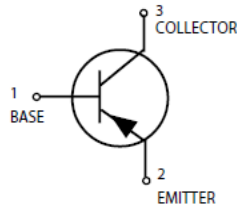
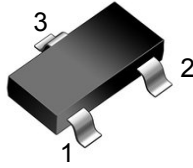


**SOT-23**



**MARKING: 2T**

**Features**

As complementary type the NPN transistor PMBT4401 is recommended  
 Epitaxial planar die construction  
 Halogen free and RoHS compliant

**Mechanical Data**

SOT-23 Small Outline Plastic Package  
 Epoxy UL: 94V-0

**Summary of Packing Options**

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| SOT-23  | Tape/Reel,7" reel   | 3000             | EIA-481-1         |

**Maximum Ratings & Thermal Characteristics**

(Ratings at 25°C ambient temperature unless otherwise specified.)

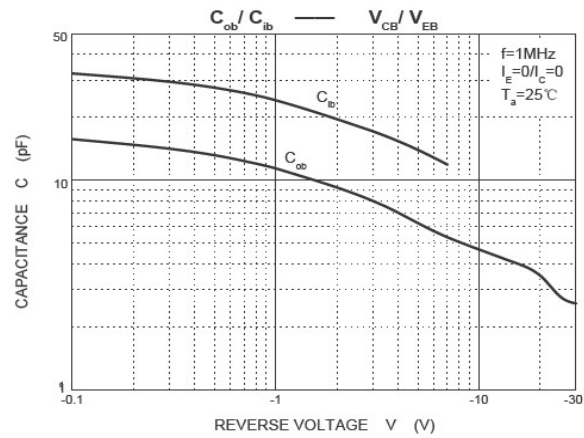
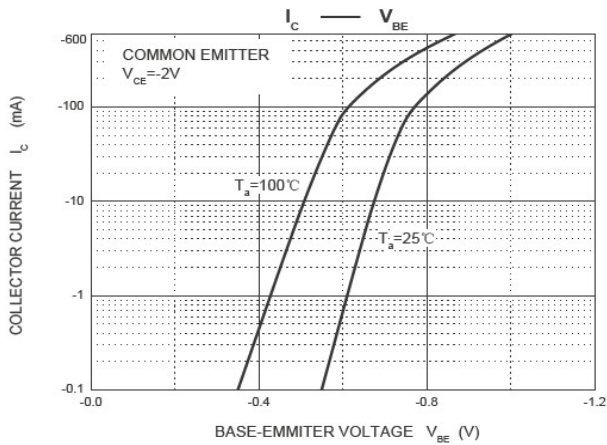
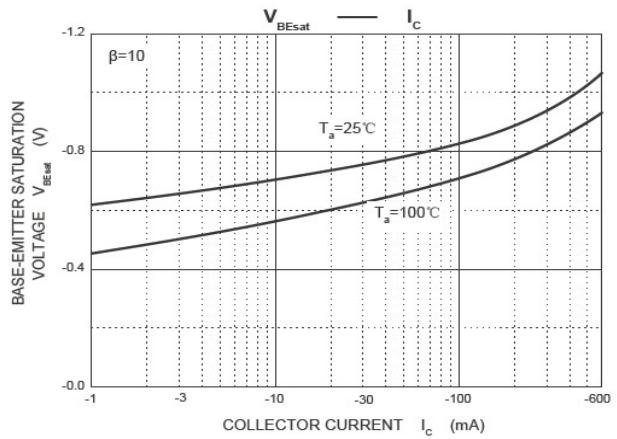
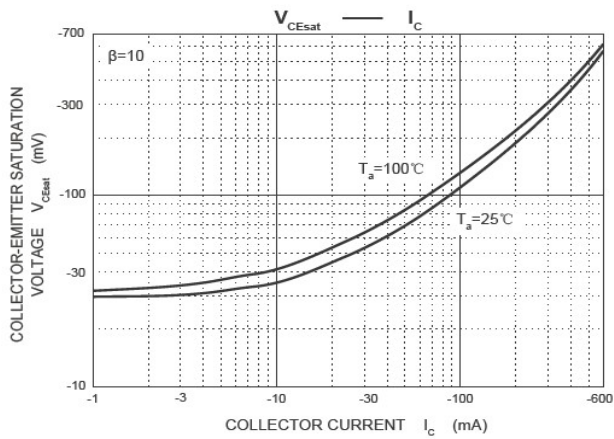
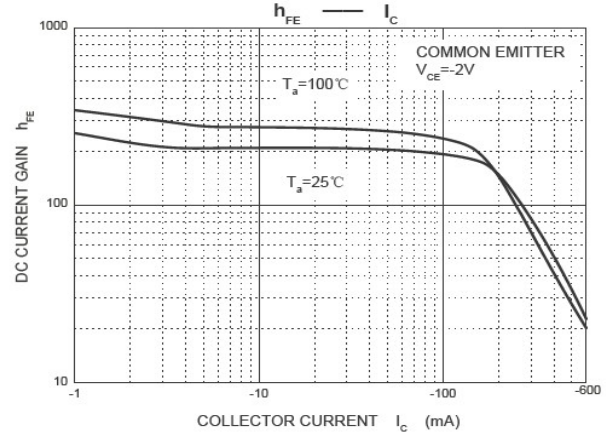
