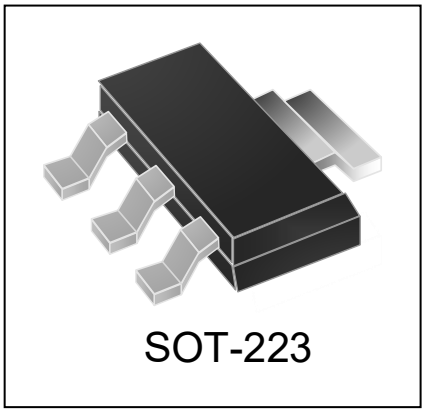
# WT5551N

**NPN Silicon Transistor**

## Features

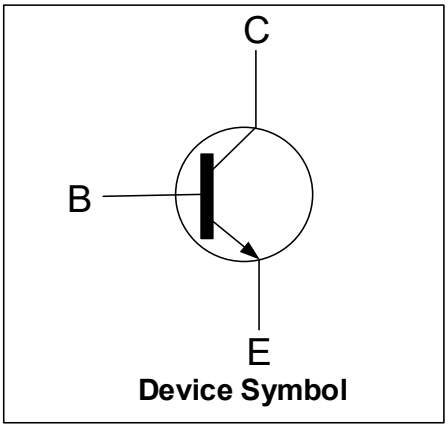
- Complementary to WT5401N
- Ideal Suited for Automated Assembly Processes
- Ideal for Medium Power Amplification and Switching



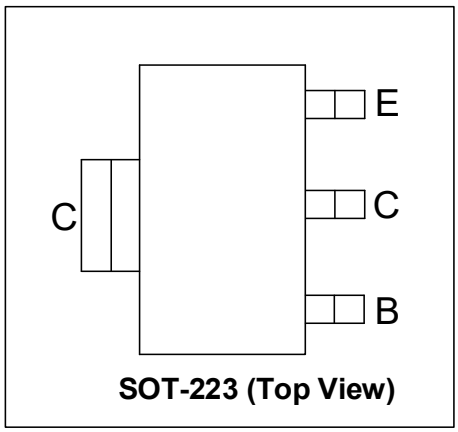

## Mechanical Characteristics

- SOT-223 Package
- Marking : Making Code
- RoHS Compliant

## Schematic & PIN Configuration



Device Symbol



SOT-223 (Top View)

## Absolute Maximum Rating

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | 180 | V |
| Collector Emitter Voltage | $V_{CEO}$ | 160 | V |
| Emitter Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current | $I_C$ | 600 | mA |
| Power Dissipation | $P_C$ | 1 | W |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature | $T_{stg}$ | -55 ~ +150 | °C |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 125 | °C/W |

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## Electrical Characteristics (Tamb=25°C unless otherwise noted)

| Parameter | | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | | $V_{(BR)CBO}$ | $I_C$ = 100μA, $I_E$ = 0 | 180 | - | - | V |
| Collector-Emitter Breakdown Voltage[1] | | $V_{(BR)CEO}$ | $I_C$ = 1mA, $I_B$ = 0 | 160 | - | - | V |
| Emitter-Base Breakdown Voltage | | $V_{(BR)EBO}$ | $I_E$ = 10μA, $I_C$ = 0 | 6 | - | - | V |
| Collector Cut-off Current | $T_A$=25℃ | $I_{CBO}$ | $V_{CB}$ = 120V, $I_E$ = 0 | - | - | 50 | nA |
| | $T_A$=125℃ | | | - | - | 50 | |
| Emitter Cut-off Current | | $I_{EBO}$ | $V_{EB}$ = 4V, $I_C$ = 0 | - | - | 50 | nA |
| DC Current Gain[1] | | $h_{FE(1)}$ | $V_{CE}$ = 5V, $I_C$ = 1mA | 80 | - | - | - |
| | | $h_{FE(2)}$ | $V_{CE}$ = 5V, $I_C$ = 10mA | 80 | - | 250 | - |
| | | $h_{FE(3)}$ | $V_{CE}$ = 5V, $I_C$ = 50mA | 30 | - | - | - |
| Collector-Emitter Saturation Voltage[1] | | $V_{CE(sat)}$ | $I_C$ = 10mA, $I_B$ = 1mA | - | - | 0.15 | V |
| | | | $I_C$ = 50mA, $I_B$ = 5mA | - | - | 0.2 | V |
| Base-Emitter Saturation Voltage[1] | | $V_{BE(sat)}$ | $I_C$ = 10mA, $I_B$ = 1mA | - | - | 1 | V |
| | | | $I_C$ = 50mA, $I_B$ = 5mA | - | - | 1 | V |
| Transition Frequency | | $f_T$ | $V_{CE}$=10V,$I_C$=10mA, f=1kHz | 100 | - | 300 | MHz |
| Collector Output Capacitance | | $C_{ob}$ | $V_{CB}$ = 10V, $I_E$ = 0, f = 1MHz | - | 5 | - | pF |
| Noise Figure | | NF | $V_{CE}$=5V,$I_C$=-200uA,$R_s$=1Ω, f=10Hz to15.7kHz | - | - | 8 | dB |

