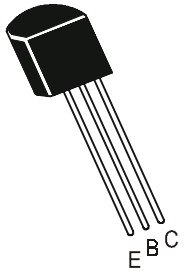
# NPN EPITAXIAL PLANAR SILICON HIGH VOLTAGE TRANSISTOR

**2N5550**




**TO-92**
**Plastic Package**

## High Voltage NPN Transistor For General Purpose and Telephony Applications.

**ABSOLUTE MAXIMUM RATINGS(Ta=25ºC unless specified otherwise)**

| DESCRIPTION | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Collector Emitter Voltage | $V_{CEO}$ | 140 | V |
| Collector Base Voltage | $V_{CBO}$ | 160 | V |
| Emitter Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current Continuous | $I_C$ | 600 | mA |
| Power Dissipation@ Ta=25ºC | $P_D$ | 625 | mW |
| Derate Above 25ºC | | 5.0 | mW/ºC |
| Power Dissipation@ Tc=25ºC | $P_D$ | 1.5 | W |
| Derate Above 25ºC | | 12 | mW/ºC |
| Operating And Storage Junction Temperature Range | $T_j$, $T_{stg}$ | -55 to +150 | ºC |
| **THERMAL RESISTANCE** | | | |
| Junction to ambient | $R_{th(j-a)\ (1)}$ | 357 | ºC/W |
| Junction to case | $R_{th(j-c)}$ | 125 | ºC/W |

**(1) Rth (j-a) is measured with the device soldered into a typical printed circuit board**

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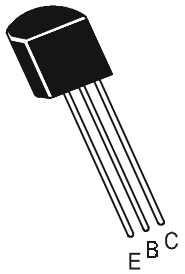


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**ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)**

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| **Collector Base Voltage** | $V_{CEO}$* | $I_C$=1mA,$I_B$=0 | 140 | | | V |
| **Collector Base Voltage** | $V_{CBO}$ | $I_C$=100µA,$I_E$=0 | 160 | | | V |
| **Emitter Base Voltage** | $V_{EBO}$ | $I_E$=10µA, $I_C$=0 | 6 | | | V |
| **Collector Cut off Current** | $I_{CBO}$ | $V_{CB}$=100V, $I_E$ = 0 | | | 100 | nA |
| | | Ta=100$^O$C<br>$V_{CB}$ =100V, $I_E$=0 | | | 100 | µA |
| **Emitter Cut off Current** | $I_{EBO}$ | $V_{BE}$=4V, $I_C$ = 0 | | | 50 | nA<br>µA |
| **DC Current Gain** | $h_{FE}$* | $V_{CE}$=5V,$I_C$=1mA | 60 | | | |
| | | $V_{CE}$=5V,$I_C$=10mA | 60 | | 250 | |
| | | $V_{CE}$=5V,$I_C$=50mA | 20 | | | |
| **Base Emitter Saturation Voltage** | $V_{BE(sat)}$* | $I_C$=10mA,$I_B$=1mA | | | 1.0 | V |
| | | $I_C$=50mA,$I_B$= 5mA | | | 1.2 | V |
| **Collector Emitter Saturation Voltage** | $V_{CE(sat)}$* | $I_C$=10mA,$I_B$=1mA | | | 0.15 | V |
| | | $I_C$=50mA,$I_B$=5mA | | | 0.25 | V |

**DYNAMIC CHARACTERISTICS**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Small Signal Current Gain** | I hfe I | $I_C$=1mA, $V_{CE}$=10V<br>f=1KHz | 50 | | 200 | |
| **Transition Frequency** | $f_T$ | $I_C$=10mA, $V_{CE}$=10V<br>f=100MHz | 100 | | 300 | MHz |
| **Output Capacitance** | $C_{obo}$ | $I_E$=0, $V_{CB}$=10V<br>f=1MHz | | | 6.0 | $_P$F |
| **Input Capacitance** | $C_{ibo}$ | Ic=0, $V_{EB}$=0.5V<br>f=1MHz | | | 30 | $_P$F |
| **Noise Figure** | NF | $V_{CE}$ =5V,$I_C$=250µA<br>R=1Ω,f=10$H_Z$ to15.7kHz | | | 10 | dB |

