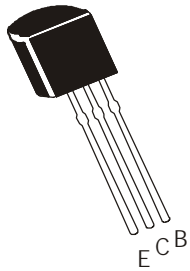


PNP EPITAXIAL PLANAR SILICON TRANSISTOR

CSA1015



**TO-92
Plastic Package**

**Audio Frequency General Purpose and Driver Stage Amplifier Applications.
Complementary CSC1815**

ABSOLUTE MAXIMUM RATINGS (T_a=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL | VALUE | UNITS |
|--|-----------------------------------|-------------|-------|
| Collector Base Voltage | V _{CBO} | 50 | V |
| Collector Emitter Voltage | V _{CEO} | 50 | V |
| Emitter Base Voltage | V _{EBO} | 5 | V |
| Collector Current Continuous | I _C | 150 | mA |
| Base Current | I _B | 50 | mA |
| Collector Power Dissipation | P _C | 625 | mW |
| Operating And Storage Junction Temperature Range | T _j , T _{stg} | -55 to +125 | °C |

THERMAL RESISTANCE

| | | | |
|------------------|----------------------|-----|------|
| Junction to case | R _{th(j-c)} | 250 | °C/W |
|------------------|----------------------|-----|------|

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

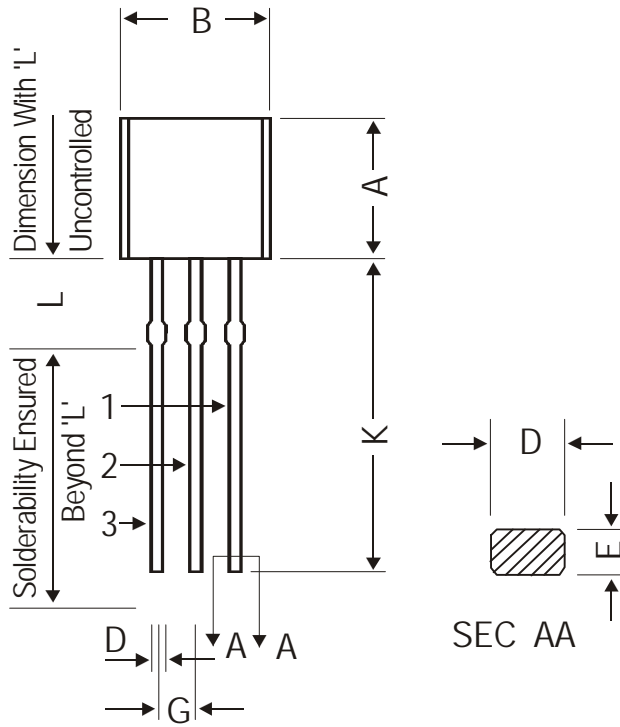
| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|--------------------------------------|----------------------|--|-----|-----|------|-------|
| Collector Cut off Current | I _{CBO} | V _{CB} =50V, I _E =0 | | | 100 | nA |
| Emitter Cut off Current | I _{EBO} | V _{EB} =5V, I _C = 0 | | | 100 | nA |
| DC Current Gain | *h _{FE} | I _C =2mA, V _{CE} =6V | 70 | | 400 | |
| | h _{FE} | I _C =150mA, V _{CE} =6V | 25 | | | |
| Collector Emitter Saturation Voltage | V _{CE(sat)} | I _C =100mA, I _B = 10mA | | | 0.30 | V |
| Base Emitter Saturation Voltage | V _{BE(sat)} | I _C =100mA, I _B = 10mA | | | 1.1 | V |

DYNAMIC CHARACTERISTICS

| | | | | | | |
|------------------------------|-----------------|--|----|----|-----|-----|
| Transition Frequency | ft | V _{CE} =10V, I _C =1mA, f=100MHZ | 80 | | | MHz |
| Collector Output Capacitance | C _{ob} | V _{CB} =10V, I _E =0, f=1MHZ | | | 7.0 | pF |
| Base Spreading Resistance | rbb' | V _{CB} =10V, I _E =1mA, f=30MHZ | | 30 | | Ω |
| Noise Figure | NF | V _{CE} =6V, I _C =0.1mA, R _g =10Kohms, f=1KHz | | | 10 | dB |