Note:

Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%

## Typical Characteristics

Figure 1. Static Characteristics

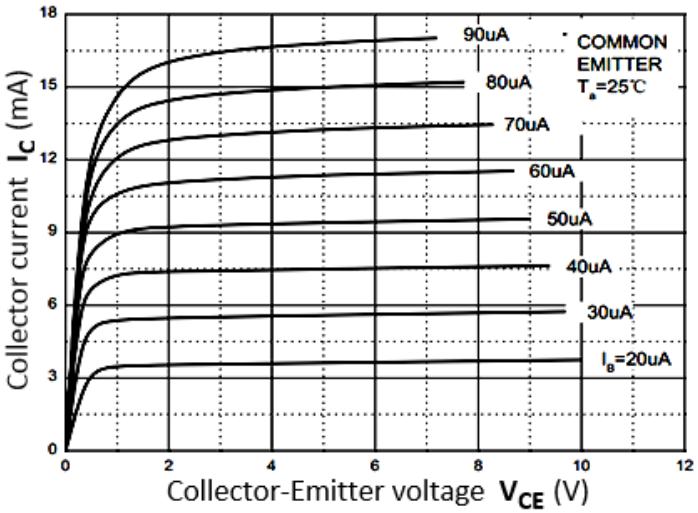



Figure 2. $h_{FE}$ vs. $I_C$

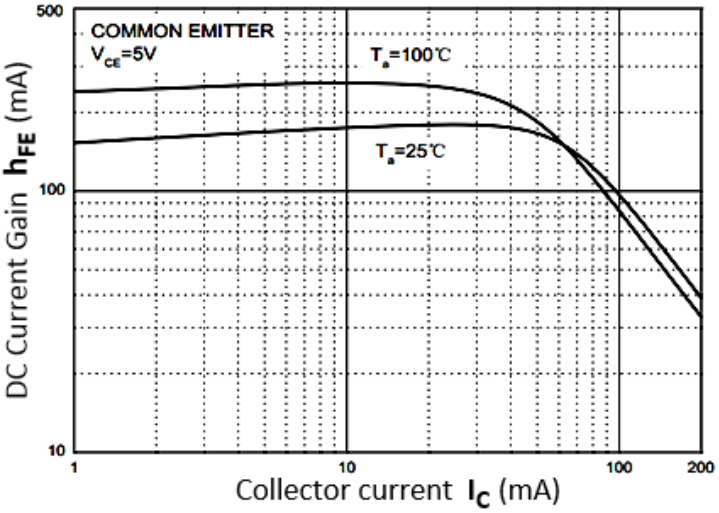


Figure 3. $V_{BE(sat)}$ vs. $I_C$

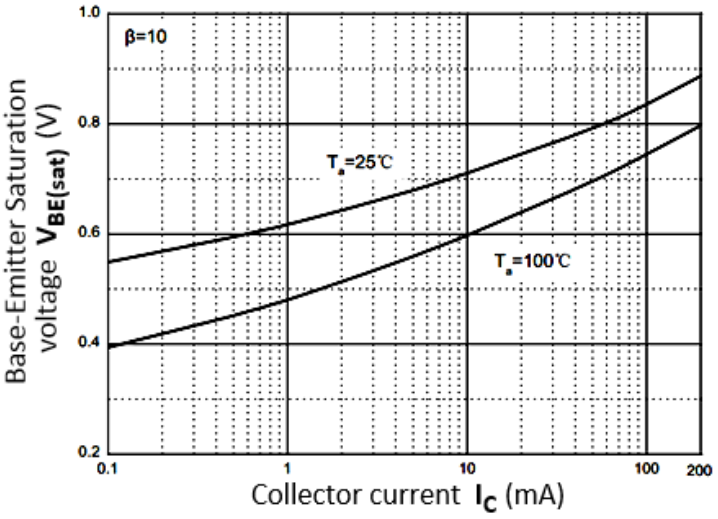



Figure 4. $V_{CE(sat)}$ vs. $I_C$

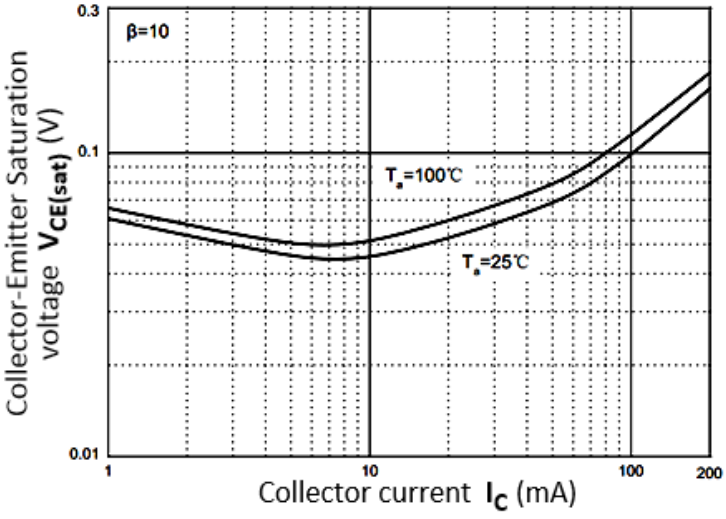



Figure 5. $I_C$ vs. $V_{BE}$

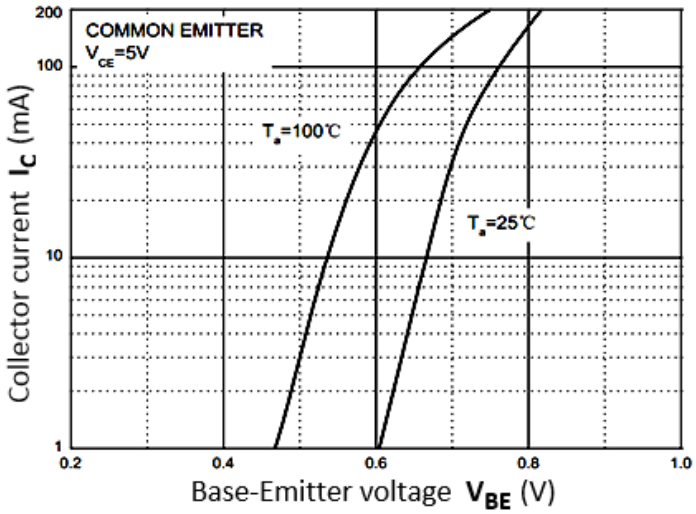



Figure 6. $C_{ob}$ / $C_{ib}$ vs. $V_{CB}$ / $V_{EB}$

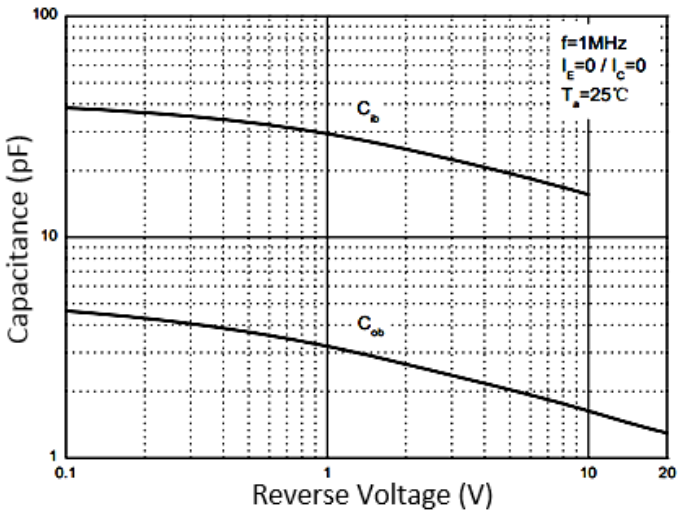



Figure 7. $f_T$ vs. $I_C$

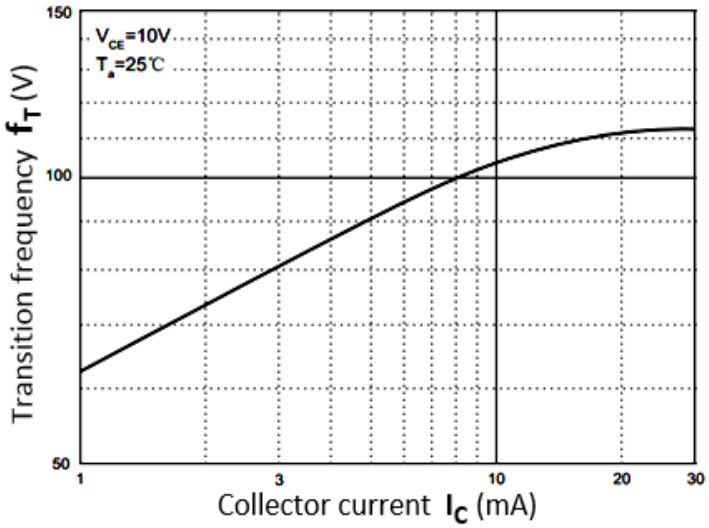
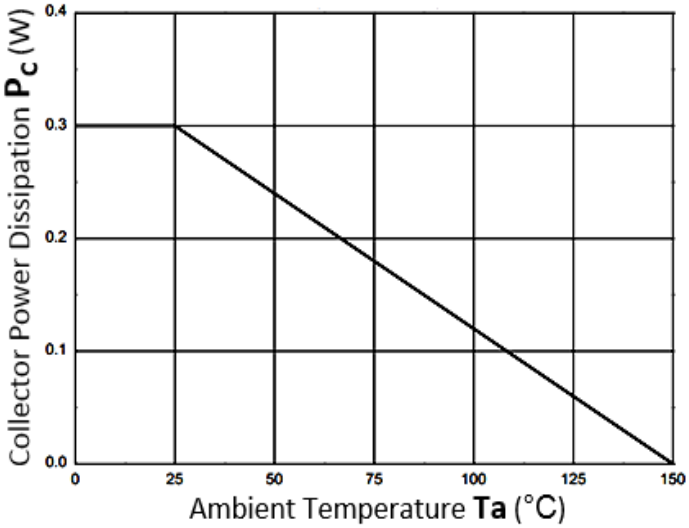
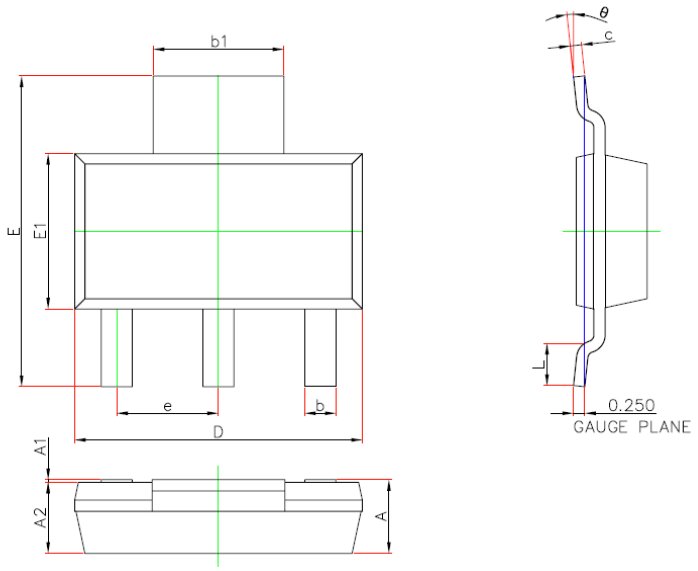


