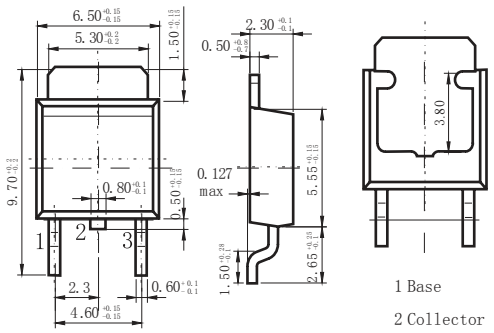
NPN Transistors

2SD1805

TO-252

Unit: mm



■ Features

- Low Collector-to-Emitter Saturation Voltage
- Fast Switching Speed
- Large current capacity

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	20	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	5	A
Collector Current - Pulse	I_{CP}	8	
Collector Power Dissipation Tc = 25℃	P_C	15	W
Ta = 25℃		1	
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E= 0	60			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA, R_{BE}= ∞	20			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μ A, I_C= 0	6			
Collector-base cut-off current	I_{CBO}	V_{CB}= 50 V , I_E= 0			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=3 A, I_B=60mA		0.22	0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=3 A, I_B=60mA			1.5	
DC current gain	$h_{FE(1)}$	V_{CE}= 2V, I_C= 500mA	120		560	
	$h_{FE(2)}$	V_{CE}= 2V, I_C= 3 A	95			
Turn-on Time	t_{on}	See Test Circuit		30		ns
Storage Time	t_{stg}			300		
Fall Time	t_f			40		
Collector output capacitance	C_{ob}	V_{CB}= 10V, I_E= 0,f=1MHz		45		pF
Transition frequency	f_T	V_{CE}= 10V, I_C= 50 mA		120		MHz

■ Classification of $h_{fe(1)}$

Type	2SD1805-E	2SD1805-F	2SD1805-G
Range	120-200	160-320	280-560

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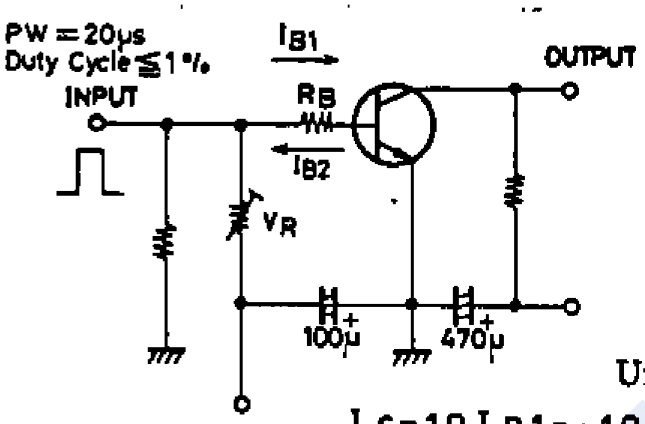
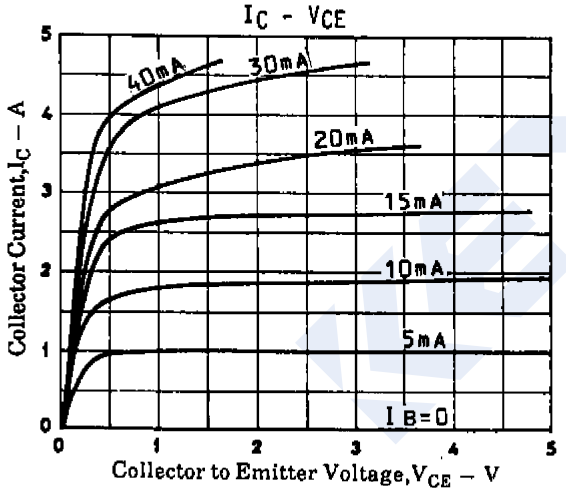
Switching Time Test Circuit

