NPN Epitaxial Planar Silicon Transistor



2SD1806

# **High-Current Switching Applications**

# **Applications**

· Relay control, motor control, switching.

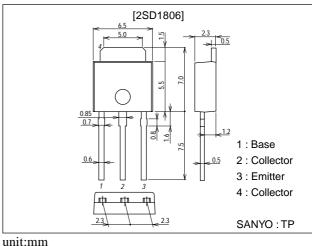
## **Features**

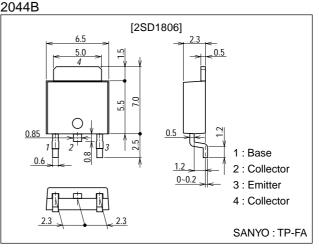
- · Low saturation voltage.
- $\cdot$  On-chip diode between collector and emitter.
- Small and slim package permitting 2SD1806-applied sets to be made more compact.

# Package Dimensions

### unit:mm

### 2045B





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# Specifications

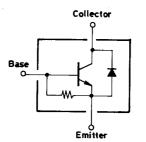
## Absolute Maximum Ratings at Ta = 25°C

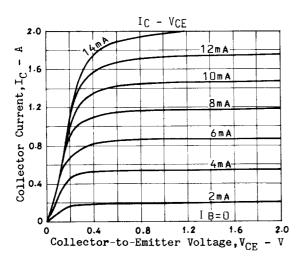
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		40	V
Collector-to-Emitter Voltage	VCEO		30	V
Emitter-to-Base Voltage	VEBO		5	V
Collector Current	ι <sub>C</sub>		2	A
Collector Current (Pulse)	I <sub>CP</sub>		4	A
Collector Dissipation	PC		1	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

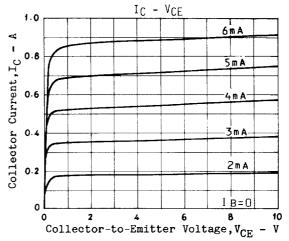
### Electrical Characteristics at Ta = 25°C

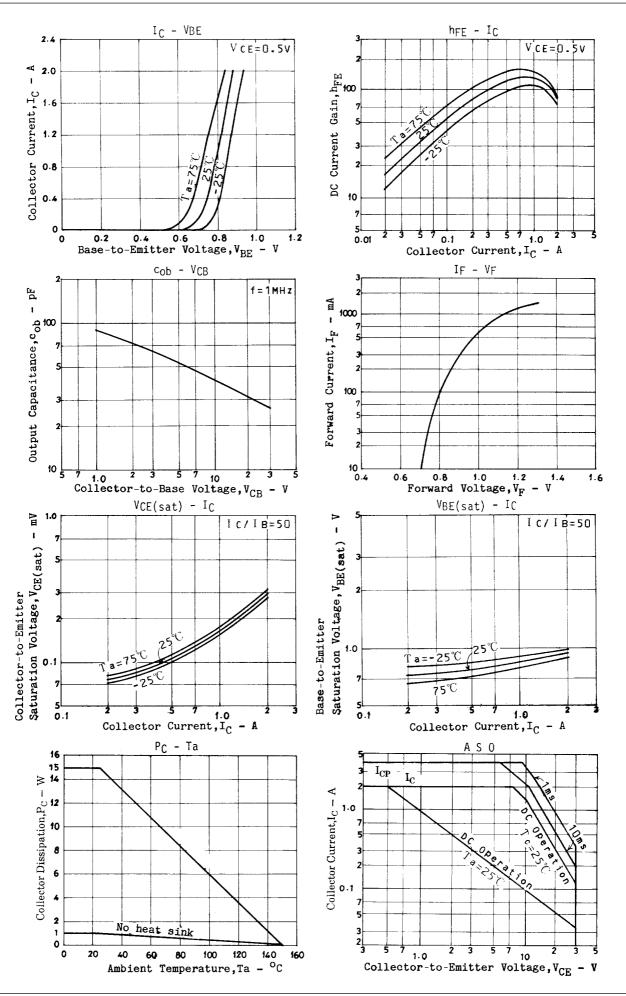
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
Collector Cutoff Current	ICBO	V <sub>CB</sub> =20V, I <sub>E</sub> =0			1.0	μΑ
DC Current Gain	h <sub>FE</sub> 1	V <sub>CE</sub> =0.5V, I <sub>C</sub> =0.5A	50			
	h <sub>FE</sub> 2	V <sub>CE</sub> =0.5V, I <sub>C</sub> =2A	50			
Gain-Bandwidth Product	fT	V <sub>CE</sub> =2V, I <sub>C</sub> =0.5A		150		MHz
Output Capacitance	Cob	V <sub>CB</sub> =10V, f=1MHz		40		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	I <sub>C</sub> =2A, I <sub>B</sub> =40mA		0.25	0.5	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =2A, I <sub>B</sub> =40mA		0.92	1.5	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =10µA, I <sub>E</sub> =0	40			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I <sub>C</sub> =10mA, R <sub>BE</sub> =∞	30			V
Forward Voltage	VF	I <sub>F</sub> =0.3A		0.9	1.2	V
Resistance between Base and Emitter	R <sub>BE</sub>			1.0		kΩ

### **Electrical Connection**









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