**TO-92 Plastic-Encapsulate Transistors****2N5551** TRANSISTOR (NPN)**FEATURES**

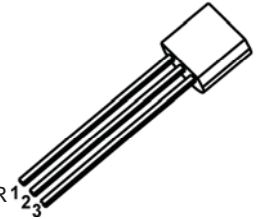
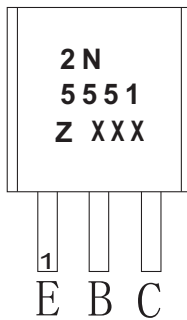
- General Purpose Switching Application

**TO - 92**

1. EMITTER

2. BASE

3. COLLECTOR

**MARKING**

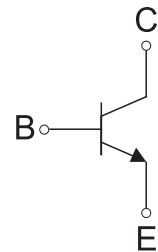
2N5551=Device code

Z=Rank of  $h_{FE}$ 

XXX=Code

GXX=Green molding compound device

CXX=Normal molding compound device

**Equivalent Circuit****ORDERING INFORMATION**

| Part Number | Package | Packing Method | Pack Quantity |
|-------------|---------|----------------|---------------|
| 2N5551      | TO-92   | Bulk           | 1000pcs/Bag   |
| 2N5551-TA   | TO-92   | Tape           | 2000pcs/Box   |

**MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

| Symbol          | Parameter                                        | Value    | Unit                        |
|-----------------|--------------------------------------------------|----------|-----------------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | 180      | V                           |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 160      | V                           |
| $V_{EBO}$       | Emitter-Base Voltage                             | 6        | V                           |
| $I_C$           | Collector Current                                | 0.6      | A                           |
| $P_C$           | Collector Power Dissipation                      | 625      | mW                          |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient      | 200      | $^{\circ}\text{C}/\text{W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^{\circ}\text{C}$          |

## ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$  unless otherwise specified

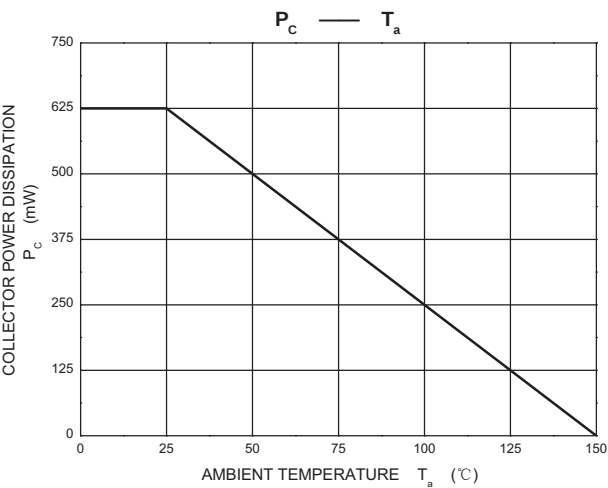
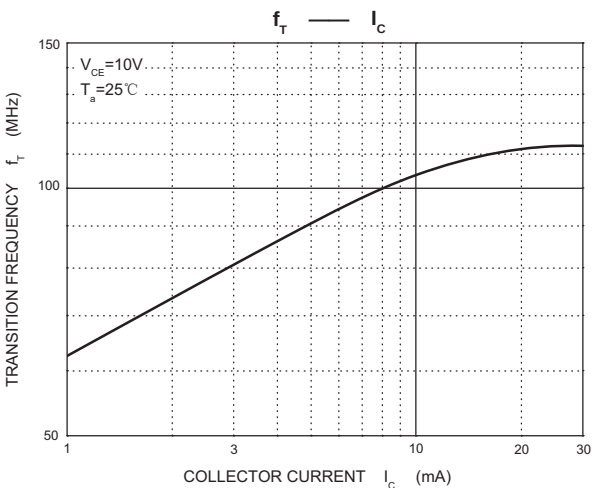
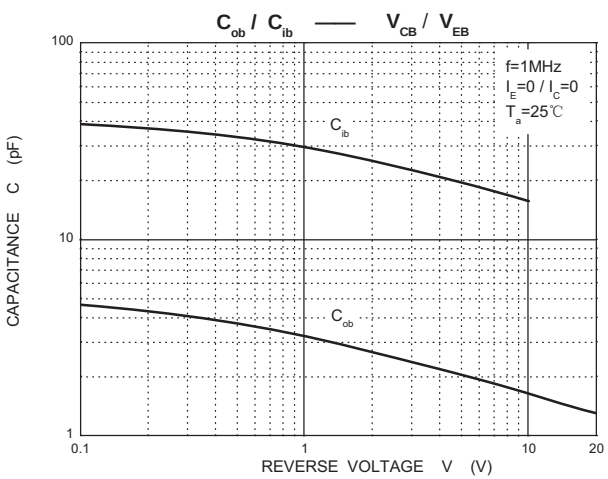
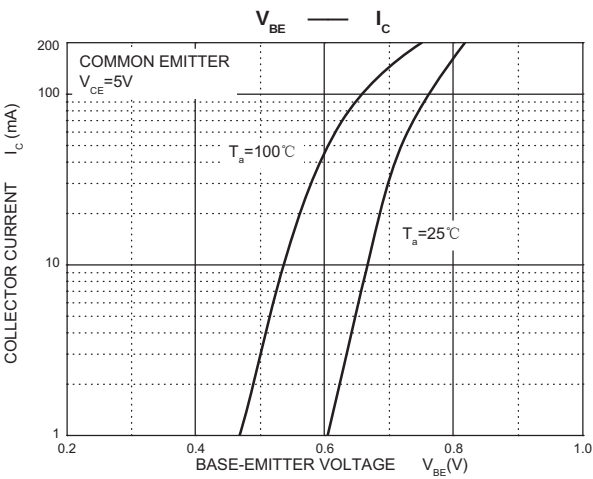
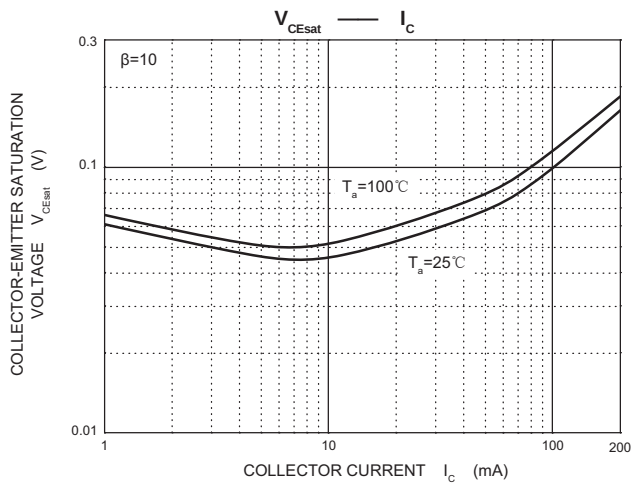
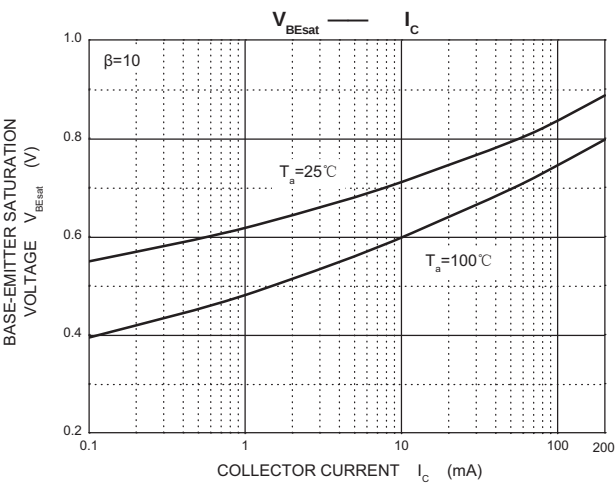
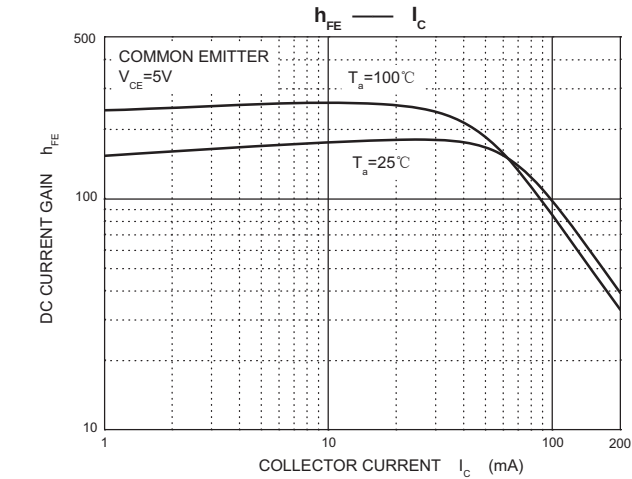
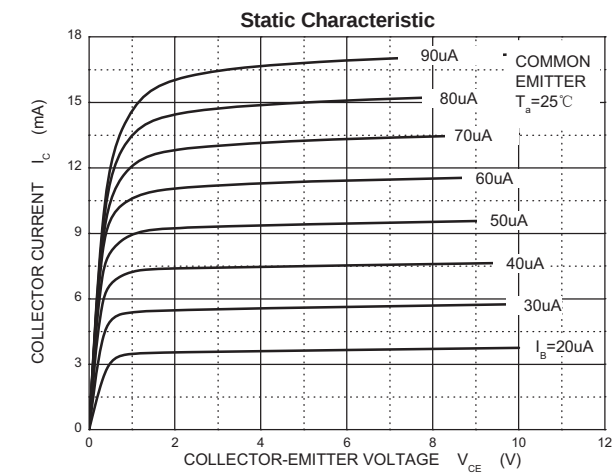
| Parameter                            | Symbol            | Test conditions                                       | Min | Typ | Max  | Unit |
|--------------------------------------|-------------------|-------------------------------------------------------|-----|-----|------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$     | $I_C=100\mu\text{A}, I_E=0$                           | 180 |     |      | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}^{*}$ | $I_C=1\text{mA}, I_B=0$                               | 160 |     |      | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$     | $I_E=10\mu\text{A}, I_C=0$                            | 6   |     |      | V    |
| Collector cut-off current            | $I_{CBO}$         | $V_{CB}=120\text{V}, I_E=0$                           |     |     | 50   | nA   |
| Emitter cut-off current              | $I_{EBO}$         | $V_{EB}=4\text{V}, I_C=0$                             |     |     | 50   | nA   |
