

**2SB1205**

## Strobe High-Current Switching Applications

### Applications

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

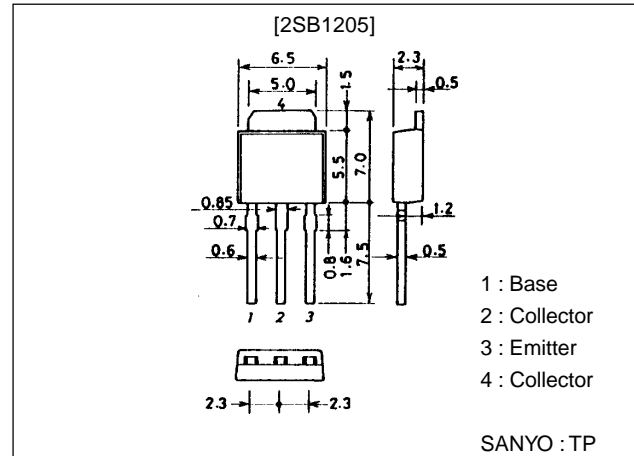
### Features

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.
- Small and slim package making it easy to make 2SB1205-applied sets smaller.

### Package Dimensions

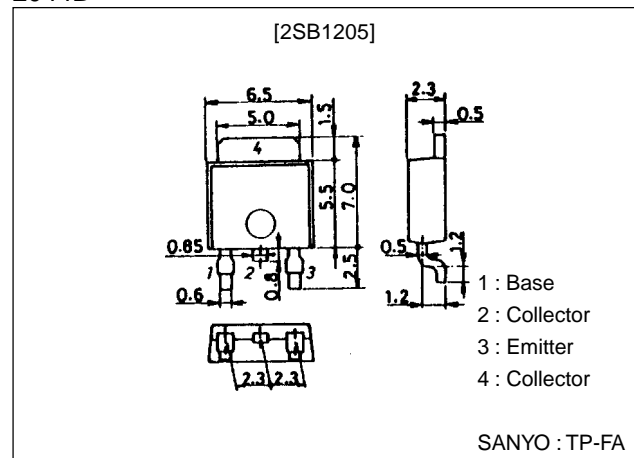
unit:mm

2045B



unit:mm

2044B



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# 2SB1205

## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-25	V
Collector-to-Emitter Voltage	$V_{CEO}$		-20	V
Emitter-to-Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-5	A
Collector Current (Pulse)	$I_{CP}$		-8	A
Base Current	$I_B$		-0.5	A
Collector Dissipation	$P_C$		1	W
		$T_c=25^\circ\text{C}$	10	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

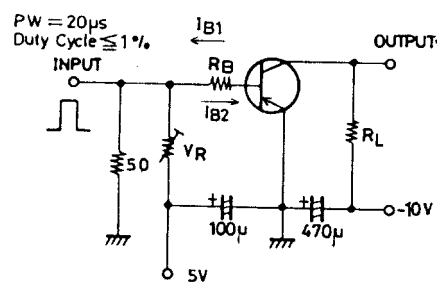
### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-20\text{V}, I_E=0$			-500	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			-500	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=-2\text{V}, I_C=500\text{mA}$	100*		400*	
	$h_{FE2}$	$V_{CE}=-2\text{V}, I_C=-4\text{A}$	60			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-5\text{V}, I_C=-200\text{mA}$		320		MHz
Output Capacitance	$C_{ob}$	$V_{CE}=-10\text{V}, f=1\text{MHz}$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		-250	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		-1.0	-1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-20			V
Emitter-to-Base Breakdown Voltage	$V_{(BE)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		40		ns
Storage Time	$t_{stg}$	See specified Test Circuit		200		ns
Fall Time	$t_f$	See specified Test Circuit		10		ns

\* : The 2SB1205 is classified by 500mA  $h_{FE}$  as follows :