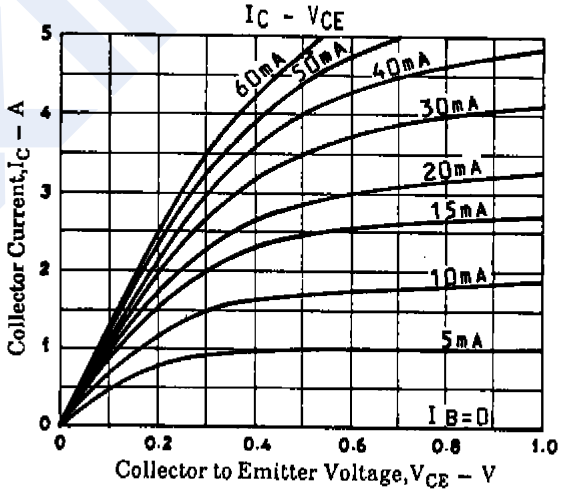


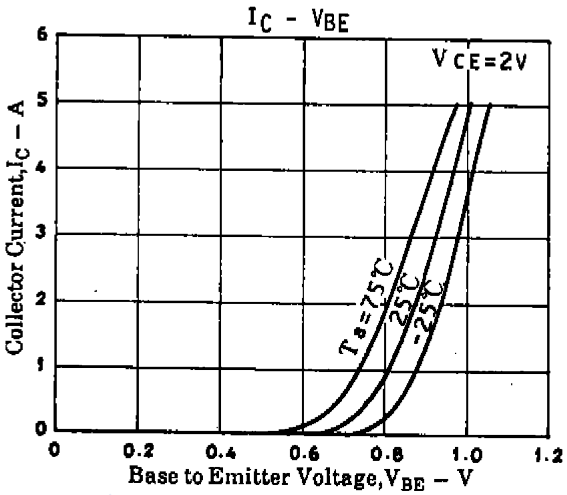
Unit (Capacitance : F)

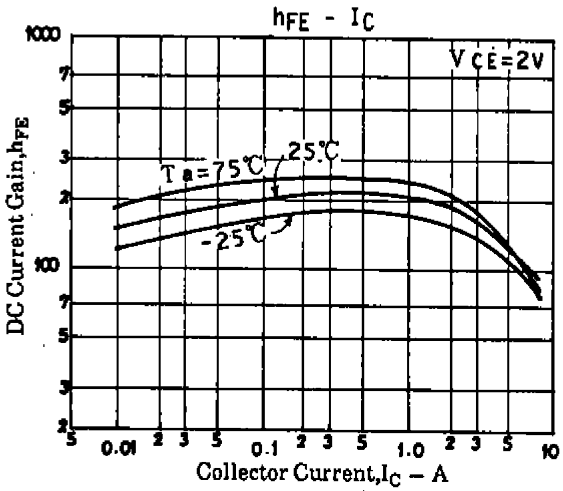
$I_C = 10 I_{B1} = -10 I_{B2} = 2A$, $V_{CC} = 10V$

