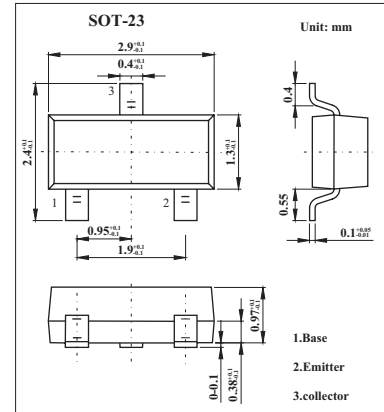


NPN Switching Transistors

BSR17A

■ Features

- High current (max. 100 mA).
- Low voltage (max. 40 V).

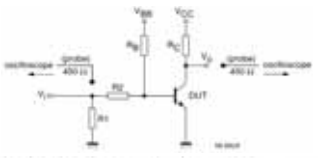
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	60	V
Collector-emitter voltage	V_{CE0}	40	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_C	100	mA
Peak collector current	I_{CM}	200	mA
Peak base current	I_{BM}	100	mA
Total power dissipation	P_{tot}	250	mW
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 *	$R_{th\ j-a}$	500	K/W

* Transistor mounted on an FR4 printed-circuit board.

BSR17A

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	I _{CBO}	I _E = 0 A; V _{CB} = 30 V			50	nA	
		I _E = 0 A; V _{CB} = 30 V; T _j = 150 °C			5	μA	
Emitter cutoff current	I _{EBO}	I _C = 0 A; V _{EB} = 6 V			50	nA	
DC current gain *	h _{FE}	I _C = 10 mA V _{CE} = 1 V;	100		300		
collector-emitter saturation voltage *	V _{CEsat}	I _C = 10 mA; I _B = 1 mA;			200	mV	
		I _C = 50 mA; I _B = 5 mA;			200	mV	
base-emitter saturation voltage *	V _{BEsat}	I _C = 10 mA; I _B = 1 mA;	650		850	mV	
		I _C = 50 mA; I _B = 5 mA;			950	mV	
Collector capacitance	C _c	I _E = i _e = 0 A; V _{CB} = 5 V; f = 1 MHz			4	pF	
Emitter capacitance	C _e	I _C = i _c = 0 A; V _{EB} = 500 mV; f = 1 MHz			8	pF	
Transition frequency	f _T	I _C = 10 mA; V _{CE} = 20 V; f = 100 MHz	300			MHz	
Noise figure	NF	I _C = 100 μA; V _{CE} = 5 V; R _S = 1 kΩ; f = 10 Hz to 15.7 kHz			5	dB	
Turn-on time	t _{on}	I _{Con} = 10 mA; I _{Bon} = 1 mA; I _{Boff} = -1 mA			65	ns	
Delay time	t _d	 <p> $V_i = 5\text{ V}; T = 500\ \mu\text{s}; t_p = 10\ \mu\text{s}; t_r = t_f \leq 3\ \text{ns}.$ $R_1 = 56\ \Omega; R_2 = 2.5\ \text{k}\Omega; R_E = 3.9\ \text{k}\Omega; R_C = 270\ \Omega.$ $V_{BE} = -1.9\ \text{V}; V_{CE} = 3\ \text{V}.$ Oscilloscope input impedance $Z_i = 50\ \Omega.$ </p>			35	ns	
Rise time	t _r					35	ns
Turn-off time	t _{off}					240	ns
Storage time	t _s					200	ns
Fall time	t _f					50	ns

* Pulse test: $t_p \leq 300\ \mu\text{s}; d \leq 0.02.$

■ Marking

Marking	U92 OR 54
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