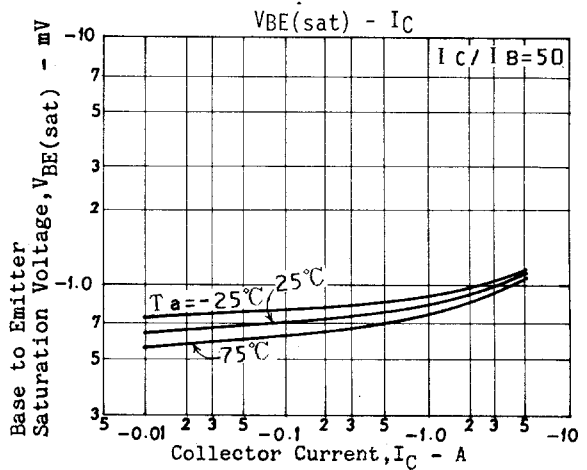
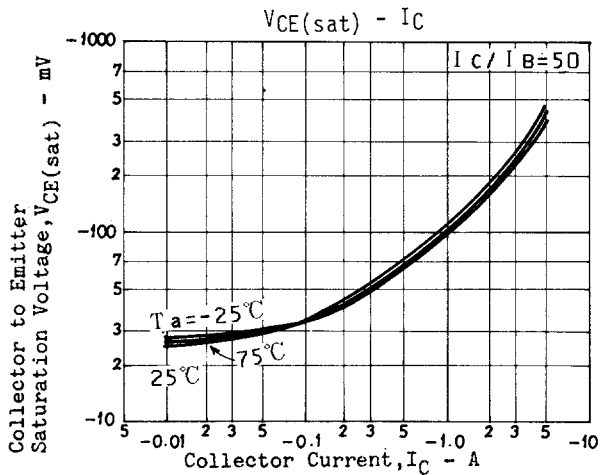
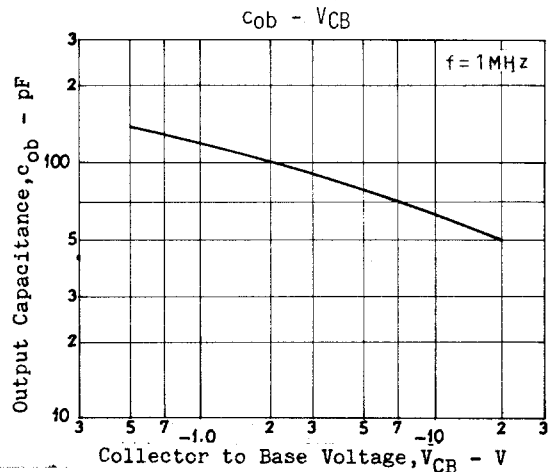
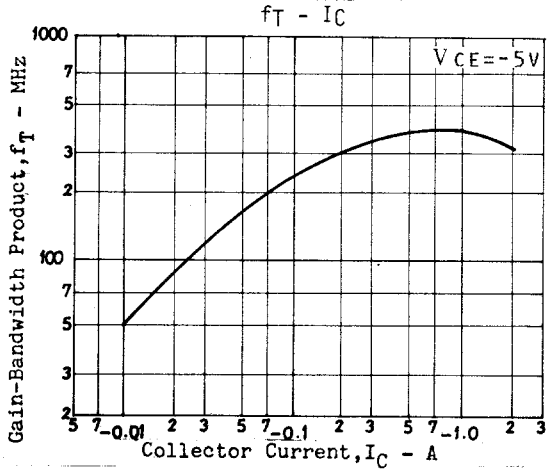
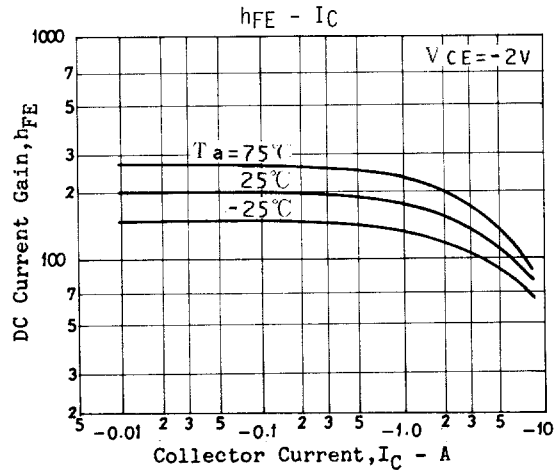
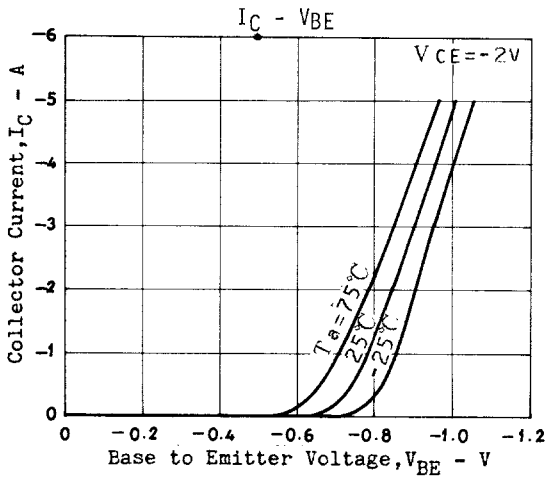
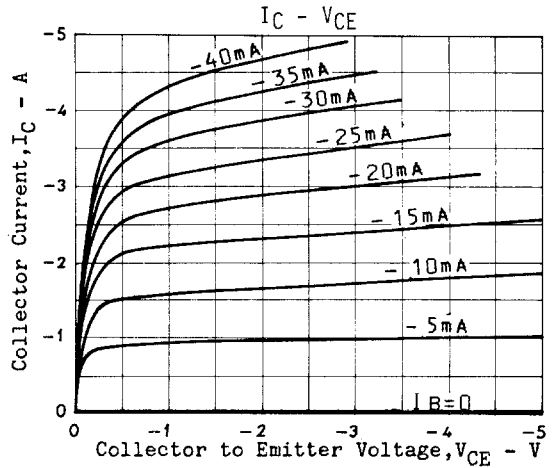
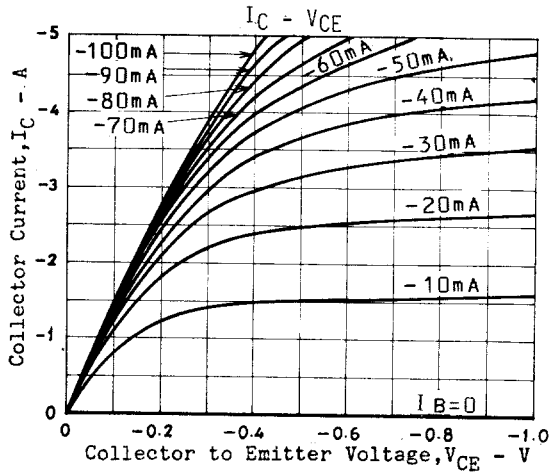
100 R 200	140 S 280	200 T 400
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### Switching Time Test Circuit

