

ZXTP5401G

150V, SOT223, PNP High voltage transistor

Summary

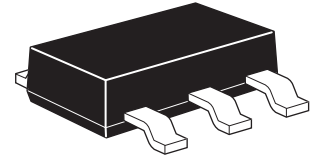
$BV_{CEO} > -150V$

$BV_{EBO} > -5V$

$I_{C(cont)} = -600mA$

$P_D = 2W$

Complementary part number ZXTN5551G

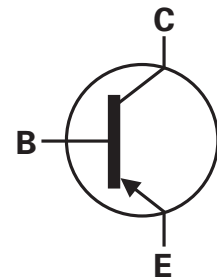


Description

A high voltage PNP transistor in a surface mount package

Features

- 150V rating
- SOT223 package

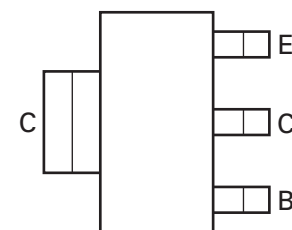


Applications

- High voltage amplification

Ordering information

| Device | Reel size (inches) | Tape width (mm) | Quantity per reel |
|-------------|--------------------|-----------------|-------------------|
| ZXTP5401GTA | 7 | 12 | 1000 |
| ZXTP5401GTC | 13 | 12 | 4000 |



Pinout - top view

Device marking

ZXTP
5401

ZXTP5401G

Absolute maximum ratings

| Parameter | Symbol | Limit | Unit |
|---|----------------|------------|-------|
| Collector-base voltage | V_{CBO} | -160 | V |
| Collector-emitter voltage | V_{CEO} | -150 | V |
| Emitter-base voltage | V_{EBO} | -5 | V |
| Continuous collector current ^(a) | I_C | -600 | mA |
| Peak collector current | I_C | -2 | A |
| Power dissipation at $T_A = 25^\circ\text{C}^{(a)}$ | P_D | 2 | W |
| Linear derating factor | | 16 | mW/°C |
| Operating and storage temperature range | T_j, T_{stg} | -55 to 150 | °C |

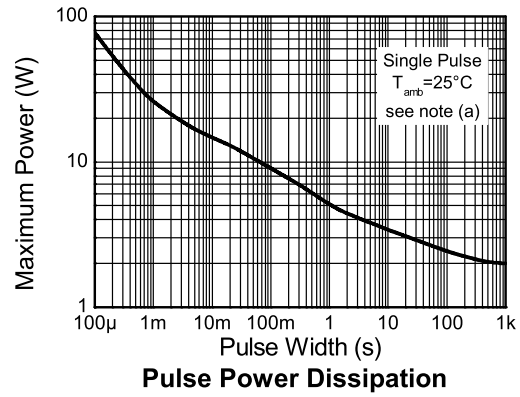
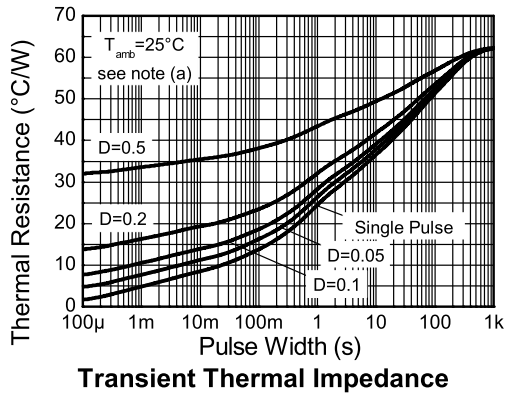
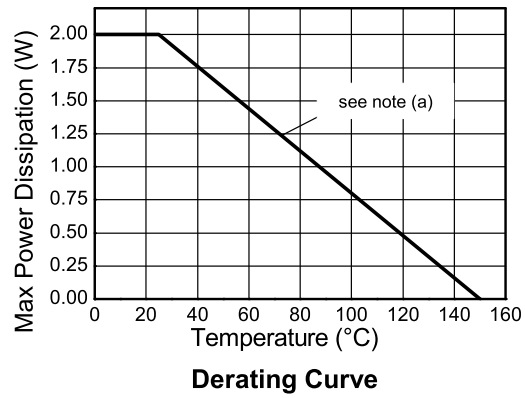
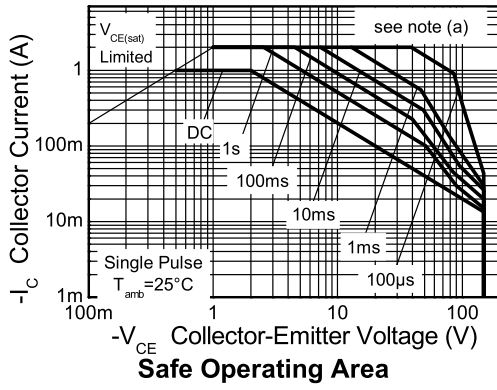
Thermal resistance

