

TO-92S Plastic-Encapsulate Transistors

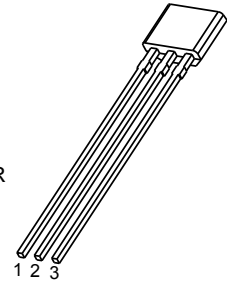
2SA1317 TRANSISTOR (PNP)

FEATURES

- Large Current Capacity and Wide ASO

TO – 92S

1. EMITTER
2. COLLECTOR
3. BASE



MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|------------------|---------------------------------------------|----------|------|
| V _{CBO} | Collector-Base Voltage | -60 | V |
| V _{CEO} | Collector-Emitter Voltage | -50 | V |
| V _{EBO} | Emitter-Base Voltage | -6 | V |
| I _C | Collector Current | -0.2 | A |
| P _C | Collector Power Dissipation | 300 | mW |
| R _{θJA} | Thermal Resistance From Junction To Ambient | 417 | °C/W |
| T _j | Junction Temperature | 150 | °C |
| T _{stg} | Storage Temperature | -55~+150 | °C |

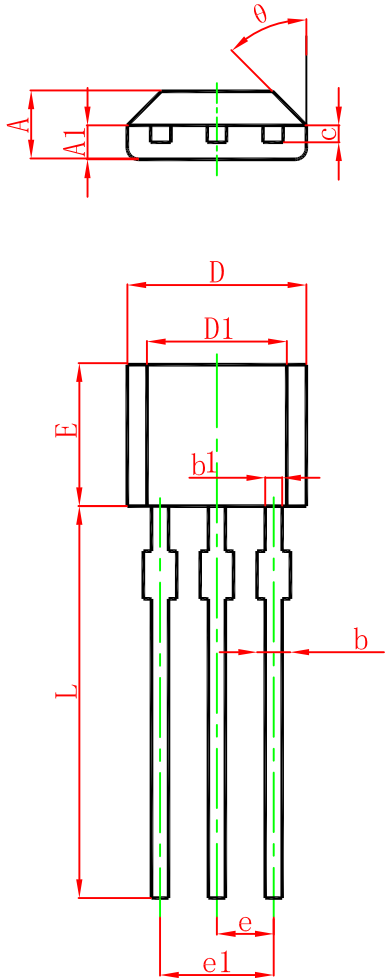
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------------|-------------------------------------------------|-----|-----|------|------|
| Collector-base breakdown voltage | V _{(BR)CBO} | I _C =-0.01mA, I _E =0 | -60 | | | V |
| Collector-emitter breakdown voltage | V _{(BR)CEO} | I _C =-1mA, I _B =0 | -50 | | | V |
| Emitter-base breakdown voltage | V _{(BR)EBO} | I _E =-0.01mA, I _C =0 | -6 | | | V |
| Collector cut-off current | I _{CBO} | V _{CB} =-40V, I _E =0 | | | -0.1 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} =-5V, I _C =0 | | | -0.1 | μA |
| DC current gain | h _{FE(1)} | V _{CE} =-6V, I _C =-1mA | 100 | | 560 | |
| | h _{FE(2)} | V _{CE} =-6V, I _C =-0.1mA | 70 | | | |
| Collector-emitter saturation voltage | V _{CE(sat)} | I _C =-100mA, I _B =-10mA | | | -0.3 | V |
| Base-emitter saturation voltage | V _{BE(sat)} | I _C =-100mA, I _B =-10mA | | | -1 | V |
| Collector output capacitance | C _{ob} | V _{CB} =-6V, I _E =0, f=1MHz | | 4 | | pF |
| Transition frequency | f _T | V _{CE} =-6V, I _C =-10mA | | 200 | | MHz |

CLASSIFICATION OF h_{FE(1)}

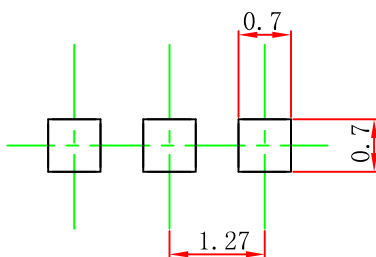
| RANK | R | S | T | U |
|-------|---------|---------|---------|---------|
| RANGE | 100-200 | 140-280 | 200-400 | 280-560 |

TO-92S Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.420 | 1.620 | 0.056 | 0.064 |
| A1 | 0.660 | 0.860 | 0.026 | 0.034 |
| b | 0.330 | 0.480 | 0.013 | 0.019 |
| b1 | 0.400 | 0.510 | 0.016 | 0.020 |
| c | 0.330 | 0.510 | 0.013 | 0.020 |
| D | 3.900 | 4.100 | 0.154 | 0.161 |
| D1 | 2.280 | 2.680 | 0.090 | 0.106 |
| E | 3.050 | 3.250 | 0.120 | 0.128 |
| e | 1.270 TYP. | | 0.050 TYP. | |
| e1 | 2.440 | 2.640 | 0.096 | 0.104 |
| L | 15.100 | 15.500 | 0.594 | 0.610 |
| θ | 45° TYP. | | 45° TYP. | |