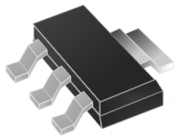

Figure 8. $P_C$ vs. $T_a$



## Outline Drawing – SOT-223

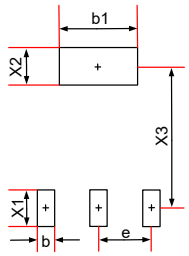
### PACKAGE OUTLINE



SOT-223

| DIMENSIONS | | | | |
|---|---|---|---|---|
| SYMBOL | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 1.51 | 1.81 | 0.059 | 0.071 |
| A1 | 0 | 0.14 | 0 | 0.006 |
| A2 | 1.45 | 1.75 | 0.057 | 0.069 |
| b | 0.66 | 0.84 | 0.026 | 0.033 |
| b1 | 2.90 | 3.10 | 0.114 | 0.122 |
| c | 0.20 | 0.35 | 0.008 | 0.014 |
| D | 6.20 | 6.60 | 0.244 | 0.260 |
| e | 2.30 BSC | | 0.091 BSC | |
| E | 6.70 | 7.20 | 0.264 | 0.283 |
| E1 | 3.30 | 3.70 | 0.130 | 0.146 |
| L | 0.75 | - | 0.030 | - |
| θ | 0 | 10° | 0 | 10° |

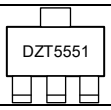



| DIMENSIONS | | |
|---|---|---|
| DIM | MILLIMETERS | INCHES |
| b1 | 3.30 | 0.130 |
| b | 1.20 | 0.047 |
| e | 2.30 | 0.091 |
| X1 | 1.60 | 0.063 |
| X2 | 1.60 | 0.063 |
| X3 | 6.40 | 0.252 |

**Notes**

**1**. Dimensioning and tolerances per ANSI Y14.5M, 1985.
**2**. Controlling Dimension: Inches
**3**. The pad layout is for reference purposes only.
**4**. Dimensions are exclusive of mold flash and metal burrs.

## Marking Codes

| Part Number | WT5551N |
|---|---|
| Marking Code |  |



## Package Information

Qty：2.5k/Reel

## CONTACT INFORMATION

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*The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.*
*Users should verify actual device performance in their specific applications.*