

NPN MEDIUM POWER TRANSISTOR

| Type | Marking |
|--------|---------|
| STX715 | X715 |

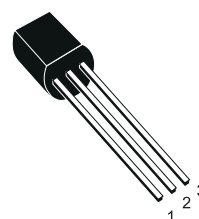
- DEVICE SUITABLE FOR THROUGH-HOLE PCB ASSEMBLY

APPLICATIONS

- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

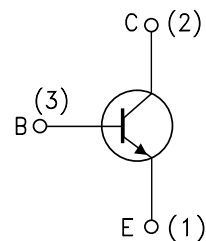
DESCRIPTION

The STX715 is a NPN transistor manufactured using Planar Technology resulting in rugged high performance devices.



TO-92

INTERNAL SCHEMATIC DIAGRAM



SC12760

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 140 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 80 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 1.5 | A |
| I_{CM} | Collector Peak Current ($t_p < 5$ ms) | 2 | A |
| I_B | Base Current | 0.3 | A |
| I_{BM} | Base Peak Current ($t_p < 5$ ms) | 0.6 | A |
| P_{tot} | Total Dissipation at $T_{amb} = 25$ °C | 0.9 | W |
| T_{stg} | Storage Temperature | -65 to 150 | °C |
| T_j | Max. Operating Junction Temperature | 150 | °C |

THERMAL DATA

| | | | | |
|-----------------------|-------------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 44.6 | °C/W |
| R _{thj-amb} | Thermal Resistance Junction-ambient | Max | 139 | °C/W |

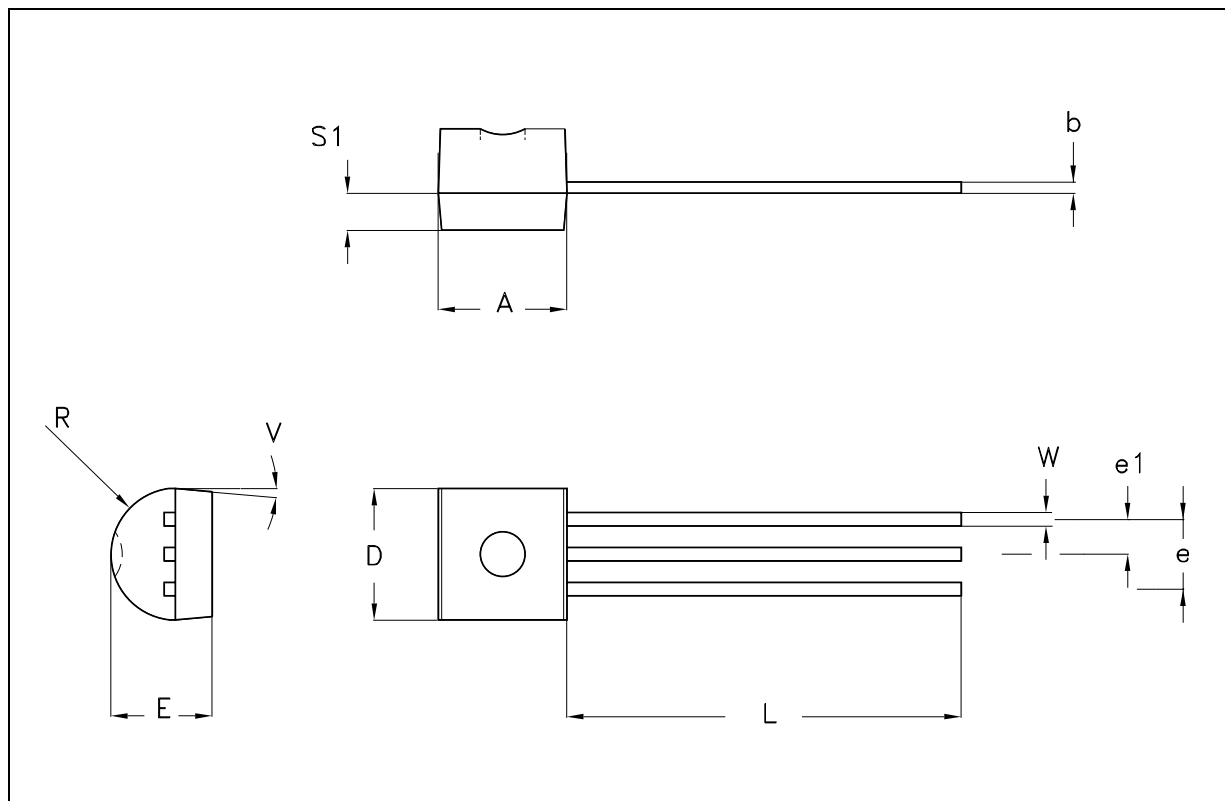
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|-------------------------|---|--|---|-----------------|------|-------------|--------|
| I _{CES} | Collector Cut-off Current (V _{BE} = 0) | V _{CE} = 140 V | | | | 500 | μA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 80 V | | | | 1 | mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | | 100 | μA |
| V _{CEO(sus)} * | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 10 mA | | 80 | | | V |
| V _{CE(sat)} * | Collector-Emitter Saturation Voltage | I _C = 100 mA I _C = 1 A | I _B = 10 mA I _B = 100 mA | | | 0.25 0.5 | V V |
| V _{BE(sat)} * | Base-Emitter Saturation Voltage | I _C = 100 mA I _C = 1 A | I _B = 10 mA I _B = 100 mA | | | 1 1.1 | V V |
| h _{FE} * | DC Current Gain | I _C = 100 mA I _C = 500 mA I _C = 1 A | V _{CE} = 2 V V _{CE} = 2 V V _{CE} = 2 V | 140 80 40 | | | |
| f _T | Transition Frequency | I _C = 0.1 A | V _{CE} = 10 V | | 50 | | MHz |

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

TO-92 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|----------|------|----------|----------|------|----------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.32 | | 4.95 | 0.170 | | 0.195 |
| b | 0.36 | | 0.51 | 0.014 | | 0.020 |
| D | 4.45 | | 4.95 | 0.175 | | 0.194 |
| E | 3.30 | | 3.94 | 0.130 | | 0.155 |
| e | 2.41 | | 2.67 | 0.095 | | 0.105 |
| e1 | 1.14 | | 1.40 | 0.045 | | 0.055 |
| L | 12.70 | | 15.49 | 0.500 | | 0.609 |
| R | 2.16 | | 2.41 | 0.085 | | 0.094 |
| S1 | 1.14 | | 1.52 | 0.045 | | 0.059 |
| W | 0.41 | | 0.56 | 0.016 | | 0.022 |
| V | 4 degree | | 6 degree | 4 degree | | 6 degree |



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