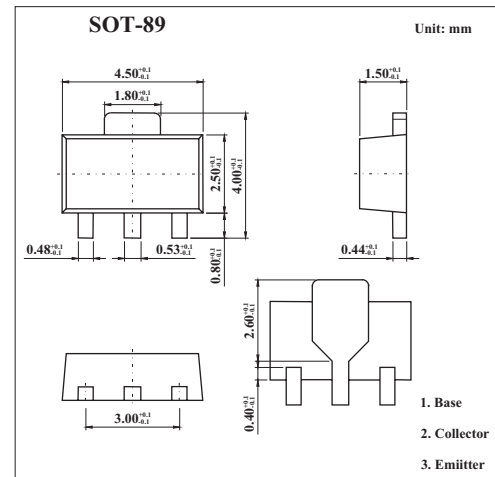


NPN Medium Power Transistors

BSR40; BSR41; BSR42; BSR43

■ 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 (open emitter)	V_{CB0}	BSR40,BSR41	70	V
		BSR42,BSR43	90	V
Collector-emitter voltage (open base)	V_{CE0}	BSR40,BSR41	60	V
		BSR42,BSR43	80	V
Emitter-base voltage (open collector)	V_{EB0}	5	V	
Collector current	I_C	1	A	
Peak collector current	I_{CM}	2	A	
Peak base current	I_{BM}	0.2	A	
Total power dissipation $T_{amb} \leq 25^\circ\text{C}$;	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	

BSR40; BSR41; BSR42; BSR43■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit	
Collector cutoff current	I _{CBO}	I _E = 0; V _{CB} = 60 V			100	nA	
		I _E = 0; V _{CB} = 60 V; T _j = 150 °C			50	μA	
Emitter cutoff current	I _{EBO}	I _C = 0; V _{EB} = 5 V			100	nA	
DC current gain *	BSR40,BSR42 BSR41,BSR43	h _{FE}	I _C = 100 mA; V _{CE} = 5 V;	10			
				30			
DC current gain *	BSR40,BSR42 BSR41,BSR43	h _{FE}	I _C = 100 mA; V _{CE} = 5 V	40		120	
				100		300	
DC current gain *	BSR40,BSR42 BSR41,BSR43	h _{FE}	I _C = 500 mA; V _{CE} = 5 V;	30			
				50			
collector-emitter saturation voltage *	V _{CEsat}	I _C = 150 mA; I _B = 15 mA			250	mV	
		I _C = 500 mA; I _B = 50 mA			500	mV	
base-emitter saturation voltage *	V _{BEsat}	I _C = 150 mA; I _B = 15 mA			1	V	
		I _C = 500 mA; I _B = 50 mA			1.2	V	
Collector capacitance	C _c	I _E = i _e = 0; V _{CB} = 10 V; f = 1 MHz			12	pF	
Emitter capacitance	C _e	I _C = i _c = 0; V _{EB} = 0.5 V; f = 1 MHz			90	pF	
Transition frequency	f _T	I _C = 50 mA; V _{CE} = 10 V; f = 100 MHz	100			MHz	
Turn-on time	t _{on}	I _{Con} = 100 mA; I _{Bon} = 5 mA;			250	ns	
Turn-off time	t _{off}	I _{Boff} = -5 mA			1	μs	

* Pulse test: t_p = 300 μs; δ ≤ 0.01.■ h_{FE} Classification

TYPE	BSR40	BSR41	BSR42	BSR43
Marking	AR1	AR2	AR3	AR4