



# 2SD1805

## High-Current Switching Applications

### Applications

- Strobes, voltage regulators, relay drivers, lamp drivers.

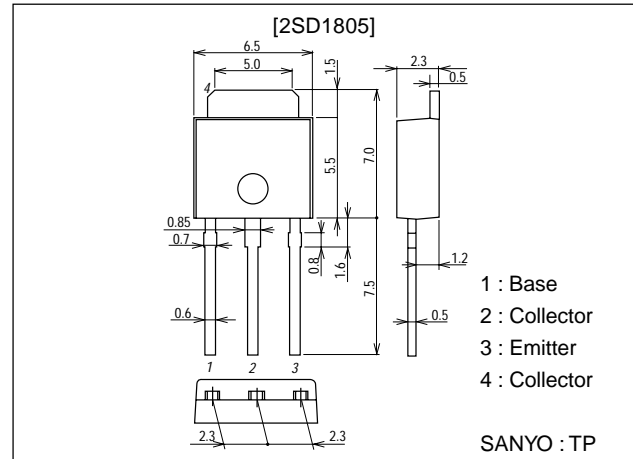
### Features

- Low saturation voltage.
- Fast switching time.
- Large current capacity.
- Small and slim package making it easy to make 2SD1805-applied sets smaller.

### Package Dimensions

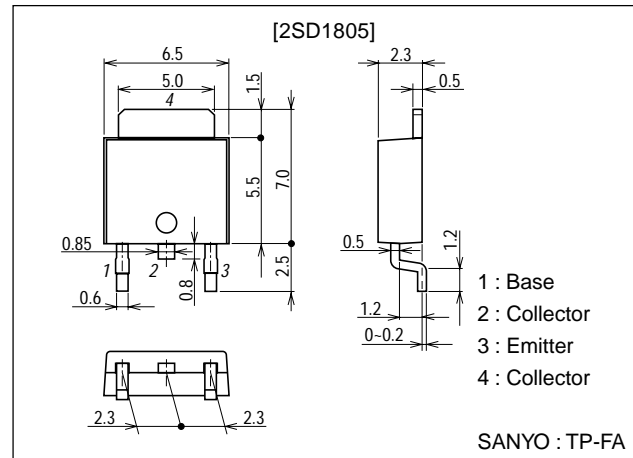
unit:mm

2045B



unit:mm

2044B



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# 2SD1805

## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		20	V
Emitter-to-Base Voltage	$V_{EBO}$		6	V
Collector Current	$I_C$		5	A
Collector Current (Pulse)	$I_{CP}$		8	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	$^\circ\text{C}$

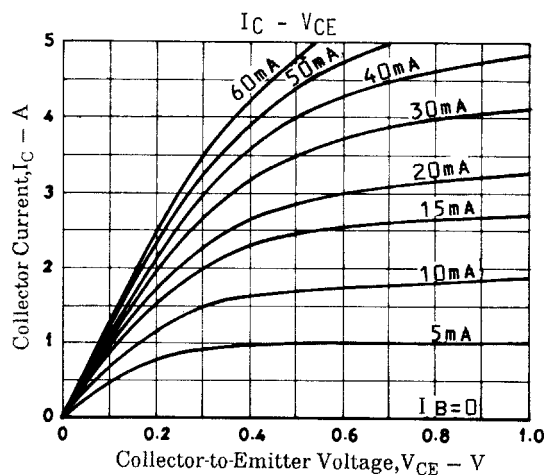
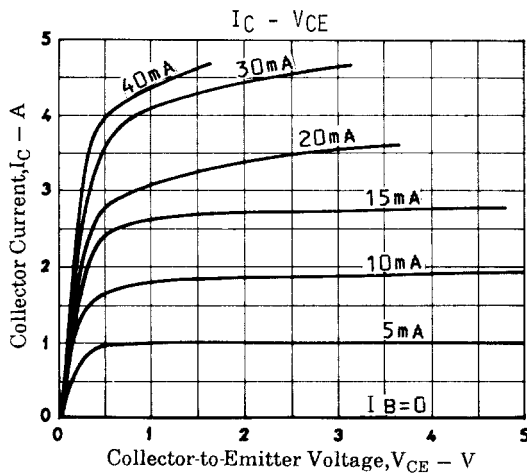
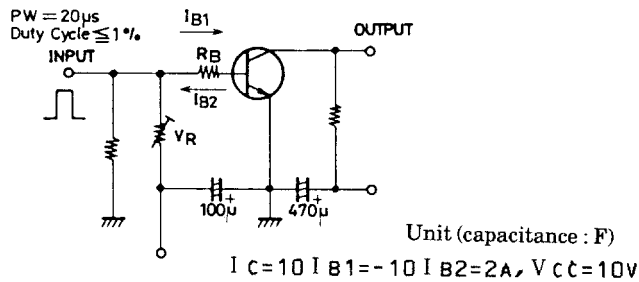
### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			100	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	120*		560*	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=3\text{A}$	95			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}$		120		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		45		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=60\text{mA}$		220	500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3\text{A}, I_B=60\text{mA}$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		300		ns
Fall Time	$t_f$	See specified Test Circuit.		40		ns