| DC current gain                      | $h_{FE(1)}$       | $V_{CE}=5\text{V}, I_C=1\text{mA}$                    | 80  |     |      |      |
|                                      | $h_{FE(2)}$       | $V_{CE}=5\text{V}, I_C=10\text{mA}$                   | 100 |     | 300  |      |
|                                      | $h_{FE(3)}$       | $V_{CE}=5\text{V}, I_C=50\text{mA}$                   | 50  |     |      |      |
| Collector-emitter saturation voltage | $V_{CE(sat) (1)}$ | $I_C=10\text{mA}, I_B=1\text{mA}$                     |     |     | 0.15 | V    |
|                                      | $V_{CE(sat) (2)}$ | $I_C=50\text{mA}, I_B=5\text{mA}$                     |     |     | 0.2  | V    |
| Base-emitter saturation voltage      | $V_{BE(sat) (1)}$ | $I_C=10\text{mA}, I_B=1\text{mA}$                     |     |     | 1    | V    |
|                                      | $V_{BE(sat) (2)}$ | $I_C=50\text{mA}, I_B=5\text{mA}$                     |     |     | 1    | V    |
| Collector output capacitance         | $C_{ob}$          | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$             |     |     | 6    | pF   |
| Emitter input capacitance            | $C_{ib}$          | $V_{BE}=0.5\text{V}, I_C=0, f=1\text{MHz}$            |     |     | 20   | pF   |
| Transition frequency                 | $f_T$             | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ | 100 |     | 300  | MHz  |