| Parameter | Symbol | Limit | Unit |
|------------------------------------|-----------------|-------|------|
| Junction to ambient ^(a) | $R_{\theta JA}$ | 62.5 | °C/W |

NOTES:

(a) For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz weight copper, in still air conditions.

Typical characteristics

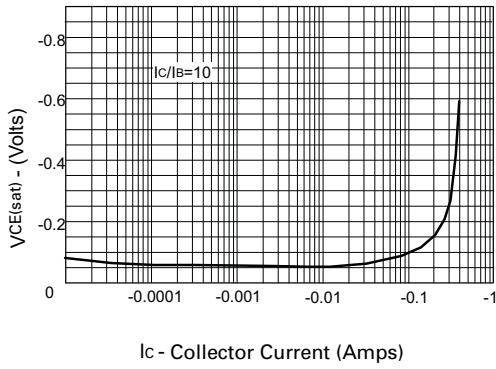


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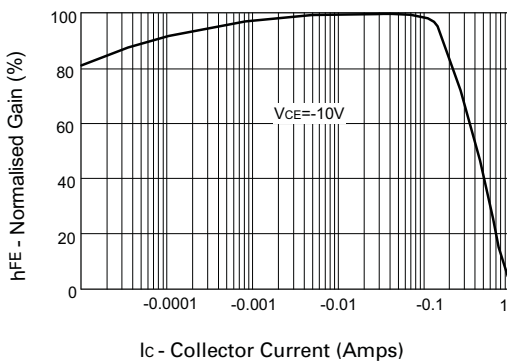
Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---------------|----------------|-------------------|----------------|---------------------|---|
| Collector-base breakdown voltage | BV_{CBO} | -160 | -270 | | V | $I_C = -100\mu\text{A}$, |
| Collector-emitter breakdown voltage (base open) | BV_{CEO} | -150 | -240 | | V | $I_C = -1\text{mA}^*$ |
| Emitter-base breakdown voltage | BV_{EBO} | -5 | -8.1 | | V | $I_E = -10\mu\text{A}$ |
| Collector cut-off current | I_{CBO} | | <-1 | -50 -50 | nA μA | $V_{CB} = -120\text{V}$ $V_{CB} = -120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | | -50 -70 | -200 -500 | mV mV | $I_C = -10\text{mA}$, $I_B = -1\text{mA}^*$ $I_C = -50\text{mA}$, $I_B = -5\text{mA}^*$ |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | | -700 -750 | -1000 -1000 | mV mV | $I_C = -10\text{mA}$, $I_B = -1\text{mA}^*$ $I_C = -50\text{mA}$, $I_B = -5\text{mA}^*$ |
| Static forward current transfer ratio | h_{FE} | 50 60 50 | 135 135 130 | 240 | | $I_C = -1\text{mA}$, $V_{CE} = -5\text{V}^*$ $I_C = -10\text{mA}$, $V_{CE} = -5\text{V}^*$ $I_C = -50\text{mA}$, $V_{CE} = -5\text{V}^*$ |
| Transition frequency | f_T | | 100 | | MHz | $I_C = -10\text{mA}$, $V_{CE} = -10\text{V}$ $f = 100\text{MHz}$ |
| Output capacitance | C_{OBO} | | | 6 | pF | $V_{CB} = -10\text{V}$, $f = 1\text{MHz}^*$ |
| Delay time | $t_{(d)}$ | | 386 | | ns | $V_{CC} = -50\text{V}$. $I_C = -100\text{mA}$, $I_{B1} = I_{B2} = -10\text{mA}$. |
| Rise time | $t_{(r)}$ | | 202 | | ns | |
| Storage time | $t_{(s)}$ | | 1720 | | ns | |
| Fall time | $t_{(f)}$ | | 275 | | ns | |

