



T-27-21

PNP SMALL-SIGNAL TRANSISTORS

PNP small-signal transistors in TO-92 envelopes, recommended for general purpose amplifier applications.

The complementary types are the JC500 and JC501 respectively.

QUICK REFERENCE DATA

			JA100	JA101
Collector-base voltage	$-V_{CBS}$	max.	30	50 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	25	45 V
Collector current (DC)	$-I_C$	max.	100	mA
DC current gain				
$-I_C = 1 \text{ mA}; -V_{CE} = 5 \text{ V}$	h_{FE}		90 to 600	
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}	max.	500	mW

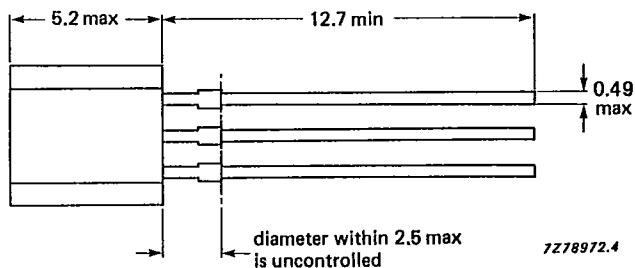
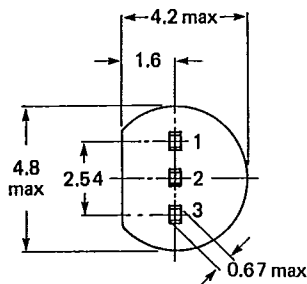
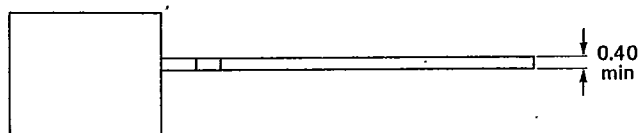
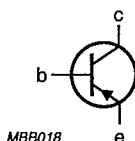
MECHANICAL DATA

Dimensions in mm

Fig.1 TO-92.

Pinning:

- 1 = base
- 2 = collector
- 3 = emitter



JA100
JA101

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

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			JA100	JA101
Collector-base voltage	$-V_{CBS}$	max.	30	50 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	25	45 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5.0	V
Collector current (DC)	$-I_C$	max.	100	mA
Collector current (peak)	$-I_{CM}$	max.	200	mA
Base current (DC)	$-I_B$	max.	50	mA
Base current (peak)	$-I_{BM}$	max.	100	mA
Total power dissipation up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	P_{tot}	max.	500	mW
Storage temperature range	T_{stg}		-65 to +150	$^{\circ}\text{C}$
Junction temperature	T_j	max.	150	$^{\circ}\text{C}$

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	250	K/W
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CHARACTERISTICS

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

			JA100	JA101
Collector-emitter breakdown voltage				
$-I_{CES} = 10\text{ }\mu\text{A}$	$-V_{(BR)CES} >$		30	50 V
$-I_{CEO} = 2\text{ mA}$	$-V_{(BR)CEO} >$		25	45 V
Emitter-base breakdown voltage				
$-I_{EBO} = 10\text{ }\mu\text{A}$	$-V_{(BR)EBO} >$		5.0	5.0 V
Collector cut-off current				
$-V_{CE} = 25\text{ V}$	$-I_{CES} <$		15	— nA
$-V_{CE} = 45\text{ V}$	$-I_{CES} <$		—	15 nA
$-V_{CE} = 25\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$	$-I_{CES} <$		4.0	— μA
$-V_{CE} = 45\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$	$-I_{CES} <$		—	4.0 μA
DC current gain*	h_{FE}		90 to 600	
$-I_C = 1\text{ mA}; -V_{CE} = 5\text{ V}$				
Collector-emitter saturation voltage				
$-I_C = 10\text{ mA}; -I_B = 0.5\text{ mA}$	$-V_{CE\ sat}$	<	0.3	V
$-I_C = 100\text{ mA}; -I_B = 5\text{ mA}$	$-V_{CE\ sat}$	typ.	0.5	V
Base-emitter saturation voltage				
$-I_C = 10\text{ mA}; -I_B = 0.5\text{ mA}$	$-V_{BE\ sat}$	typ.	0.7	V
$-I_C = 100\text{ mA}; -I_B = 5\text{ mA}$	$-V_{BE\ sat}$	typ.	0.85	V
Base-emitter voltage	$-V_{BE\ on}$		0.55 to 0.7	V
$-I_C = 2\text{ mA}; -V_{CE} = 5\text{ V}$				

* Group	O	P	Q	R
Range	90 - 180	135 - 270	200 - 400	300 - 600

PNP small-signal transistors

T-27-21
JA100
JA101

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Transition frequency at $f = 50$ MHz;

$-I_C = 10$ mA; $-V_{CE} = 5$ V

f_T typ. 130 MHz

Collector-base capacitance

$-V_{CBO} = 10$ V; $f = 1$ MHz

C_{cb} < 6.0 pF

Emitter-base capacitance

$-V_{EBO} = 0.5$ V; $f = 1$ MHz

C_{eb} typ. 12 pF

Noise figure at $R_S = 2$ k Ω ; $f = 1$ kHz;

$-I_C = 200$ μ A; $-V_{CE} = 5$ V

NF < 10 dB