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

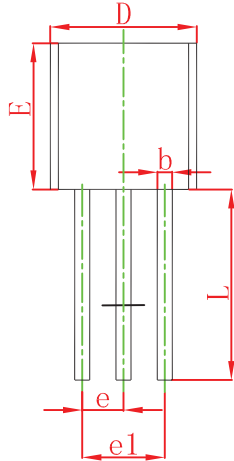
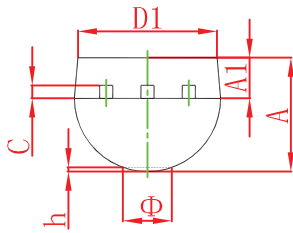
### CLASSIFICATION OF $h_{FE(2)}$

| RANK  | A       | B       | C       |
|-------|---------|---------|---------|
| RANGE | 100-150 | 150-200 | 200-300 |

# Typical Characteristics

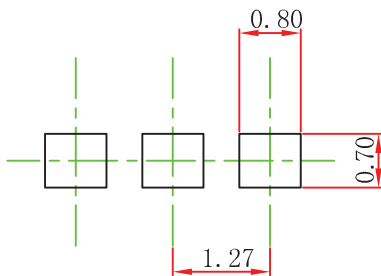


## TO-92 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min                       | Max    | Min                  | Max   |
| A      | 3.300                     | 3.700  | 0.130                | 0.146 |
| A1     | 1.100                     | 1.400  | 0.043                | 0.055 |
| b      | 0.380                     | 0.550  | 0.015                | 0.022 |
| c      | 0.360                     | 0.510  | 0.014                | 0.020 |
| D      | 4.300                     | 4.700  | 0.169                | 0.185 |
| D1     | 3.430                     |        | 0.135                |       |
| E      | 4.300                     | 4.700  | 0.169                | 0.185 |
| e      | 1.270 TYP                 |        | 0.050 TYP            |       |
| e1     | 2.440                     | 2.640  | 0.096                | 0.104 |
| L      | 14.100                    | 14.500 | 0.555                | 0.571 |
| Φ      |                           | 1.600  |                      | 0.063 |
| h      | 0.000                     | 0.380  | 0.000                | 0.015 |