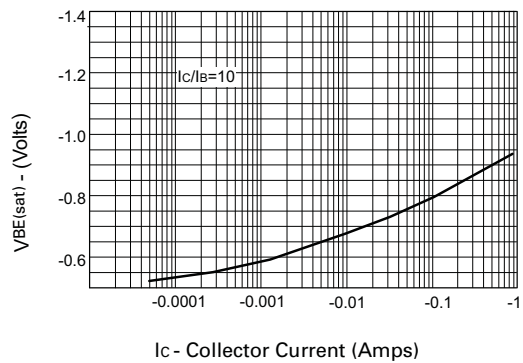
Characteristics



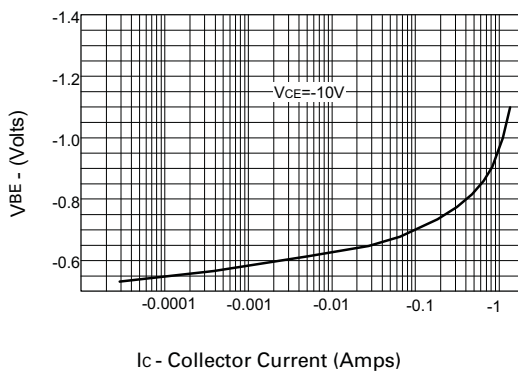
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C

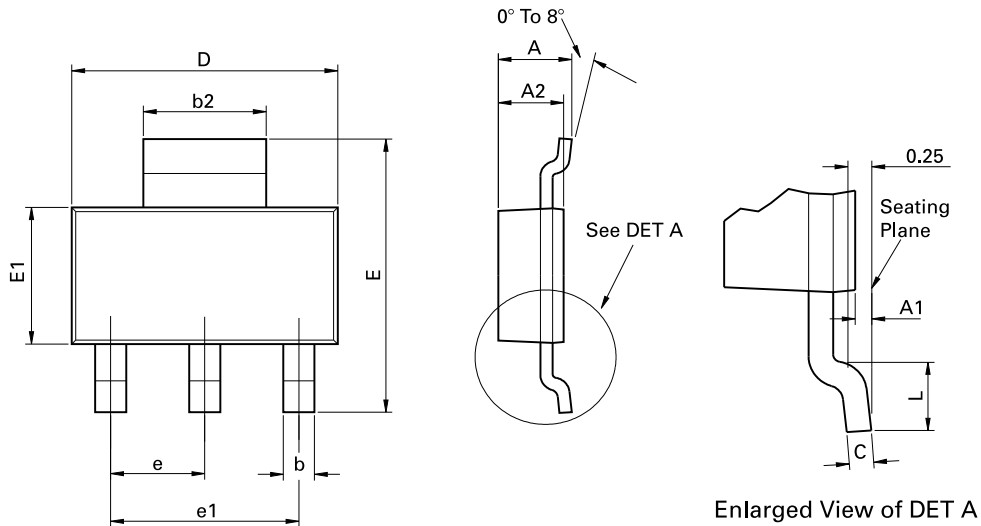


$V_{BE(on)}$ v I_C

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ZXTP5401G

Package outline - SOT223



Conforms to JEDEC TO-261 AA Issue B

| Dim. | Millimeters | | Inches | | Dim. | Millimeters | | Inches | |
|------|-------------|------|--------|--------|------|-------------|------|------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | - | 1.80 | - | 0.071 | D | 6.30 | 6.70 | 0.248 | 0.264 |
| A1 | 0.02 | 0.10 | 0.0008 | 0.004 | e | 2.30 BSC | | 0.0905 BSC | |
| A2 | 1.55 | 1.65 | 0.0610 | 0.0649 | e1 | 4.60 BSC | | 0.181 BSC | |
| b | 0.66 | 0.84 | 0.026 | 0.033 | E | 6.70 | 7.30 | 0.264 | 0.287 |
| b2 | 2.90 | 3.10 | 0.114 | 0.122 | E1 | 3.30 | 3.70 | 0.130 | 0.146 |
| C | 0.23 | 0.33 | 0.009 | 0.013 | L | 0.90 | - | 0.355 | - |

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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| | |
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| | |
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