



2SB1204/2SD1804

High-Current Switching Applications

An ON Semiconductor Company

Applications

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

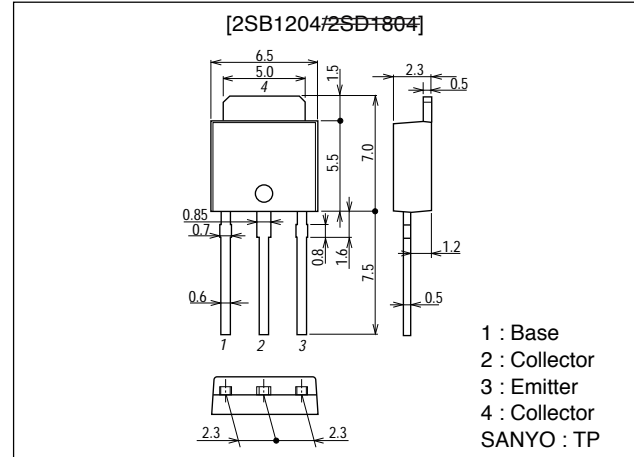
Features

- Low collector-to-emitter saturation voltage.
- High current and high f_T .
- Excellent linearity of h_{FE} .
- Fast switching time.
- Small and slim package making it easy to make 2SB1204/2SD1804-applied sets smaller.

Package Dimensions

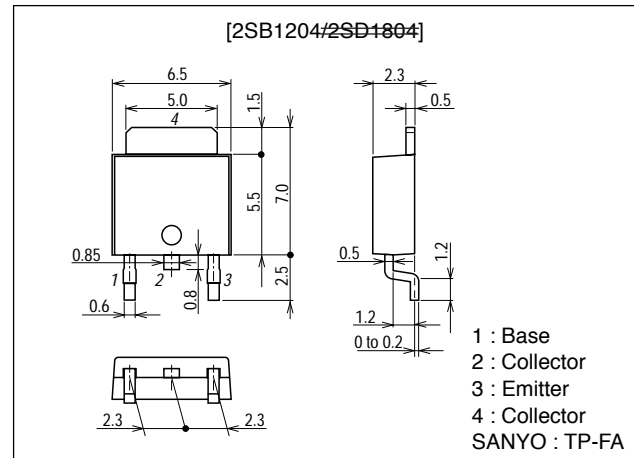
unit:mm

2045B



unit:mm

2044B



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2SB1204/2SD1804

() : 2SB1204

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CEO}		(-60)	V
Collector-to-Emitter Voltage	V _{CE0}		(-50)	V
Emitter-to-Base Voltage	V _{EBO}		(-6)	V
Collector Current	I _C		(-8)	A
Collector Current (Pulse)	I _{CP}		(-12)	A
Collector Dissipation	P _C		1	W
		T _c =25°C	20	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

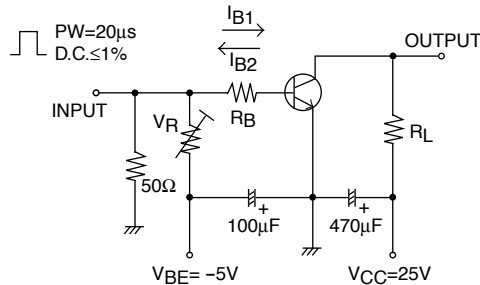
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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 _{FE1}	V _{CE} =(-)2V, I _C =(-)0.5A	70*		400*	
	h _{FE2}	V _{CE} =(-)2V, I _C =(-)6A	35			
Gain-Bandwidth Product	f _T	V _{CE} =(-)5V, I _C =(-)1A		(130)		MHz
				180		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(95) 65		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)4A, I _B =(-)0.2A		200	400	mV
				(-250)	(-500)	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =(-)4A, I _B =(-)0.2A		(-0.95)	(-1.3)	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =(-)10μA, 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	t _{on}	See specified Test Circuit		(50)		ns
Storage Time	t _{stg}	See specified Test Circuit		(450)		ns
				500		ns
Fall Time	t _f	See specified Test Circuit		20		ns

* : The 2SB1204/2SD1804 are classified by 0.5A h_{FE} as follows :

