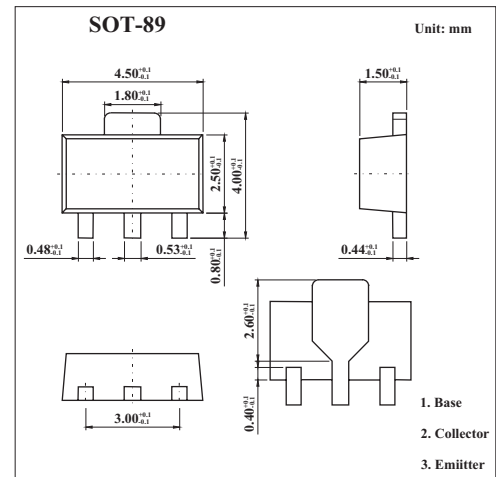


PNP Medium Power Transistors

BSR30,BSR31,BSR33

■ Features

- High current (max. 1 A)
- Low voltage (max. 80 V).

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-70	V
		-90	V
Collector-emitter voltage	V_{CEO}	-60	V
		-80	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-1	A
Peak collector current	I_{CM}	-2	A
Peak base current	I_{BM}	-200	mA
Total power dissipation	P_{tot}	1.35	W
Storage temperature	T_{stg}	-65 to +150	$^\circ\text{C}$
Junction temperature	T_j	150	$^\circ\text{C}$
Operating ambient temperature	R_{amb}	-65 to +150	$^\circ\text{C}$
Thermal resistance from junction to ambient	$R_{th(j-a)}$	93	K/W
Thermal resistance from junction to soldering point	$R_{th(j-s)}$	13	K/W

BSR30,BSR31,BSR33■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector cutoff current	ICBO	$I_E = 0; V_{CB} = -60\text{ V}$			-100	nA
		$I_E = 0; V_{CB} = -60\text{ V}; T_J = 150^\circ\text{C}$			-50	μA
Emitter cutoff current	IEBO	$I_C = 0; V_{EB} = -5\text{ V}$			-100	nA
DC current gain * BSR30 BSR31; BSR33	hFE	$I_C = -100\text{ mA}; V_{CE} = -5\text{ V};$	10			
			30			
DC current gain * BSR30 BSR31,BSR33	hFE	$I_C = -100\text{ mA}; V_{CE} = -5\text{ V}$	40		120	
			100		300	
DC current gain * BSR30 BSR31,BSR33	hFE	$I_C = -500\text{ mA}; V_{CE} = -5\text{ V};$	30			
			50			
collector-emitter saturation voltage *	VCEsat	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$			-0.25	V
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$			-0.5	V
base-emitter saturation voltage *	VBEsat	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$			-1	V
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$			-1.2	V
Transition frequency	fr	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	100			MHz

* Pulse test: $t_p = 300\text{ }\mu\text{s}; \delta \leq 0.01$.

■ hFE Classification

TYPE	BSR30	BSR31	BSR33
Marking	BR1	BR2	BR4