



TS13001

High Voltage NPN Transistor

TO-92



Pin assignment:
 1. Emitter
 2. Collector
 3. Base

$BV_{CEO} = 400V$
 $BV_{CBO} = 500V$
 $I_C = 0.1A$
 $V_{CE(SAT)}, = 0.5V @ I_C / I_B = 50mA / 10mA$

Features

- ◇ High voltage.
- ◇ High speed switching

Structure

- ◇ Silicon triple diffused type.
- ◇ NPN silicon transistor

Ordering Information

| Part No. | Packing | Package |
|-----------|---------|---------|
| TS13001CT | Bulk | TO-92 |

Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit | |
|--|-----------|--------------|------------|---|
| Collector-Base Voltage | V_{CBO} | 500V | V | |
| Collector-Emitter Voltage | V_{CEO} | 400V | V | |
| Emitter-Base Voltage | V_{EBO} | 9 | V | |
| Collector Current | DC | I_C | 0.1 | A |
| | Pulse | | 0.3 | |
| Collector Power Dissipation | TO-92 | P_D | 0.6 | W |
| Operating Junction Temperature | T_J | +150 | $^\circ C$ | |
| Operating Junction and Storage Temperature Range | T_{STG} | - 55 to +150 | $^\circ C$ | |

Note: 1. Single pulse, $P_w = 5mS$, Duty $\leq 10\%$

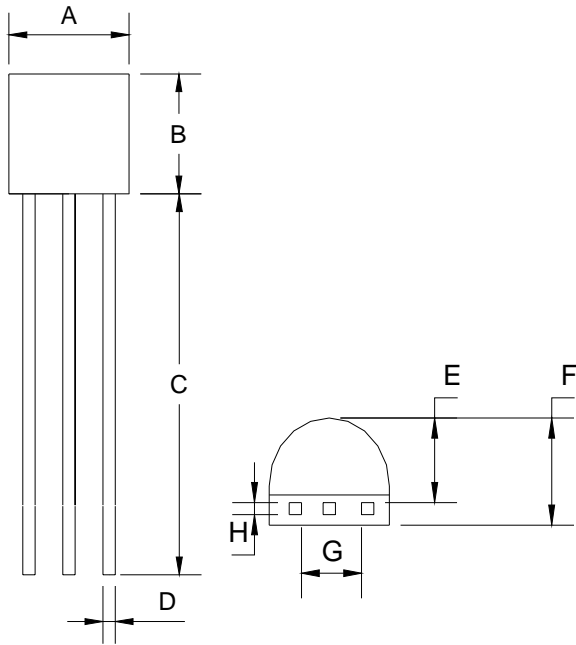
Electrical Characteristics

$T_a = 25^\circ C$ unless otherwise noted

| Parameter | Conditions | Symbol | Min | Typ | Max | Unit |
|--------------------------------------|--|---------------|-----|-----|------|---------|
| Static | | | | | | |
| Collector-Base Voltage | $I_C = 10mA, I_B = 0$ | BV_{CBO} | 500 | -- | -- | V |
| Collector-Emitter Breakdown Voltage | $I_C = 10mA, I_E = 0$ | BV_{CEO} | 400 | -- | -- | V |
| Emitter-Base Breakdown Voltage | $I_E = 1mA, I_C = 0$ | BV_{EBO} | 9 | -- | -- | V |
| Collector Cutoff Current | $V_{CB} = 500V, I_E = 0$ | I_{CBO} | -- | -- | 100 | μA |
| Emitter Cutoff Current | $V_{EB} = 7V, I_C = 0$ | I_{EBO} | -- | -- | 0.01 | μA |
| Collector-Emitter Saturation Voltage | $I_C / I_B = 50mA / 10mA$ | $V_{CE(SAT)}$ | -- | -- | 0.5 | V |
| DC Current Gain | $V_{CE} = 5V, I_C = 20mA$ | h_{FE} | 10 | -- | 40 | |
| Output Capacitance | $V_{CB} = 10V, f = 0.1MHz$ | C_{ob} | -- | 4 | -- | pF |
| Storage Time | $V_{CE} = 250V, I_C = 5 Ib,$ $Ib1=Ib2=40mA$ | t_s | -- | -- | 2.0 | μS |
| Fall Time | | t_f | -- | -- | 0.8 | |

Note : pulse test: pulse width $\leq 5mS$, duty cycle $\leq 10\%$

TO-92 Mechanical Drawing



| TO-92 DIMENSION | | | | |
|-----------------|-------------|------|------------|-------|
| DIM | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 4.30 | 4.70 | 0.169 | 0.185 |
| B | 4.30 | 4.70 | 0.169 | 0.185 |
| C | 14.30(typ) | | 0.563(typ) | |
| D | 0.43 | 0.49 | 0.017 | 0.019 |
| E | 2.19 | 2.81 | 0.086 | 0.111 |
| F | 3.30 | 3.70 | 0.130 | 0.146 |
| G | 2.42 | 2.66 | 0.095 | 0.105 |
| H | 0.37 | 0.43 | 0.015 | 0.017 |
| | | | | |