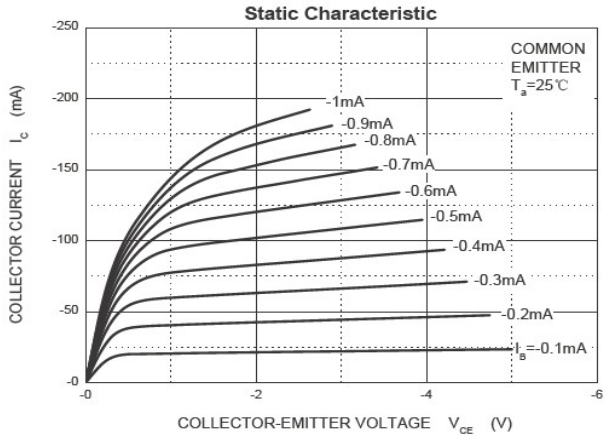
| Parameters                                  | Symbol           | Value    | Unit |
|---|------------------|----------|------|
| Collector-Base Voltage                      | V <sub>CB0</sub> | -40      | V    |
| Collector-Emitter Voltage                   | V <sub>CEO</sub> | -40      | V    |
| Emitter -Base Voltage                       | V <sub>EBO</sub> | -5       | V    |
| Collector Current-Continuous                | I <sub>C</sub>   | -600     | mA   |
| Collector Power Dissipation                 | P <sub>C</sub>   | 300      | mW   |
| Junction Temperature                        | T <sub>j</sub>   | 150      | °C   |
| Storage Temperature                         | T <sub>stg</sub> | -55-+150 | °C   |
| Thermal resistance From junction to ambient | R <sub>θJA</sub> | 417      | °C/W |

