



## TO-92S Plastic-Encapsulate Transistors

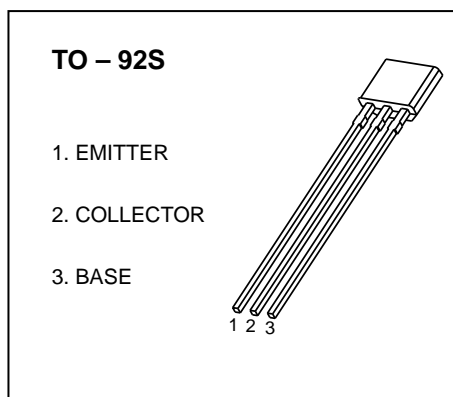
### KSC2785 TRANSISTOR (NPN)

#### FEATURES

- Complement to KSA1175
- High Transition Frequency

#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ 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                        | 5        | V                           |
| $I_C$           | Collector Current                           | 0.15     | A                           |
| $P_C$           | Collector Power Dissipation                 | 250      | mW                          |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 500      | $^{\circ}\text{C}/\text{W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^{\circ}\text{C}$          |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^{\circ}\text{C}$          |



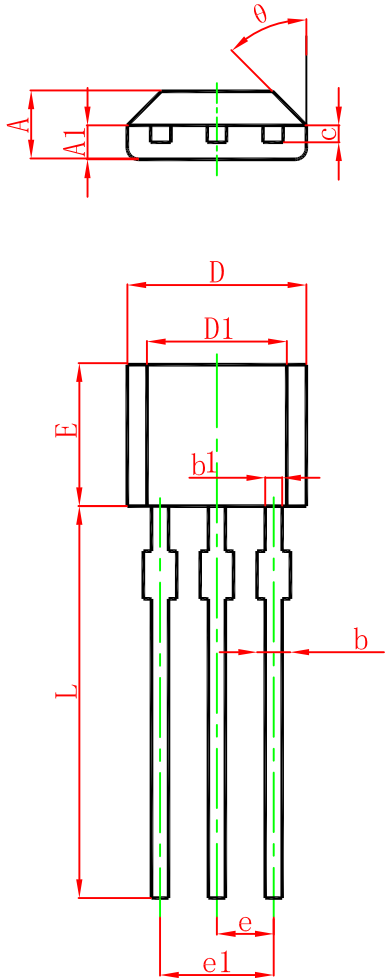
#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                          | Min | Typ | Max | Unit          |
|--------------------------------------|---------------|--|-----|-----|-----|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=0.1\text{mA}, I_E=0$                | 60  |     |     | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=10\text{mA}, I_B=0$                 | 50  |     |     | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=0.01\text{mA}, I_C=0$               | 5   |     |     | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=40\text{V}, I_E=0$               |     |     | 0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=3\text{V}, I_C=0$                |     |     | 0.1 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=6\text{V}, I_C=1\text{mA}$       | 70  |     | 700 |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}, I_B=10\text{mA}$      |     |     | 0.3 | V             |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$ |     | 2.5 |     | pF            |
| Transition frequency                 | $f_T$         | $V_{CE}=6\text{V}, I_C=10\text{mA}$      |     | 300 |     | MHz           |

#### CLASSIFICATION OF $h_{FE}$

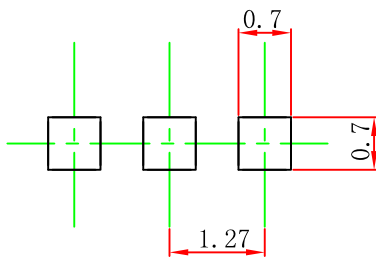
| RANK  | O      | Y       | G       | L       |
|-------|--------|---------|---------|---------|
| RANGE | 70-140 | 120-240 | 200-400 | 350-700 |