***Pulse Condition: Width = 300µs, Duty Cycle= 2%.**

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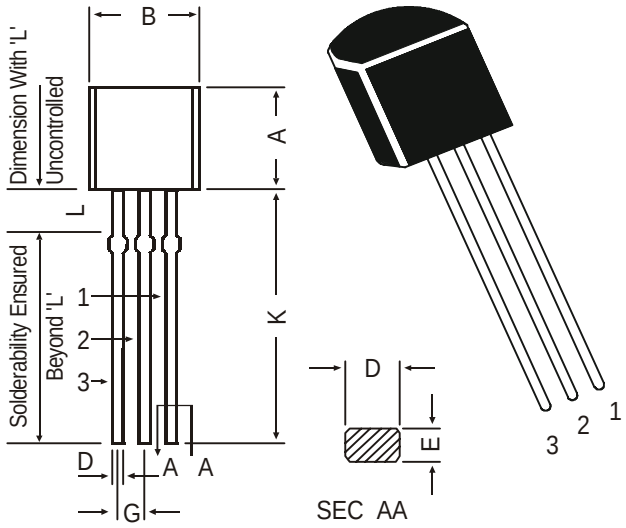
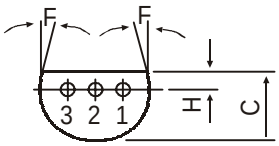


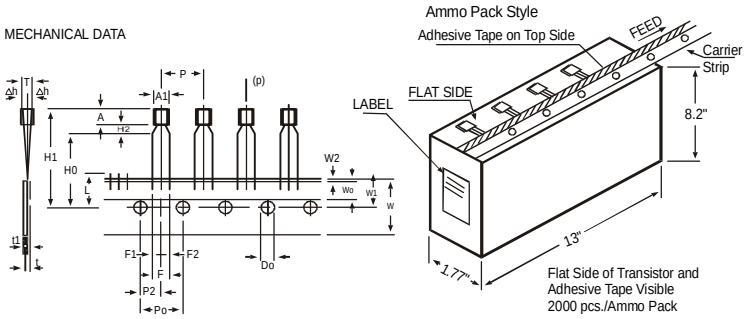




PIN CONFIGURATION
1. COLLECTOR
2. BASE
3. EMITTER

| 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 | 1.14 | 1.53 |
| K | 12.70 | — |
| L | 1.982 | 2.082 |

All diminsions in mm.

## TO-92 Transistors on Tape and Ammo Pack




**All dimensions in mm unless specified otherwise**

| ITEM | SYMBOL | SPECIFICATION MIN. | NOM. | MAX. | TOL . | REMARKS |
|---|---|---|---|---|---|---|
| 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 | |
| FEED HOLE PITCH | Po | | 12.7 | | ±0.3 | CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH |
| FEED HOLE CENTRE TO COMPONENT CENTRE | P2 | | 6.35 | | ±0.4 | TO BE MEASURED AT BOTTOM OF CLINCH |
| DISTANCE BETWEEN OUTER LEADS | F | | 5.08 | | +0.6 -0.2 | |
| COMPONENT ALIGNMENT | △h | | 0 | 1 | | AT TOP OF BODY |
| 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 | |
| TOTAL TAPE THICKNESS | t | | | 1.2 | | t1 0.3 - 0.6 |
| LEAD - TO - LEAD DISTANCEF1, | F2 | | 2.54 | | +0.4 -0.1 | |
| CLINCH HEIGHT | H2 | | | 3 | | |
| PULL - OUT FORCE | (P) | 6N | | | | |

**NOTES**
1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL NOT INTERFERE WITH THE SPROCKET FEED HOLES.

## Packing Detail

| 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 |

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## Disclaimer

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