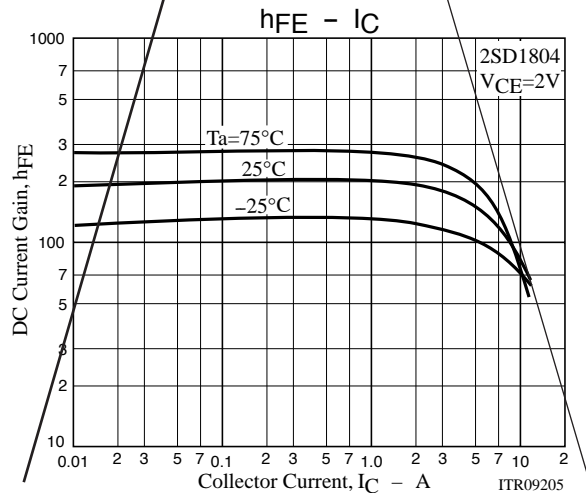
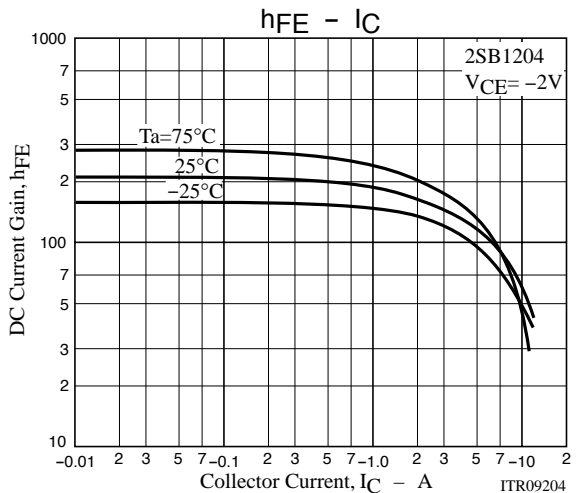
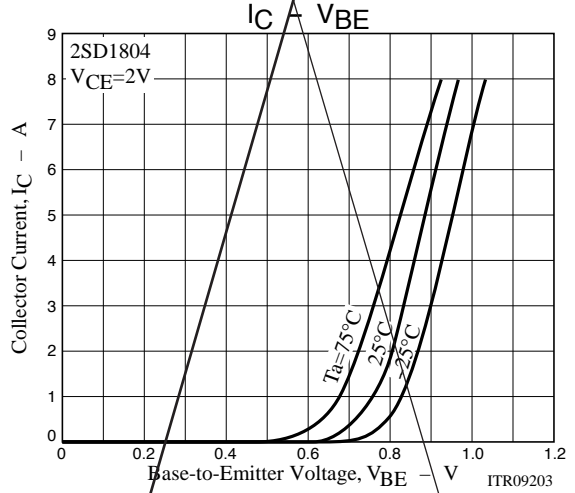
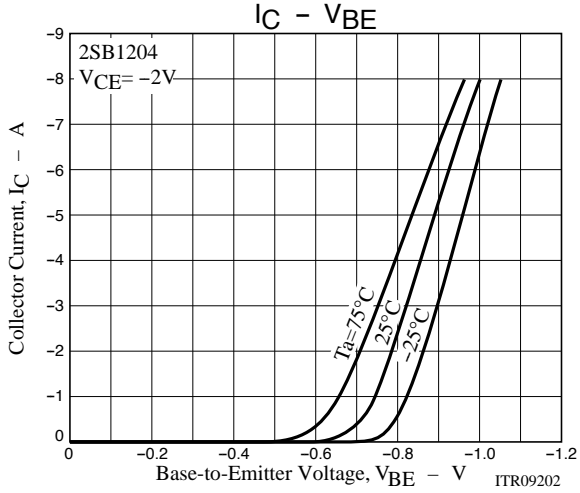
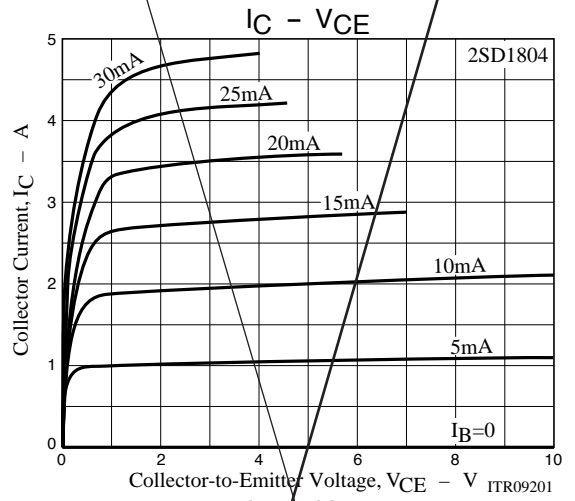
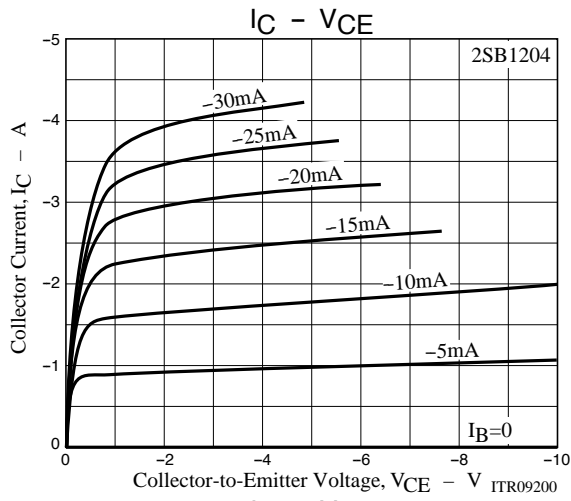
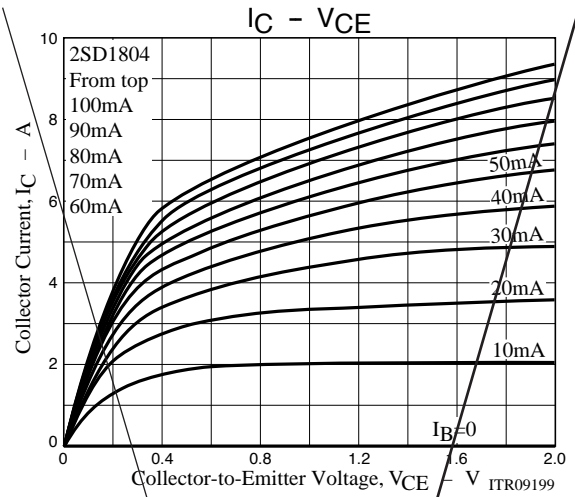
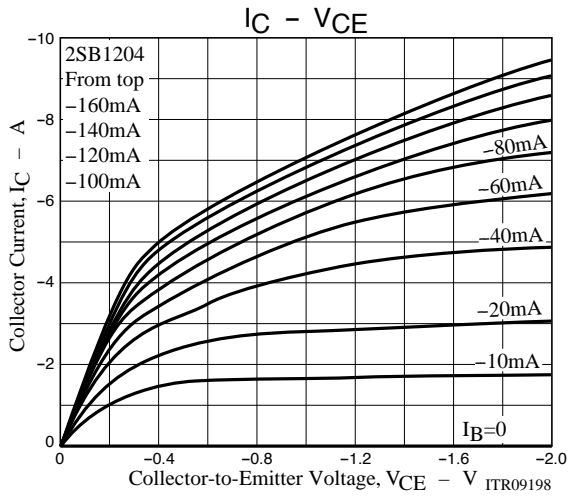
Rank	Q	R	S	T
h _{FE}	70 to 140	100 to 200	140 to 280	200 to 400

