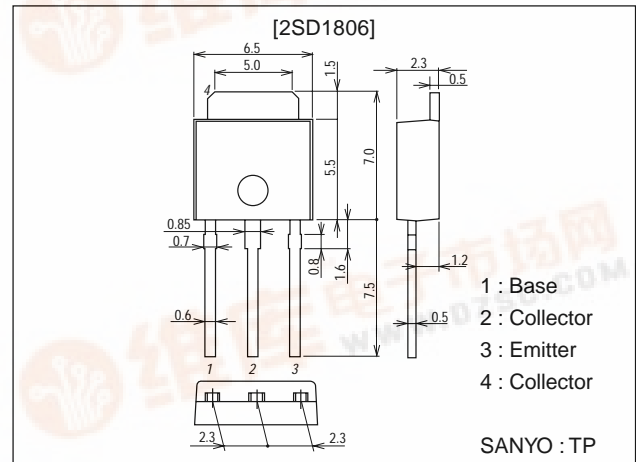
### Features

- Low saturation voltage.
- On-chip diode between collector and emitter.
- Small and slim package permitting 2SD1806-applied sets to be made more compact.

### Package Dimensions

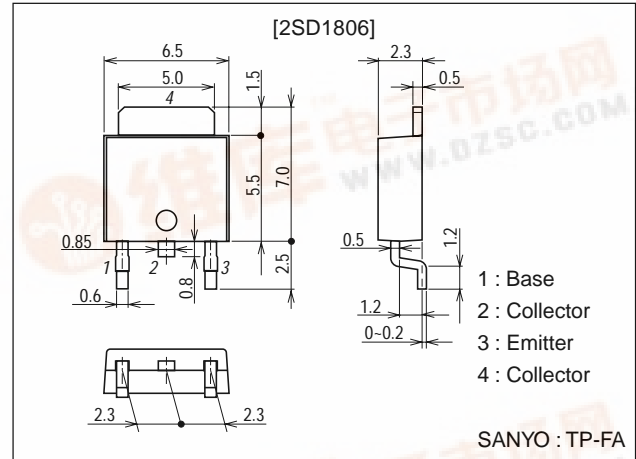
unit:mm

2045B



unit:mm

2044B



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## 2SD1806

### Specifications

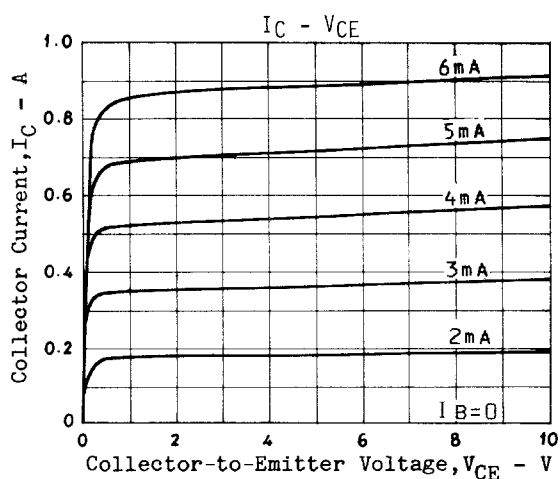
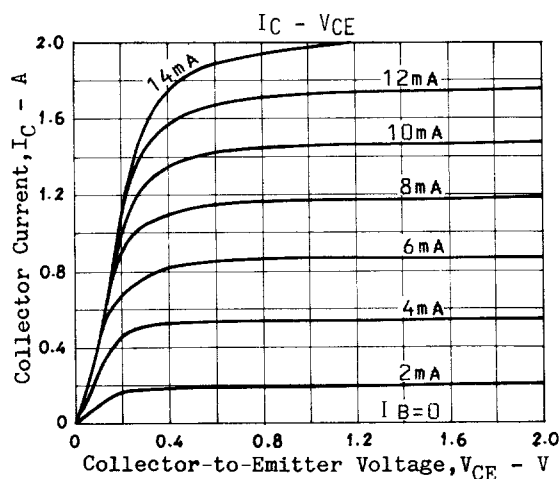
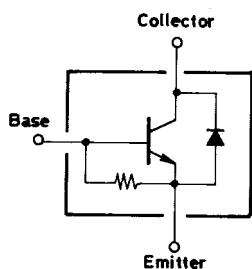
#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		40	V
Collector-to-Emitter Voltage	$V_{CEO}$		30	V
Emitter-to-Base Voltage	$V_{EBO}$		5	V
Collector Current	$I_C$		2	A
Collector Current (Pulse)	$I_{CP}$		4	A
Collector Dissipation	$P_C$		1	W
		$T_c=25^\circ\text{C}$	15	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