## TO-92 Suggested Pad Layout



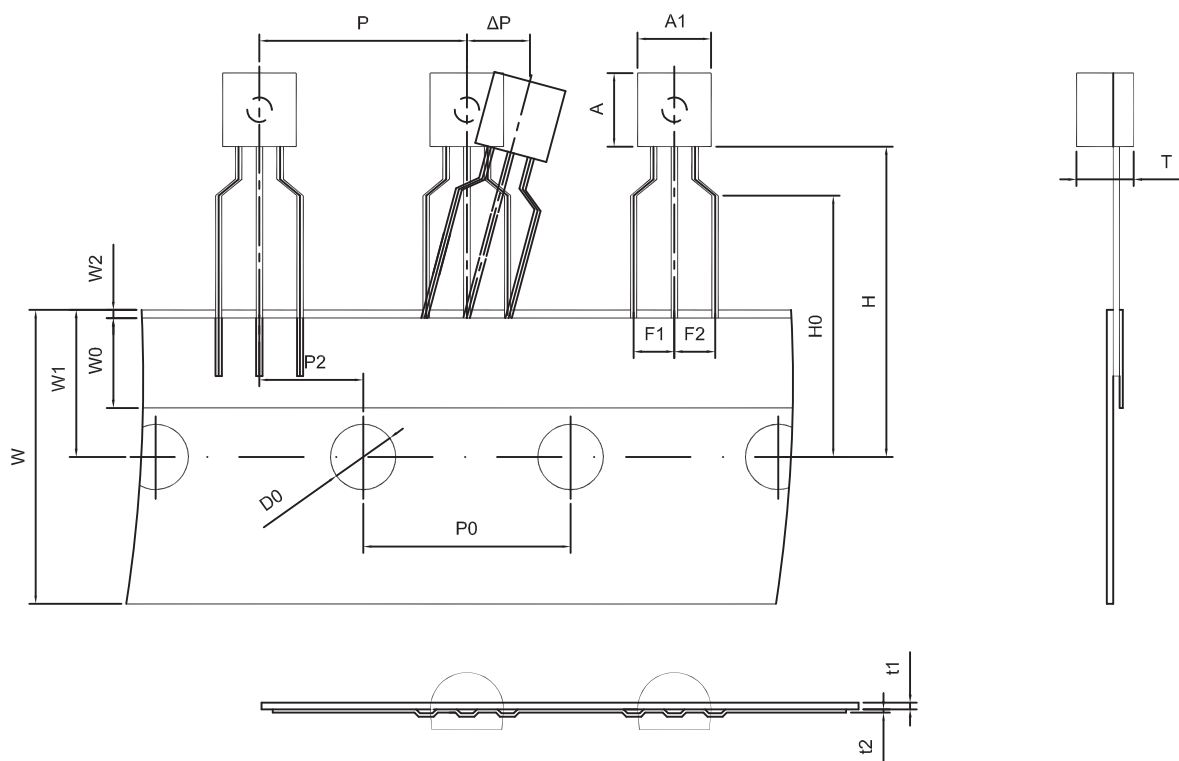
Note:

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

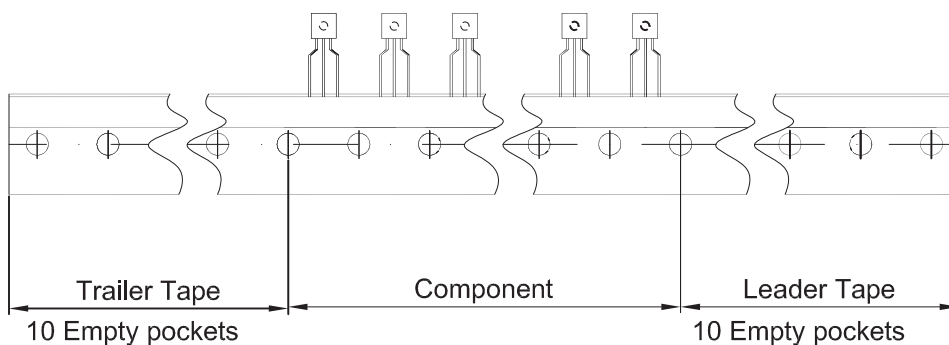
### NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

## TO-92 Tape and Reel



| Dimiensions are in millimeter |     |          |      |      |      |     |     |            |
|-------------------------------|-----|----------|------|------|------|-----|-----|------------|
| A1                            | A   | T        | P    | P0   | P2   | F1  | F2  | W          |
| 4.5                           | 4.5 | 3.5      | 12.7 | 12.7 | 6.35 | 2.5 | 2.5 | 18.0       |
| W0                            | W1  | W2       | H    | H0   | D0   | t1  | t2  | $\Delta P$ |
| 6.0                           | 9.0 | 1.0 MAX. | 19.0 | 16.0 | 4.0  | 0.4 | 0.2 | 0          |



| Package | Box      | Box Size(mm) | Carton     | Carton Size(mm) |
|---------|----------|--------------|------------|-----------------|
| TO-92   | 2000 pcs | 333×162×43   | 20,000 pcs | 350×340×250     |