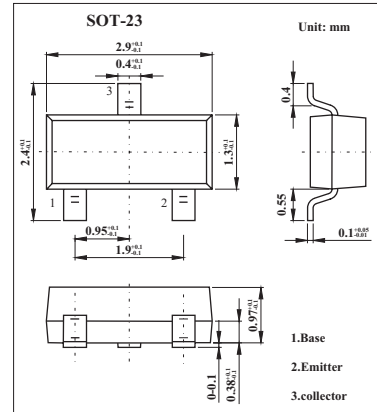


■ Features

- High current (max. 800 mA).
- Low voltage (max. 40 V).



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	BSR13	BSR14	Unit
Collector-base voltage	V _{CB0}	60	75	V
Collector-emitter voltage	V _{CEO}	30	40	V
Emitter-base voltage	V _{EB0}	5	6	V
Collector current	I _C	800		mA
Peak collector current	I _{CM}	800		mA
Peak base current	I _{BM}	200		mA
Total power dissipation	P _{tot}	250		mW
Storage temperature	T _{stg}	-65 to +150		°C
Junction temperature	T _j	150		°C
Operating ambient temperature	R _{amb}	-65 to +150		°C
Thermal resistance from junction to ambient *	R _{th j-a}	500		K/W

* Transistor mounted on an FR4 printed-circuit board.

BSR13,BSR14

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector cutoff current	BSR13	ICBO	IE = 0; VCB = 50 V		30	nA
			IE = 0; VCB = 50 V; Tj = 150 °C		10	μA
	BSR14	ICBO	IE = 0; VCB = 60 V		10	nA
			IE = 0; VCB = 60 V; Tj = 150 °C		10	μA
Emitter cutoff current	BSR13	IEBO	IC = 0; VEB = 5 V		30	nA
	BSR14		IC = 0; VEB = 5 V		10	nA
DC current gain *		hFE	IC = 0.1 mA; VCE = 10 V;	35		
			IC = 1 mA; VCE = 10 V;	50		
			IC = 10 mA; VCE = 10 V;	75		
			IC = 150 mA; VCE = 10 V	100	300	
			IC = 150 mA; VCE = 1 V;	50		
DC current gain *	BSR13	hFE	IC = 500 mA; VCE = 10 V;		30	
	BSR14		IC = 500 mA; VCE = 10 V;		40	
collector-emitter saturation voltage	BSR13	VCEsat	IC = 150 mA; IB = 15 mA		400	mV
	BSR14		IC = 150 mA; IB = 15 mA		300	mV
collector-emitter saturation voltage	BSR13	VCEsat	IC = 500 mA; IB = 50 mA		1.6	V
	BSR14		IC = 500 mA; IB = 50 mA		1	V
base-emitter saturation voltage	BSR13	VBEsat	IC = 150 mA; IB = 15 mA		1.3	V
	BSR14		IC = 150 mA; IB = 15 mA		0.6	1.2
base-emitter saturation voltage	BSR13	VBEsat	IC = 500 mA; IB = 50 mA		2.6	V
	BSR14		IC = 500 mA; IB = 50 mA		2	V
Collector capacitance	Cc	IE = IB = 0; VCB = 10 V; f = 1 MHz		8		pF
Transition frequency	BSR13	fT	IC = 20 mA; VCE = 20 V; f = 100 MHz		250	MHz
	BSR14		IC = 20 mA; VCE = 20 V; f = 100 MHz		300	MHz
Turn-on time	ton	ICon = 150 mA; IBon = 15 mA; IBoff = -15 mA			35	ns
Delay time	td				15	ns
Rise time	tr				20	ns
Turn-off time	toff				250	ns
Storage time	ts				200	ns
Fall time	tf				60	ns

* Pulse test: tp ≤ 300 μs; d ≤ 0.02.

■ hFE Classification

TYPE	BSR13	BSR14
Marking	U7	U8