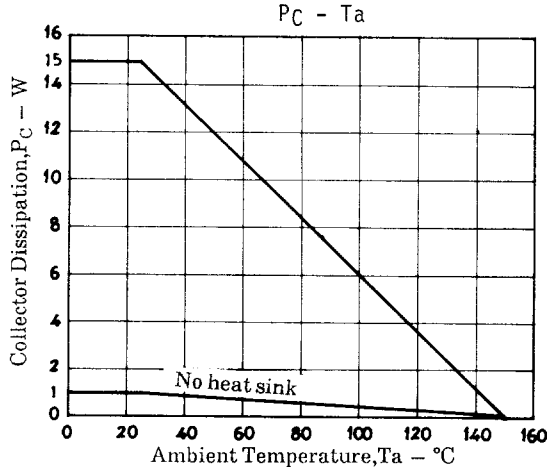
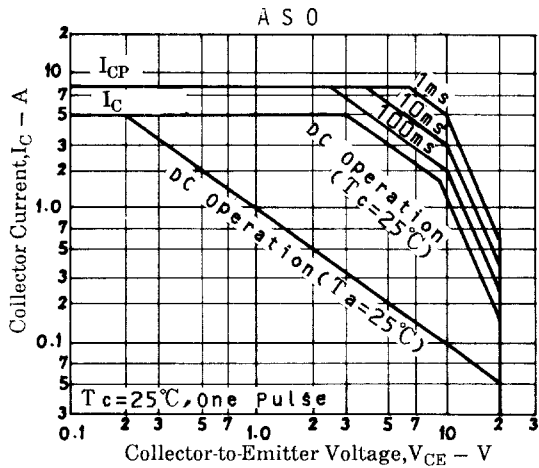
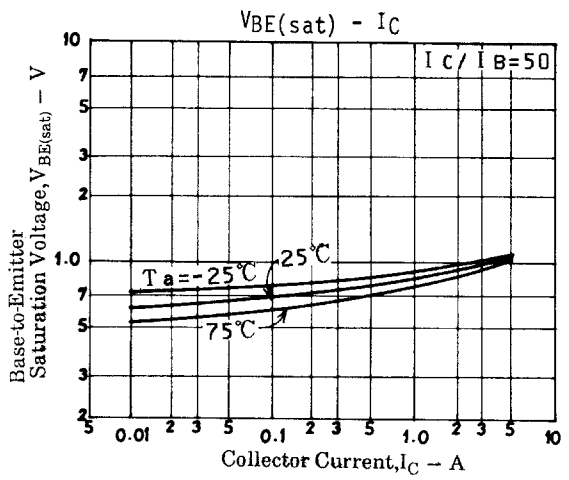
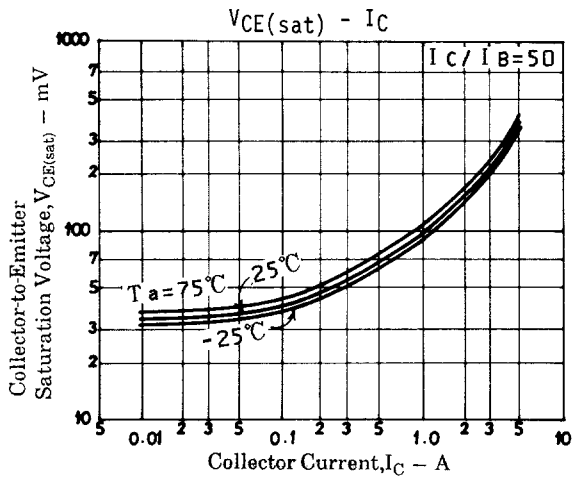
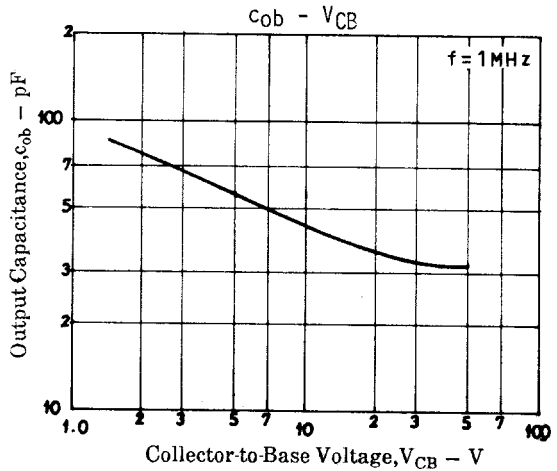
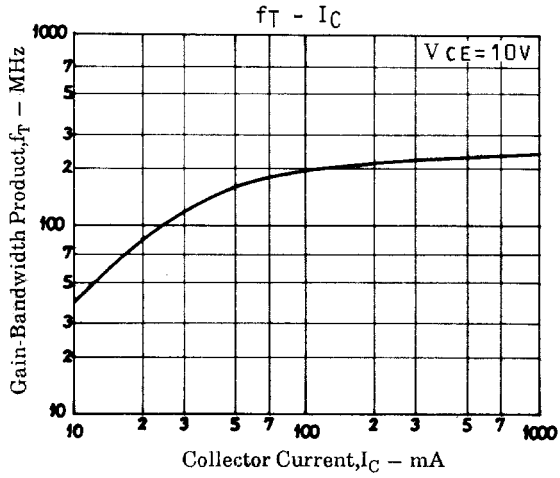
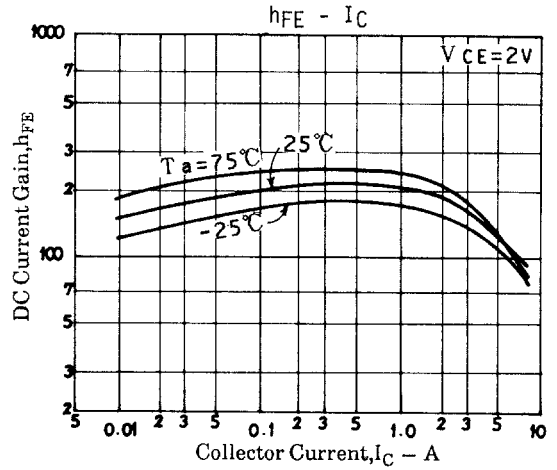
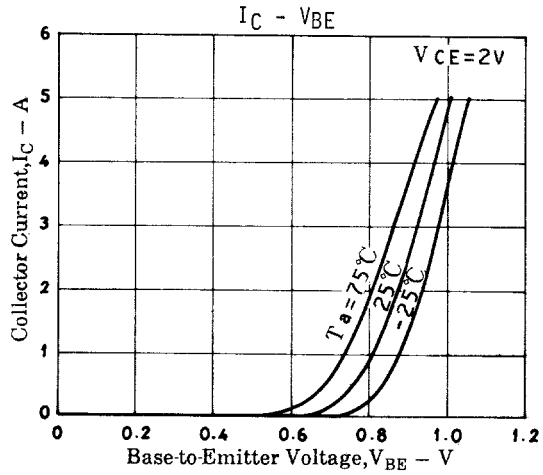
\* : The 2SD1805 is classified by 500mA  $h_{FE}$  as follows :

120	E	200	160	F	320	280	G	560
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### Switching Time Test Circuit



# 2SD1805



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