

High-Current Switching Applications

2SB1204

■ Features

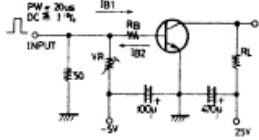
- Low collector-to-emitter saturation voltage.
- High current and high f_T .
- Excellent linearity of h_{FE} .
- Fast switching time.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-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
$T_a = 25^\circ\text{C}$		20	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	ICBO	V _{CB} = -40V , I _E = 0			-1	μA	
Emitter cutoff current	IEBO	V _{EB} = -4V , I _C = 0			-1	μA	
DC current Gain	h _{FE}	V _{CE} = -2V , I _C = -0.5A	70		400		
		V _{CE} = -2V , I _C = -6A	35				
Gain bandwidth product	f _T	V _{CE} = -5V , I _C = -1A		130		MHz	
Output capacitance	C _{ob}	V _{CB} = -10V , f = 1MHz		95		pF	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = -4A , I _B = -0.2A		-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}	 <p>I_C = 10 I_{B1} = -10 I_{B2} = 4A (For PNP, the polarity is reversed.) Unit (resistance : Ω, capacitance : F)</p>		50		ns	
Storage time	t _{stg}				450		ns
Fall time	t _f				20		ns

■ hFE Classification

Rank	Q	R	S	T
hFE	70~140	100~200	140~280	200~400