Switching Time Test Circuit

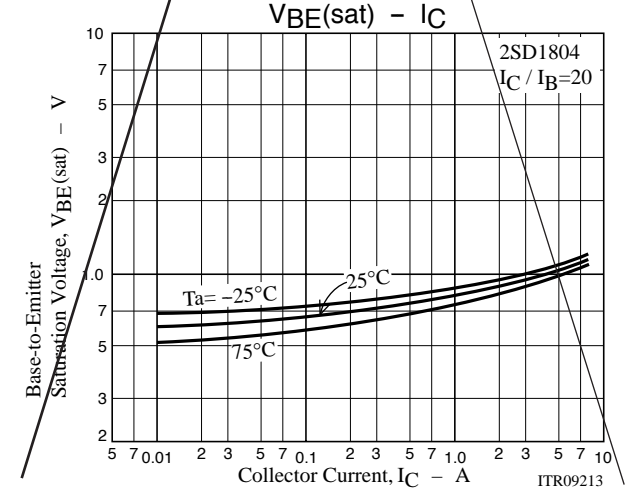
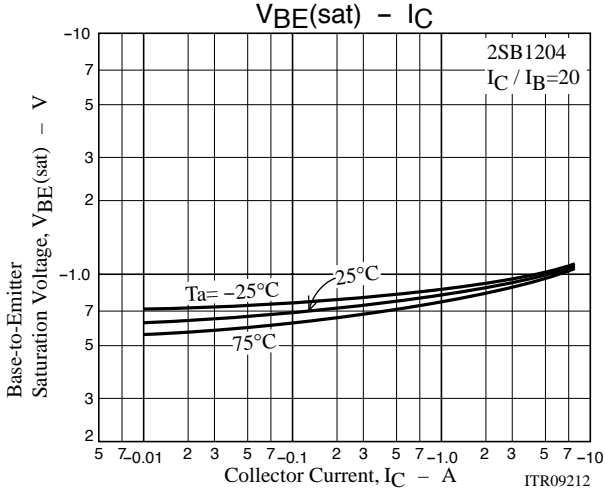
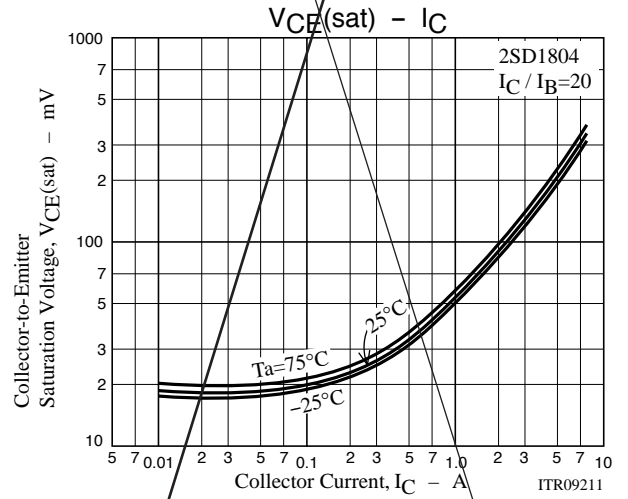
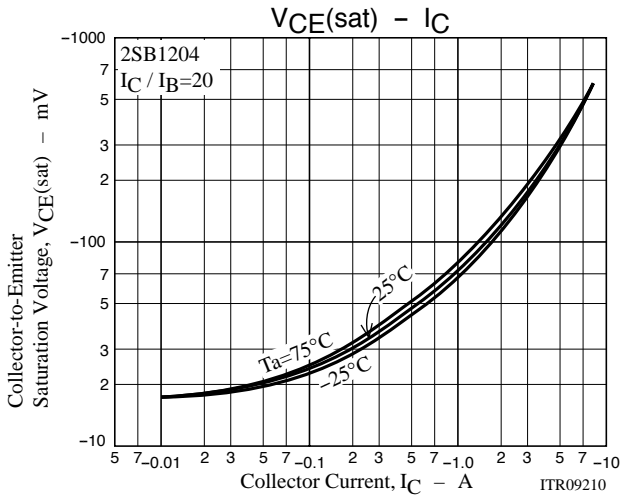