## 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



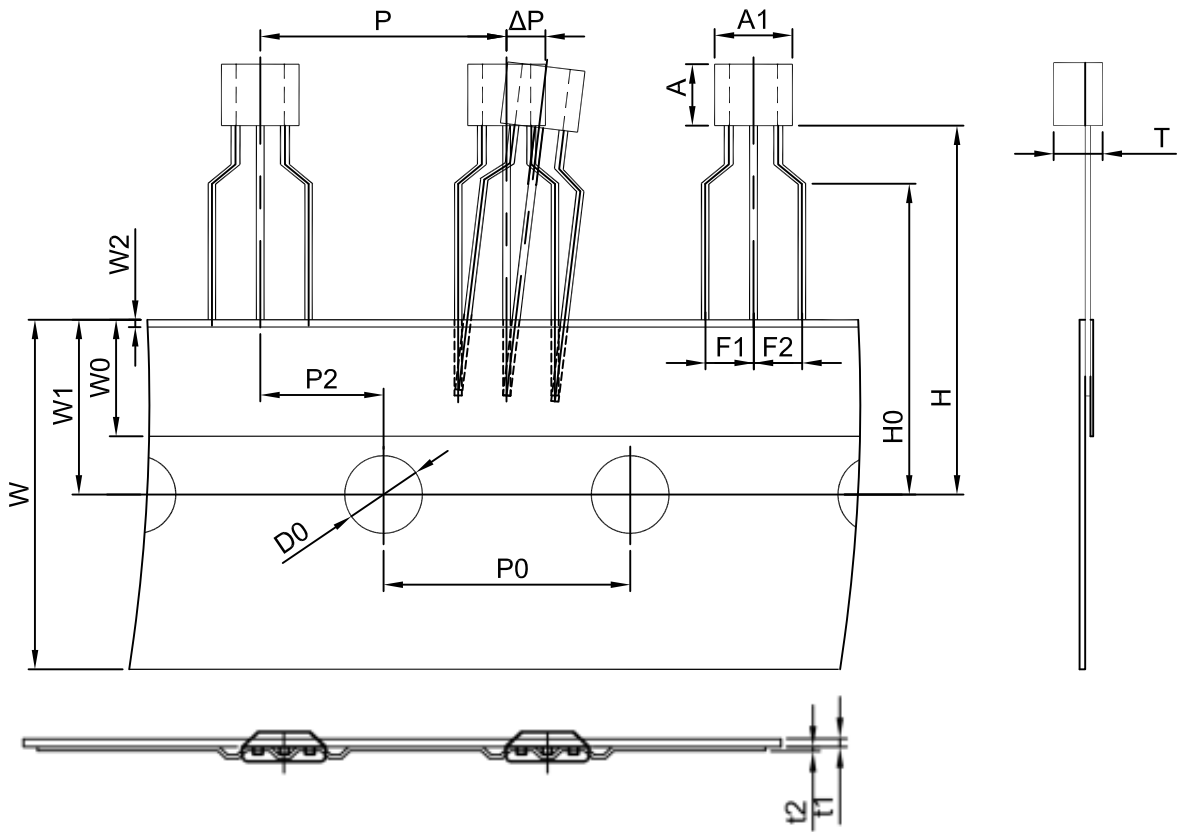
Note:

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

### NOTICE

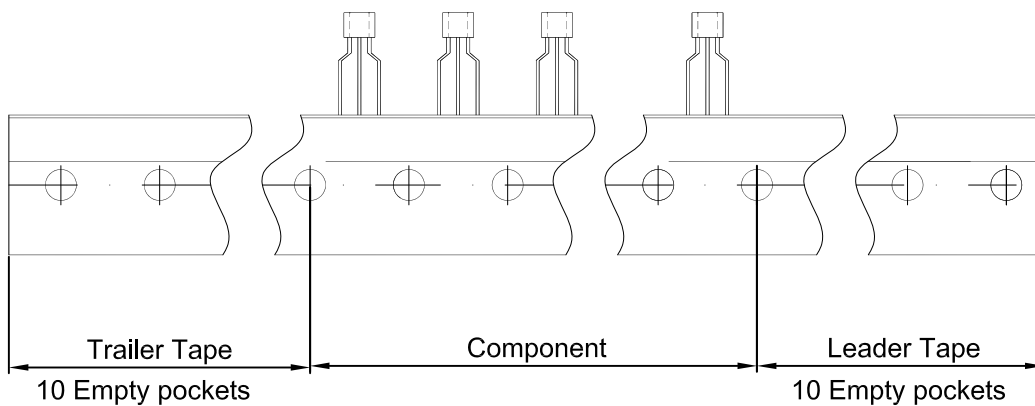
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# TO-92S PACKAGE TAPEING DIMENSION



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     |