

SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N silicon transistor

Marking

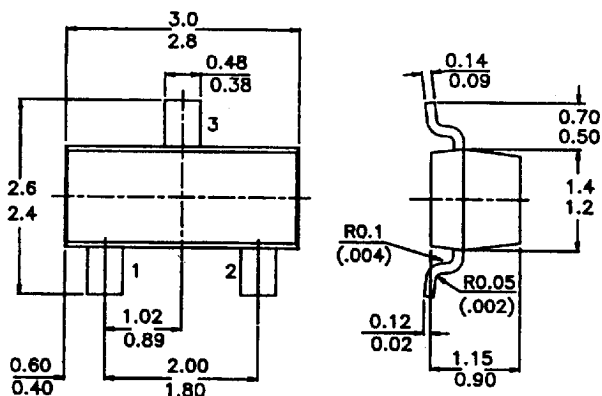
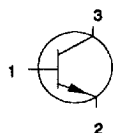
BSR17A = U92

PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm

Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)

 V_{CB0} max. 60 V

Collector-emitter voltage (open base)

 V_{CE0} max. 40 V

Emitter-base voltage (open collector)

 V_{EB0} max. 6 V

Collector current (DC)

 I_C max. 200 mATotal power dissipation up to $T_{amb} = 25^\circ\text{C}$ P_{tot} max. 250 mW

Junction temperature

 T_j max. 150°C

DC current gain

 $I_C = 10\text{ mA}; -V_{CE} = 1\text{ V}$

BSR17A

 h_{FE} 100 to 300Transition frequency at $f = 500\text{ MHz}$ $I_C = 10\text{ mA}; V_{CE} = 20\text{ V}$ $f_T > 300\text{ MHz}$

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RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values

Collector-base voltage (open emitter)	V_{CB0}	max.	60 V
Collector-emitter voltage (open base)	V_{CE0}	max.	40 V
Emitter base voltage (open collector)	V_{EB0}	max.	6 V
Collector current (d.c.)	I_C	max.	200 mA
Power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}	max.	250 mW
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150 $^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient

$$R_{th\ j-a} = 500\ \text{K/W}$$

CHARACTERISTICS $T_j = 25^\circ\text{C}$ unless otherwise specified.

Collector cut-off current

 $I_E = 0$; $V_{CB} = 30\ \text{V}$; $T_j = 150^\circ\text{C}$ $V_{EB} = 3\ \text{V}$; $V_{CE} = 30\ \text{V}$

$$I_{CB0} < 5\ \mu\text{A}$$

$$I_{CEX} < 50\ \text{nA}$$

Base current

with reverse biased emitter junction

 $V_{EB} = 3\ \text{V}$; $V_{CE} = 30\ \text{V}$

$$I_{BEX} < 50\ \text{nA}$$

Saturation voltages

 $I_C = 10\ \text{mA}$; $I_B = 1\ \text{mA}$

$$V_{CEsat} < 200\ \text{mV}$$

$$V_{BEsat} \quad 650\ \text{to}\ 850\ \text{mV}$$

 $I_C = 50\ \text{mA}$; $I_B = 5\ \text{mA}$

$$V_{CEsat} < 300\ \text{mV}$$

$$V_{BEsat} < 950\ \text{mV}$$

Collector capacitance at $f = 1\ \text{MHz}$ $I_E = I_e = 0$; $V_{CB} = 5\ \text{V}$

$$C_c < 4\ \text{pF}$$

Emitter capacitance at $f = 1\ \text{MHz}$ $I_C = I_c = 0$; $V_{EB} = 0,5\ \text{V}$

$$C_e < 8\ \text{pF}$$

D.C. current gain*

 $I_C = 0,1\ \text{mA}$; $V_{CE} = 1\ \text{V}$

$$h_{FE} > 40$$

 $I_C = 1\ \text{mA}$; $V_{CE} = 1\ \text{V}$

$$h_{FE} > 70$$

 $I_C = 10\ \text{mA}$; $V_{CE} = 1\ \text{V}$

$$h_{FE} > 100$$

$$h_{FE} < 300$$

 $I_C = 50\ \text{mA}$; $V_{CE} = 1\ \text{V}$

$$h_{FE} > 60$$

 $I_C = 100\ \text{mA}$; $V_{CE} = 1\ \text{V}$

$$h_{FE} > 30$$

Transition frequency at $f = 100\ \text{MHz}$ $I_C = 10\ \text{mA}$; $V_{CE} = 20\ \text{V}$

$$f_T > 300\ \text{MHz}$$

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