

2SB1203/2SD1803

High-Current Switching Applications

Applications

· Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

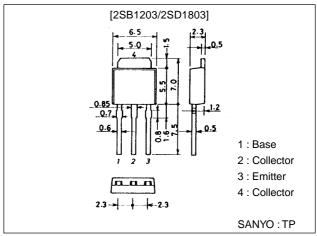
Features

- · Low collector-to-emitter saturation voltage.
- · High current and high f_T.
- · Excellent linearity of hFF.
- · Fast switching speed.
- · Small and slim package making it easy to make 2SB1203/2SD1803-applied sets smaller.

Package Dimensions

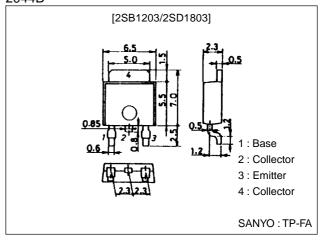
unit:mm

2045B



unit:mm

2044B



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(): 2SB1203

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		(-)60	V
Collector-to-Emitter Voltage	V _{CEO}		(-)50	V
Emitter-to-Base Voltage	V _{EBO}		(–)6	V
Collector Current	IC		(–)5	Α
Collector Current (Pulse)	I _{CP}		(–)8	Α
Collector Dissipation	PC		1	W
		Tc=25°C	20	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

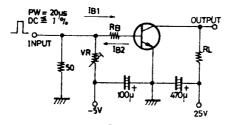
Electrical Characteristics at Ta = 25°C

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Parameter	Symbol	Conditions	min	typ	max	Unit	
Collector Cutoff Current	I _{CBO}	V _{CB} =(-)40V, I _E =0			(–)1	μA	
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)1	μA	
DC Current Gain	h _{FE} 1	V _{CE} =(-)2V, I _C =(-)0.5A	70*		400*		
	h _{FE} 2	V _{CE} =(-)2V, I _C =(-)4A	35				
Gain-Bandwidth Product	fT	V _{CE} =(-)5V, I _C =(-)1A		(130)		MHz	
				180		MHz	
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(60)40		pF	
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)3A, I _B =(-)0.15A		220	400	mV	
				(-280)	(-550)	mV	
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =(-)3A, I _B =(-)0.15A		(-)0.95	(–)1.3	V	
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =(-)10μΑ, I _E =0	(–)60			V	
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =(-)1mA, R _{BE} =∞	(–)50			V	
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I _E =(-)10μA, I _C =0	(–)6			V	
Turn-ON Time	ton	See specified Test Circuit		50(50)		ns	
Storage Time	t _{stg}	See specified Test Circuit		(450)		ns	
				500		ns	
Fall Time	t _f	See specified Test Circuit		(20)20		ns	

 $[\]mbox{\ensuremath{*}}$: The 2SB1203/2SD1803 are classified by 0.5A $\mbox{\ensuremath{h_{FE}}}$ as follows :