TO-92S Suggested Pad Layout



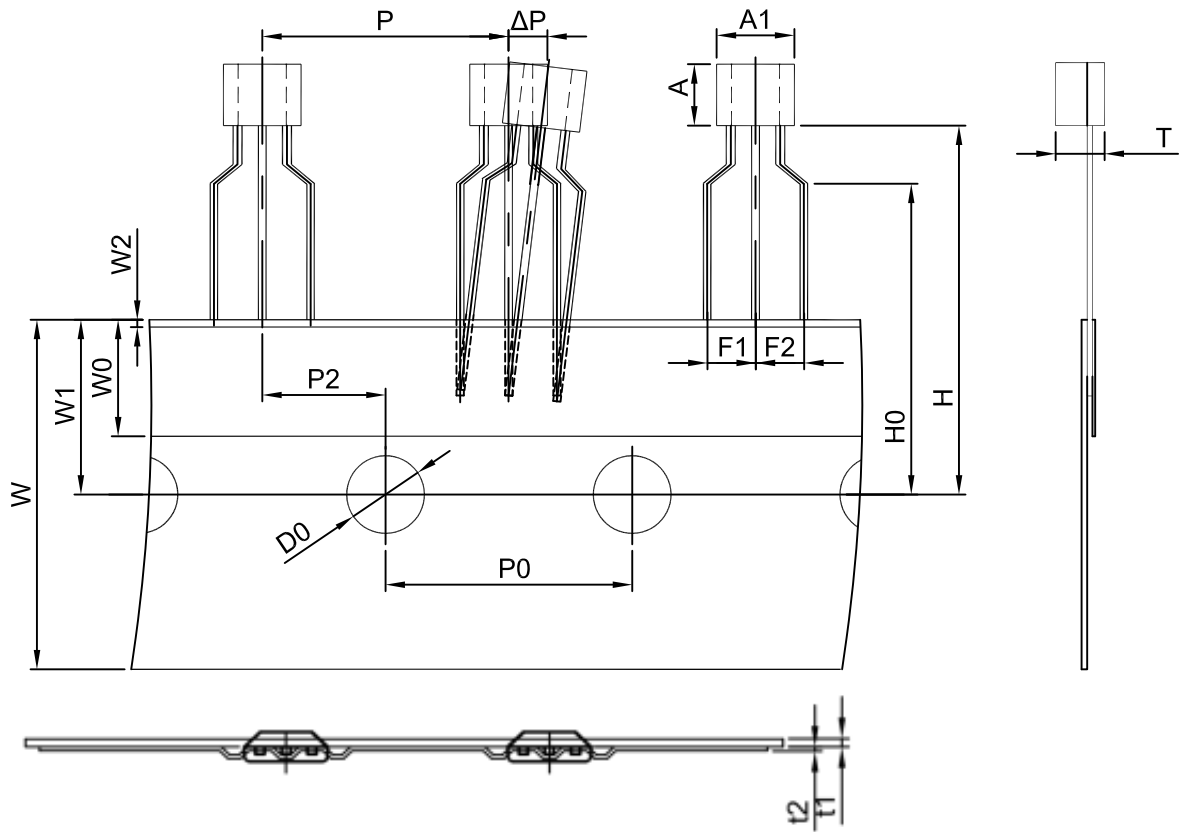
Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

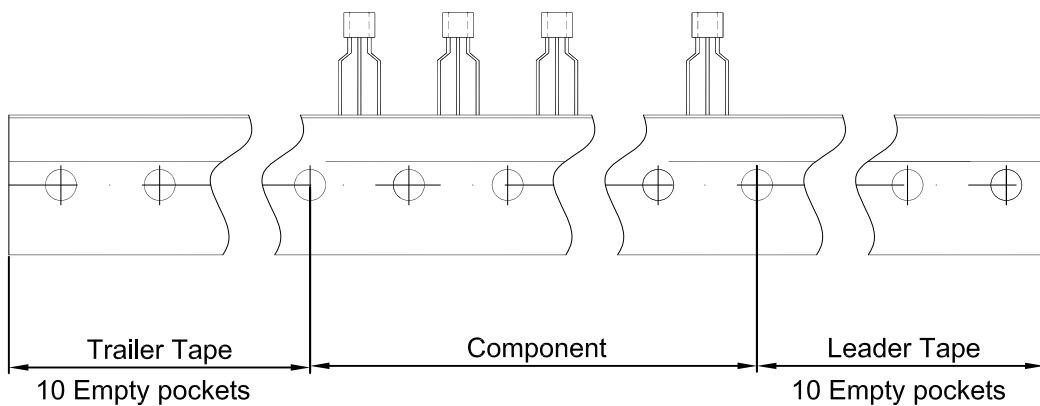
JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

TO-92S PACKAGE TAPEING DIMENSION



Dimensions are in millimeter

| A1 | A | T | P | P0 | P2 | F1 | F2 | W |
|-----|------|------|------|------|------|-----|-----|------|
| 4.0 | 3.15 | 1.52 | 12.7 | 12.7 | 6.35 | 2.5 | 2.5 | 18.0 |
| W0 | W1 | W2 | H | H0 | D0 | t1 | t2 | ΔP |
| 6.0 | 9.0 | 1.0 | 19.0 | 16.0 | 4.0 | 0.4 | 0.2 | 0 |



| Package | Box | Box Size(mm) | Carton | Carton Size(mm) |
|---------|----------|--------------|------------|-----------------|
| TO-92S | 3000 pcs | 333×162×43 | 30,000 pcs | 350×340×250 |