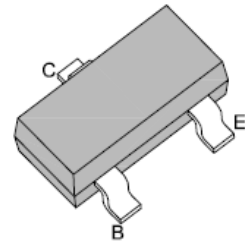


## SMD High Voltage Transistor (PNP)

### Features

- This device is designed for high voltage driver applications
- RoHS compliance



### Mechanical Data

SOT-23



|                   |   |
|-------------------|---|
| <b>Case:</b>      | SOT-23, Plastic Package                 |
| <b>Terminals:</b> | Solderable per MIL-STD-202G, Method 208 |
| <b>Weight:</b>    | 0.008 gram                              |

### Maximum Ratings *(T<sub>Ambient</sub>=25°C unless noted otherwise)*

| Symbol                  | Description                                  | MMBT5401    | Unit |
|-------------------------|--|-------------|------|
|                         | Marking Code                                 | 2L          |      |
| <b>-V<sub>CBO</sub></b> | Collector-Base Voltage                       | 160         | V    |
| <b>-V<sub>CEO</sub></b> | Collector-Emitter Voltage                    | 150         | V    |
| <b>-V<sub>EBO</sub></b> | Emitter-Base Voltage                         | 5           | V    |
| <b>-I<sub>c</sub></b>   | Collector Current                            | 500         | mA   |
| <b>P<sub>tot</sub></b>  | Power Dissipation up to T <sub>A</sub> =25°C | 250         | mW   |
| <b>R<sub>θJA</sub></b>  | Thermal Resistance, Junction to Ambient      | 500         | K/W  |
| <b>T<sub>J</sub></b>    | Junction Temperature                         | 150         | °C   |
| <b>T<sub>STG</sub></b>  | Storage Temperature Range                    | -55 to +150 | °C   |

# SMD High Voltage Transistor (PNP)

## MMBT5401

### Electrical Characteristics ( $T_{Ambient}=25^{\circ}C$ unless noted otherwise)

| Symbol                           | Description                          | MMBT5401 |      | Unit    | Conditions  |
|----------------------------------|--------------------------------------|----------|------|---------|---|
|                                  |                                      | Min.     | Max. |         |   |
| <b>hFE</b>                       | D.C. Current Gain                    | 50       | -    |         | $-V_{CE}=5V, -I_C=1mA$  |
|                                  |                                      | 60       | 240  |         | $-V_{CE}=5V, -I_C=10mA$   |
|                                  |                                      | 50       | -    |         | $-V_{CE}=5V, -I_C=50mA$   |
| <b><math>-V_{(BR)CEO}</math></b> | Collector-Emitter Breakdown Voltage  | 150      | -    | V       | $-I_C=1mA, I_B=0$   |
| <b><math>-V_{(BR)CBO}</math></b> | Collector-Base Breakdown Voltage     | 160      | -    | V       | $-I_C=100\mu A, I_E=0$  |
| <b><math>-V_{(BR)EBO}</math></b> | Emitter-Base Breakdown Voltage       | 5        | -    | V       | $-I_E=10\mu A, I_C=0$   |
| <b><math>-V_{CE(sat)}</math></b> | Collector-Emitter Saturation Voltage | -        | 0.2  | V       | $-I_C=10mA, -I_B=1mA$   |
|                                  |                                      | -        | 0.5  | V       | $-I_C=50mA, -I_B=5mA$   |
| <b><math>-V_{BE(sat)}</math></b> | Base-Emitter Saturation Voltage      | -        | 1    | V       | $-I_C=10mA, -I_B=1mA$   |
|                                  |                                      | -        | 1    | V       | $-I_C=50mA, -I_B=5mA$   |
| <b><math>-I_{CBO}</math></b>     | Collector-Base Cut-off Current       | -        | 50   | nA      | $-V_{CB}=120V, I_E=0$   |
|                                  |                                      | -        | 50   | $\mu A$ | $-V_{CB}=120V, I_E=0, T_A=150^{\circ}C$   |
| <b>hfe</b>                       | Small Signal Current Gain            | 40       | 200  |         | $-V_{CE}=10V, I_C=1mA, f=1KHz,$   |
| <b>CcBO</b>                      | Output Capacitance                   | -        | 6    | pF      | $-V_{CB}=10V, I_E=0, f=1MHz$  |
| <b>fT</b>                        | Transition Frequency                 | 100      | 300  | MHz     | $-V_{CE}=10V, -I_C=10mA, f=100MHz, T_A=25^{\circ}C$                                   |
| <b>F</b>                         | Noise Figure                         | -        | 8    | dB      | $-V_{CE}=5V, I_C=200\mu A, f=10Hz \text{ to } 15.7KHz, R_s=10\Omega, T_A=25^{\circ}C$ |

# SMD High Voltage Transistor (PNP)

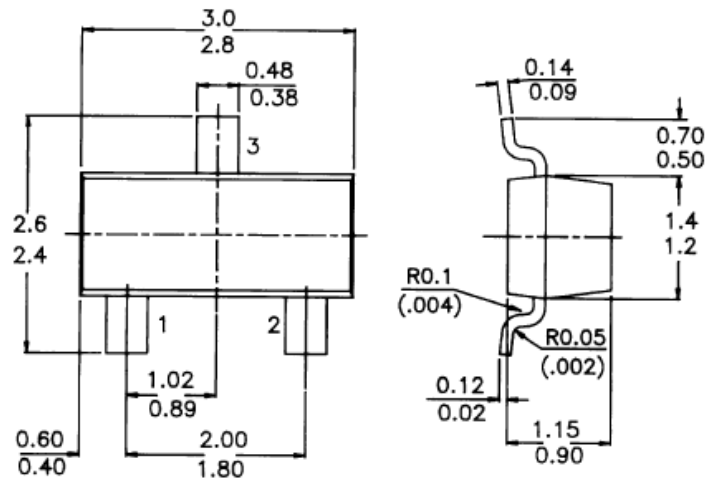
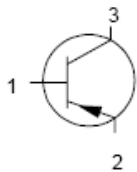
## MMBT5401

Dimensions in mm

### SOT-23

#### Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



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