70 Q 14	100 R	200	140	S	280	200	Т	400
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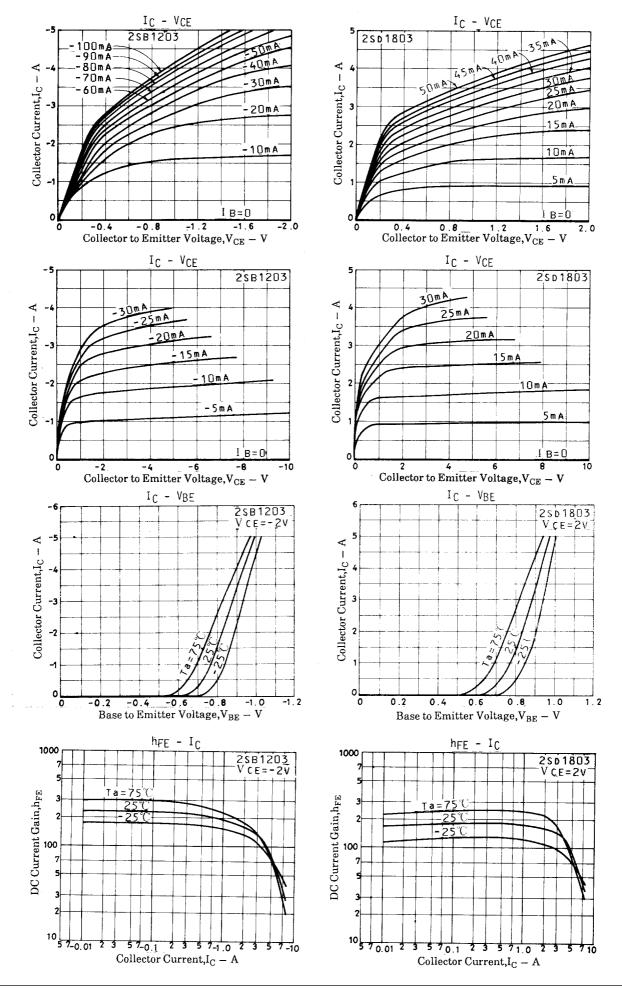
Switching Time Test Circuit

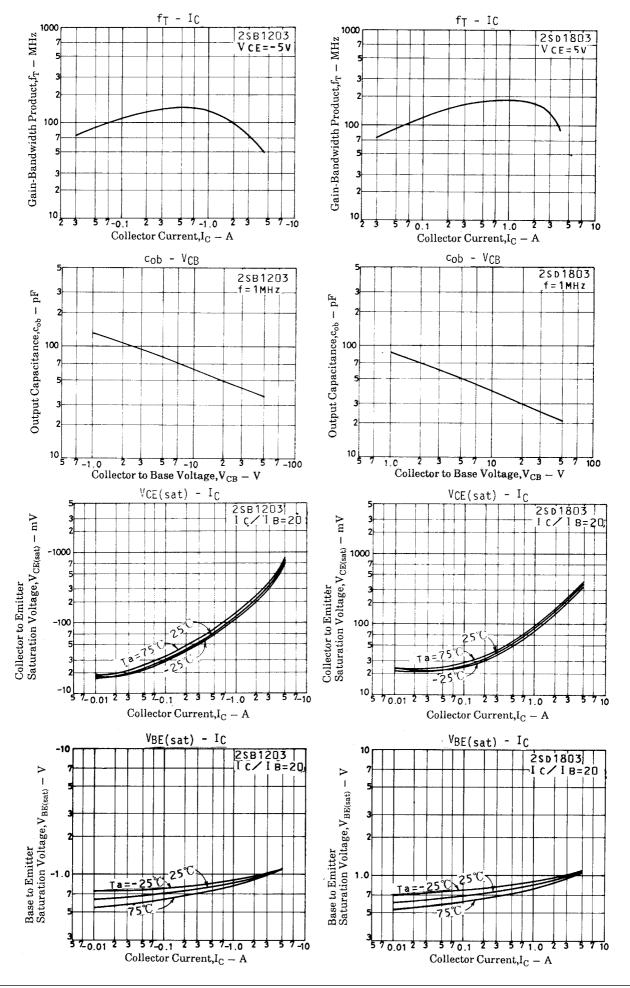


I c=10 I B1=-10 I B2=2A

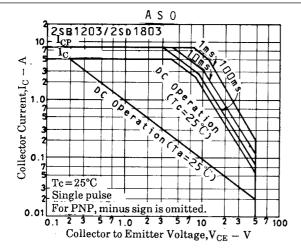
(For PNP, the polarity is reversed.)

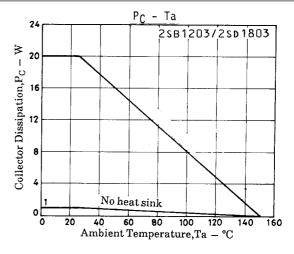
 $Unit \, (resistance: \Omega, capacitance: F)$





2SB1203/2SD1803





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