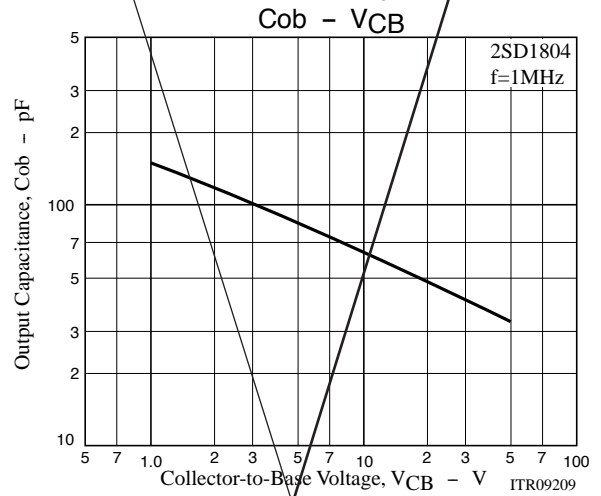
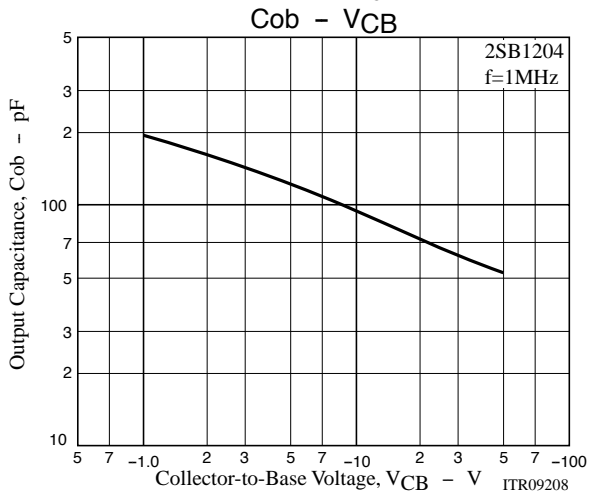
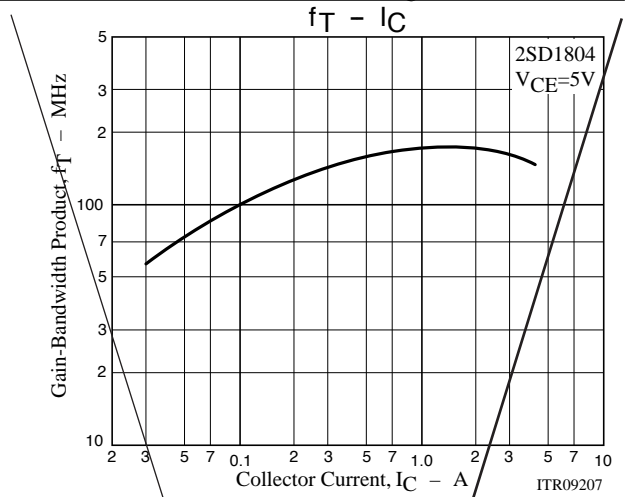
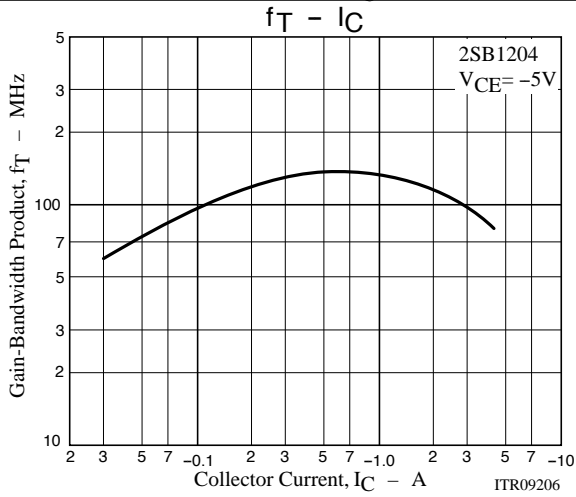