■ Typical Characterisitics









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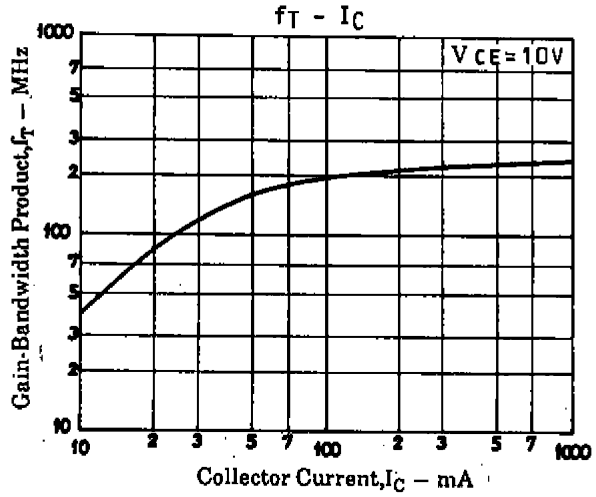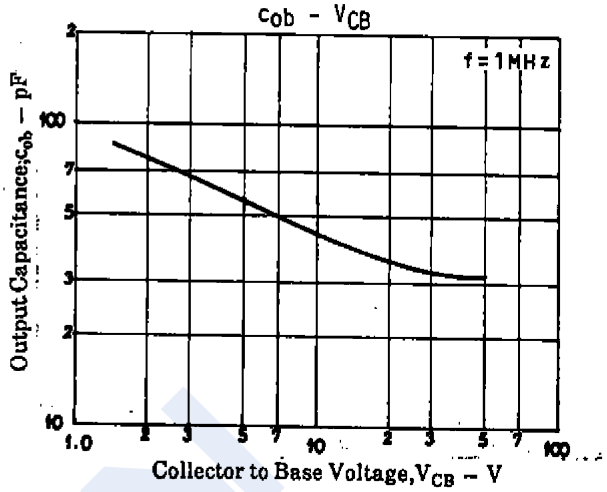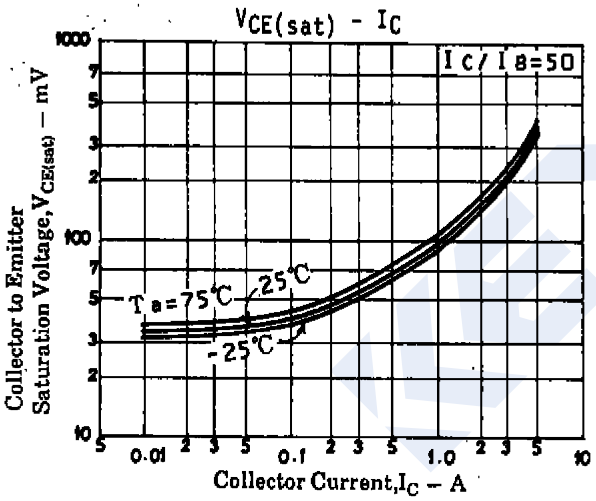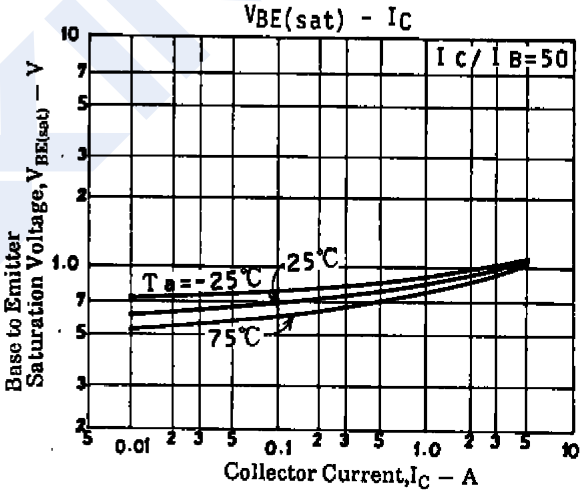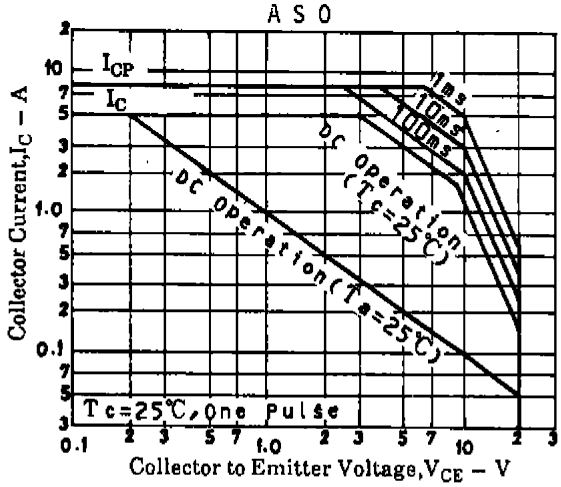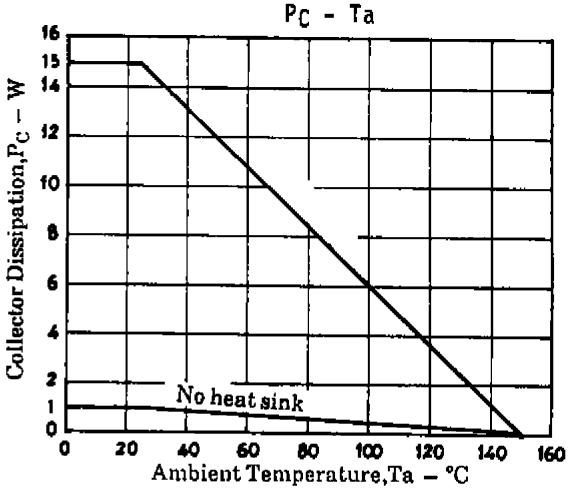
■ Typical Characterisitics