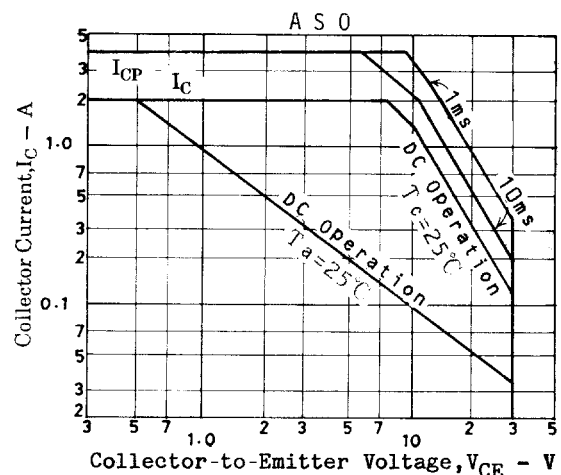
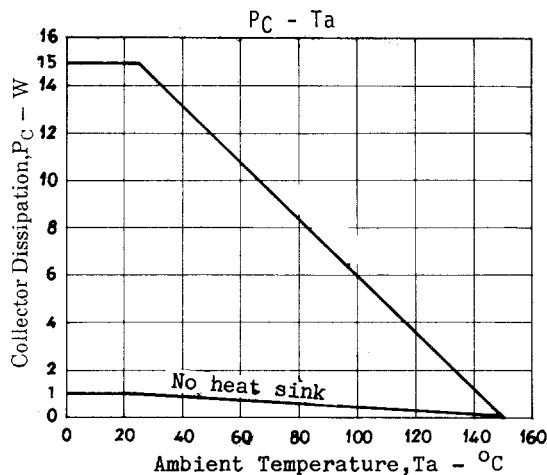
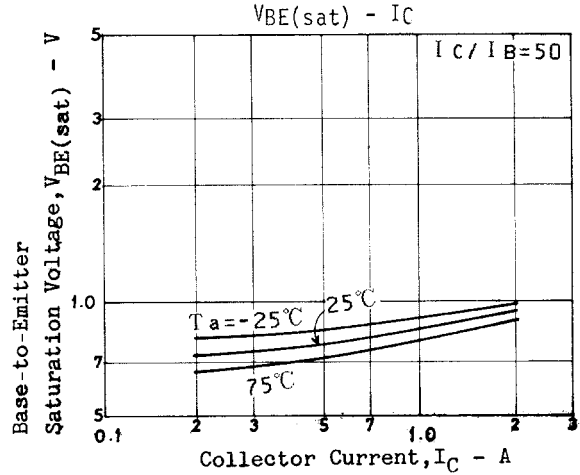
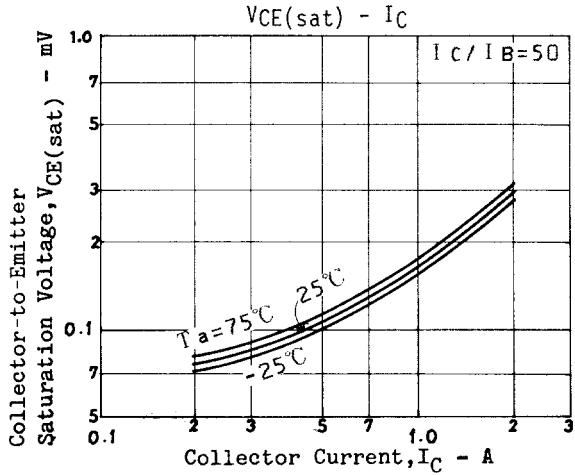
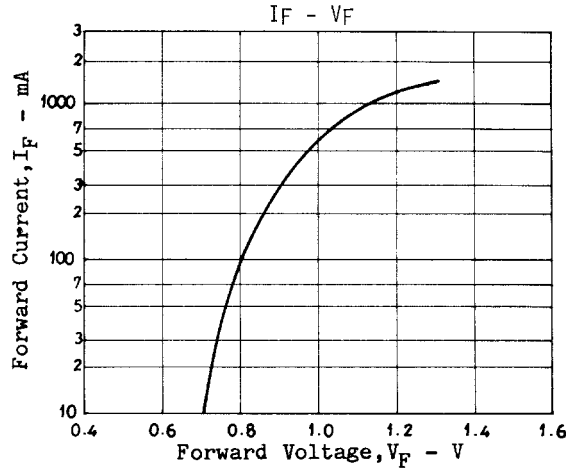
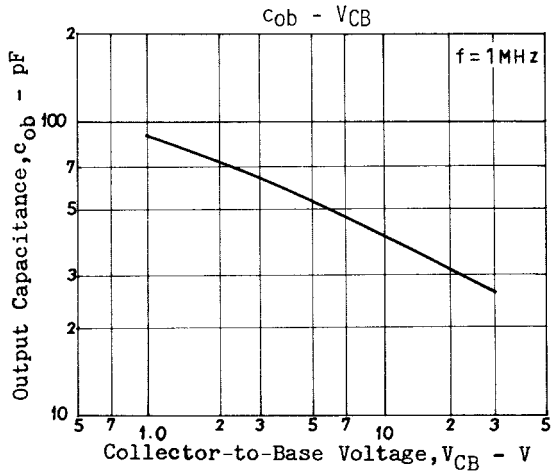
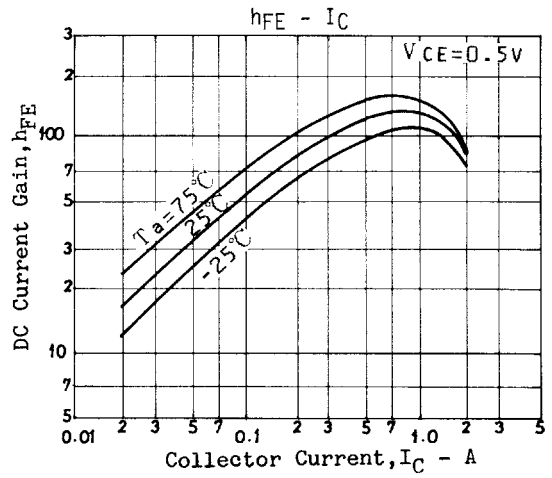
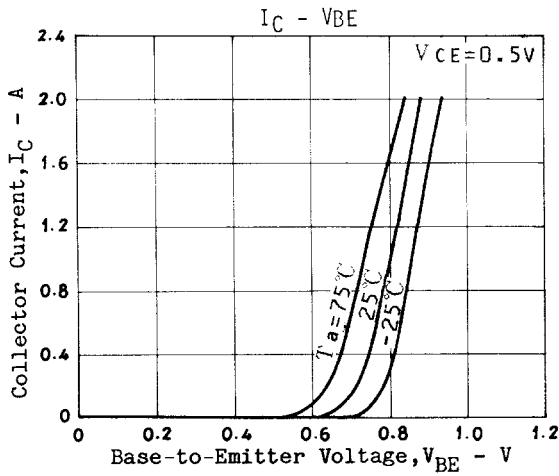
#### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=20\text{V}, I_E=0$			1.0	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=0.5\text{V}, I_C=0.5\text{A}$	50			
	$h_{FE2}$	$V_{CE}=0.5\text{V}, I_C=2\text{A}$	50			
Gain-Bandwidth Product	$f_T$	$V_{CE}=2\text{V}, I_C=0.5\text{A}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		40		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2\text{A}, I_B=40\text{mA}$		0.25	0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=40\text{mA}$		0.92	1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, R_{BE}=\infty$	30			V
Forward Voltage	$V_F$	$I_F=0.3\text{A}$		0.9	1.2	V
Resistance between Base and Emitter	$R_{BE}$			1.0		k $\Omega$

### Electrical Connection



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