IC=10IB1 = -10IB2=4A
 (For PNP, the polarity is reversed.)

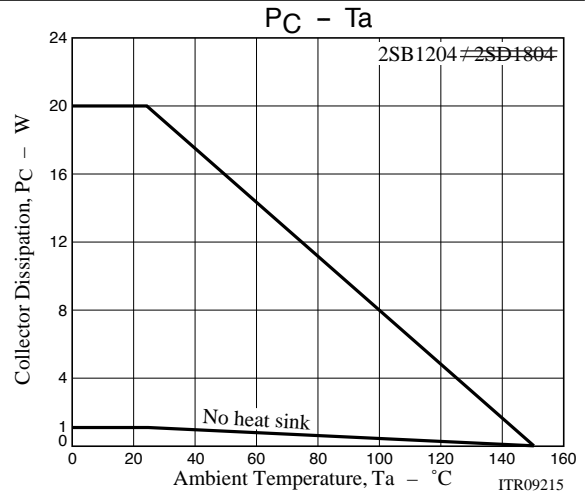
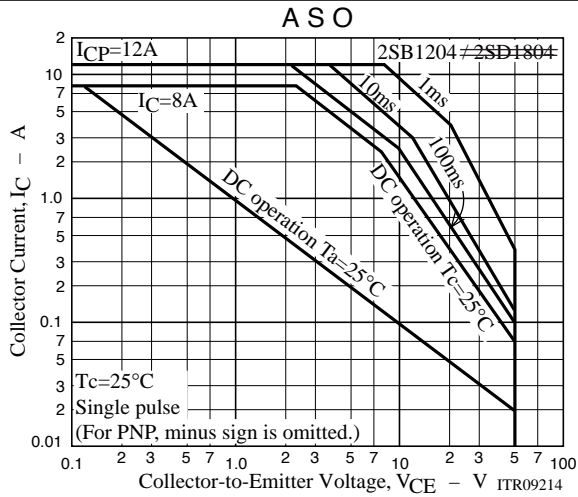
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