**Electrical Characteristics**

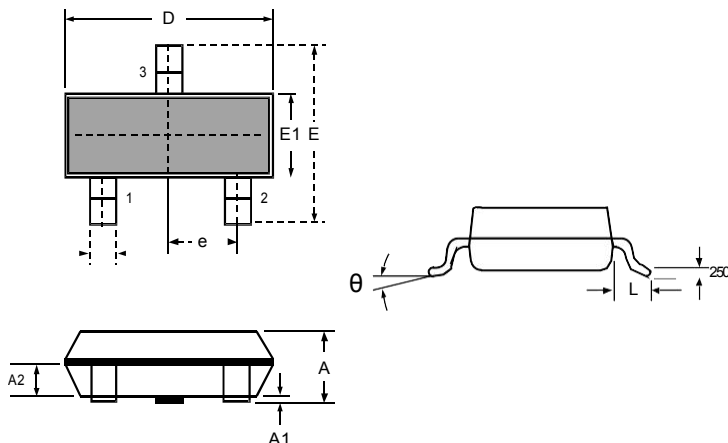
(Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameter                            | Symbols              | Test Condition   | Limits |       | Unit |
|--------------------------------------|----------------------|--|--------|-------|------|
|                                      |                      |  | Min    | Max   |      |
| Collector-base breakdown voltage     | V(BR)CBO             | I <sub>C</sub> =-100uA, I <sub>E</sub> =0  | -40    |       | V    |
| Collector-emitter breakdown voltage  | V(BR)CEO             | I <sub>C</sub> =-1mA, I <sub>B</sub> =0  | -40    |       | V    |
| Emitter-base breakdown voltage       | V(BR)EBO             | I <sub>E</sub> =-100uA, I <sub>C</sub> =0  | -5     |       | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> =-35V, I <sub>E</sub> =0   |        | -100  | nA   |
| Collector cut-off current            | I <sub>CEX</sub>     | V <sub>CE</sub> =-35V, V <sub>EB(off)</sub> =-0.4V   |        | -100  | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =-4V, I <sub>C</sub> =0  |        | -100  | nA   |
| DC current gain                      | hFE(1)               | V <sub>CE</sub> =-1V, I <sub>C</sub> =-0.1mA   | 30     |       |      |
|                                      | hFE(2)               | V <sub>CE</sub> =-1V, I <sub>C</sub> =-1mA   | 60     |       |      |
|                                      | hFE(3)               | V <sub>CE</sub> =-1V, I <sub>C</sub> =-10mA  | 100    |       |      |
|                                      | hFE(4)               | V <sub>CE</sub> =-2V, I <sub>C</sub> =-150mA   | 100    | 300   |      |
|                                      | hFE(5)               | V <sub>CE</sub> =-2V, I <sub>C</sub> =-500mA   | 20     |       |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA  |        | -0.40 | V    |
|                                      |                      | I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA  |        | -0.75 | V    |
| Base -emitter saturation voltage     | V <sub>BE(sat)</sub> | I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA  |        | -0.95 | V    |
|                                      |                      | I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA  |        | -1.30 | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> =-10V, I <sub>C</sub> =-20mA, f=100MHz   | 200    |       | MHz  |
| Delay time                           | t <sub>d</sub>       | V <sub>CC</sub> =-30V, V <sub>BE(off)</sub> =-0.5V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =-15mA |        | 15    | nS   |
| Rise time                            | t <sub>r</sub>       |  |        | 20    | nS   |
| Storage time                         | t <sub>s</sub>       | V <sub>CC</sub> =-30V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =I <sub>B2</sub> =-15mA             |        | 225   | nS   |
| Fall time                            | t <sub>f</sub>       |  |        | 60    | nS   |

## Ratings and Characteristic Curves



## Package Outline Dimensions: SOT-23



### DIMENSIONS

| SYMBOL   | MILLIMETER |           | INCHES    |           |
|----------|------------|-----------|-----------|-----------|
|          | MIN        | MAX       | MIN       | MAX       |
| A        | 0.900      | 1.150     | 0.035     | 0.045     |
| A1       | 0.000      | 0.100     | 0.000     | 0.004     |
| A2       | 0.900      | 1.050     | 0.035     | 0.041     |
| D        | 2.800      | 3.000     | 0.110     | 0.118     |
| b        | 0.300      | 0.500     | 0.012     | 0.020     |
| E        | 2.250      | 2.550     | 0.089     | 0.100     |
| E1       | 1.200      | 1.400     | 0.047     | 0.055     |
| e        | 0.950 BSC  |           | 0.037 BSC |           |
| L        | 0.300      | 0.500     | 0.012     | 0.020     |
| $\theta$ | 0          | $8^\circ$ | 0         | $8^\circ$ |

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