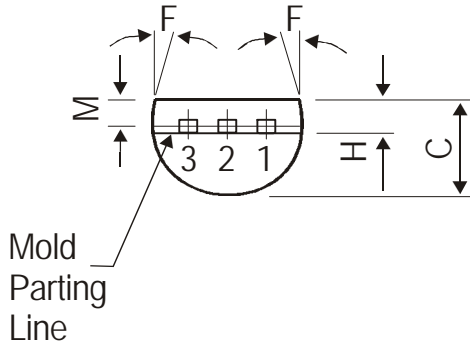
| CLASSIFICATION | O | Y | GR |
|------------------|----------|-----------|-----------|
| *h _{FE} | 70 - 140 | 120 - 240 | 200 - 400 |

TO-92 Plastic Package



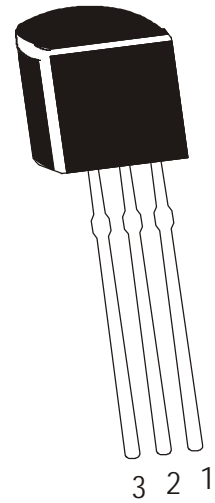
| DIM | MIN. | MAX. |
|-----|-------|-------|
| A | 4.32 | 5.33 |
| B | 4.45 | 5.20 |
| C | 3.18 | 4.19 |
| D | 0.41 | 0.55 |
| E | 0.35 | 0.50 |
| F | 5 DEG | |
| G | 1.14 | 1.40 |
| H | 1.20 | 1.40 |
| K | 12.70 | — |
| L | 1.982 | 2.082 |
| M | 1.03 | 1.20 |

All dimensions are in mm



PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER



The TO-92 Package, Tape and Ammo Pack Drawings are correct as on the date of issue/revision of this Data Sheet.

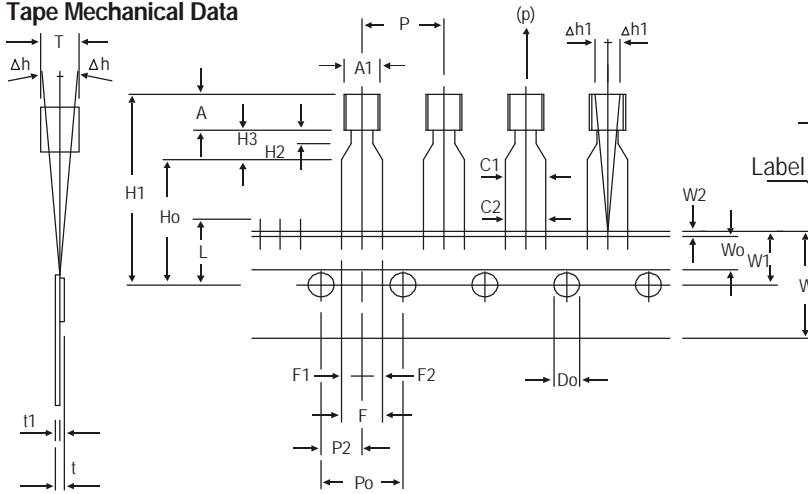
The currently valid dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