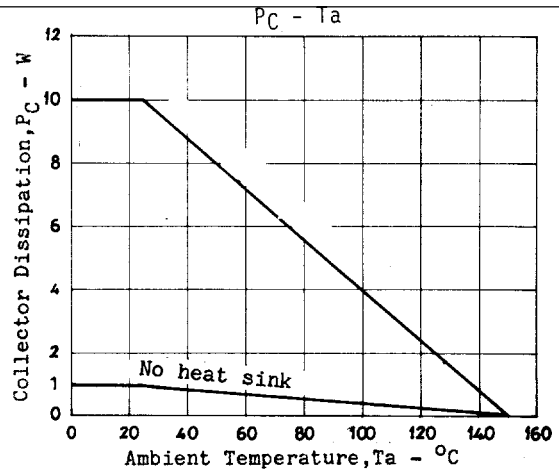
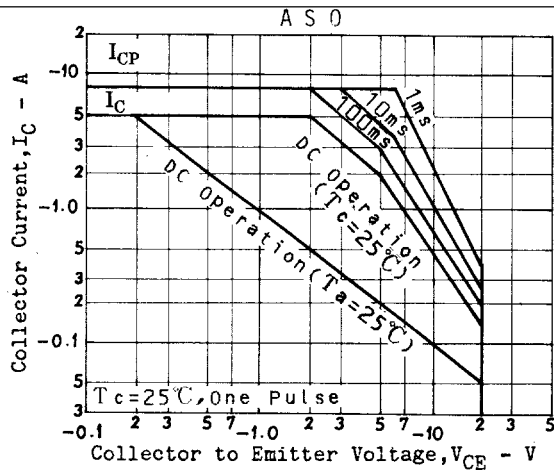


$I_C = -10 \text{ I}_B1 = 10 \text{ I}_B2 = -2 \text{ A}$   
 Unit (resistance :  $\Omega$ , capacitance : F)

2SB1205



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