Packing Details

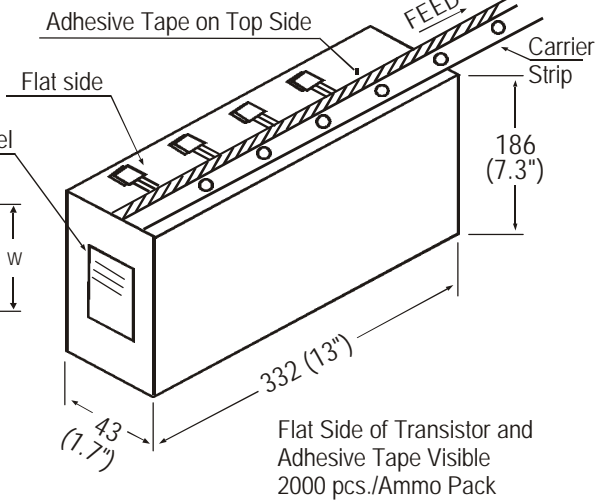
| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|------------|---------------|----------------|-------------------|-----|-------------------|-----|----------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-92 Bulk | 1K/polybag | 200 gm/1K pcs | 3" x 7.5" x 7.5" | 5K | 17" x 15" x 13.5" | 80K | 23 kgs |
| TO-92 T&A | 2K/ammo box | 645 gm/2K pcs | 12.5" x 8" x 1.8" | 2K | 17" x 15" x 13.5" | 32K | 12.5 kgs |

TO-92 Tape and Ammo Pack

Tape Mechanical Data



Ammo Pack Style



All dimensions are in mm

| ITEM | SYMBOL | SPECIFICATION | | | |
|---|---------|---------------|------|-------|----------------|
| | | MIN. | NOM. | MAX. | TOL. |
| BODY WIDTH | A1 | 4.0 | | 4.8 | |
| BODY HEIGHT | A | 4.8 | | 5.2 | |
| BODY THICKNESS | T | 3.9 | | 4.2 | |
| PITCH OF COMPONENT | P | | 12.7 | | ± 1.0 |
| *1 FEED HOLE PITCH | Po | | 12.7 | | ± 0.3 |
| *2 FEED HOLE CENTRE TO COMPONENT CENTRE | P2 | | 6.35 | | ± 0.4 |
| DISTANCE BETWEEN OUTER LEADS | F | | 5.08 | | + 0.6 - 0.2 |
| *3 COMPONENT ALIGNMENT SIDE VIEW | Δh | | 0 | 1.0 | |
| *4 COMPONENT ALIGNMENT FRONT VIEW | Δh1 | | 0 | 1.3 | |
| TAPE WIDTH | W | | 18 | | ± 0.5 |
| HOLD-DOWN TAPE WIDTH | Wo | | 6 | | ± 0.2 |
| HOLE POSITION | W1 | | 9 | | + 0.7 - 0.5 |
| HOLD-DOWN TAPE POSITION | W2 | | 0.5 | | ± 0.2 |
| LEAD WIRE CLINCH HEIGHT | Ho | | 16 | | ± 0.5 |
| COMPONENT HEIGHT | H1 | | | 23.25 | |
| LENGTH OF SNIPPED LEADS | L | | | 11.0 | |
| FEED HOLE DIAMETER | Do | | 4 | | ± 0.2 |
| *5 TOTAL TAPE THICKNESS | t | | | 1.2 | |
| LEAD - TO - LEAD DISTANCE | F1, F2 | | 2.54 | | + 0.4 - 0.1 |
| STAND OFF | H2 | 0.45 | | 1.45 | |
| CLINCH HEIGHT | H3 | | | 3.0 | |
| LEAD PARALLELISM | C1 - C2 | | | 0.22 | |
| PULL - OUT FORCE | (p) | 6N | | | |

NOTES

- Maximum alignment deviation between leads will not to be greater than 0.2mm.
- Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
- Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
- There will be no more than three (3) consecutive missing components in a tape.
- A tape trailer, having at least three feed holes are provided after the last component in a tape.
- Splices should not interfere with the sprocket feed holes.

REMARKS

- *1 Cumulative pitch error 1.0 mm/20 pitch
- *2 To be measured at bottom of clinch
- *3 At top of body
- *4 At top of body
- *5 t1 0.3 – 0.6 mm

Disclaimer

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