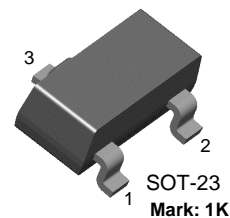


# MMBT6428

MMBT6428

## NPN General Purpose Amplifier

- This device designed for general purpose amplifier applications at collector currents to 300mA
- Sourced from process 10.



SOT-23  
Mark: 1K  
1. Base 2. Emitter 3. Collector

## Absolute Maximum Ratings\* $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter  | Value      | Units            |
|----------------|--|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage                        | 50         | V                |
| $V_{CBO}$      | Collector-Base Voltage                           | 60         | V                |
| $I_C$          | Collector Current - Continuous                   | 500        | mA               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | - 55 ~ 150 | $^\circ\text{C}$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.

## Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol                              | Parameter                             | Test Condition   | Min.                     | Max.       | Units         |
|-------------------------------------|---------------------------------------|--|--------------------------|------------|---------------|
| <b>Off Characteristics</b>          |                                       |  |                          |            |               |
| $V_{(BR)CEO}$                       | Collector-Emitter Breakdown Voltage * | $I_C = 1.0\text{mA}, I_B = 0$  | 50                       |            | V             |
| $V_{(BR)CBO}$                       | Collector-Base Breakdown Voltage      | $I_C = 100\mu\text{A}, I_E = 0$  | 60                       |            | V             |
| $I_{CEO}$                           | Collector Cut-off Current             | $V_{CE} = 30\text{V}, I_B = 0$   |                          | 0.1        | $\mu\text{A}$ |
| $I_{CBO}$                           | Collector Cut-off Current             | $V_{CB} = 30\text{V}, I_E = 0$   |                          | 10         | nA            |
| $I_{EBO}$                           | Emitter Cut-off Current               | $V_{EB} = 5.0\text{V}, I_B = 0$  |                          | 10         | nA            |
| <b>On Characteristics</b>           |                                       |  |                          |            |               |
| $h_{FE}$                            | DC Current Gain                       | $V_{CE} = 5.0\text{V}, I_C = 10\mu\text{A}$<br>$V_{CE} = 5.0\text{V}, I_C = 100\mu\text{A}$<br>$V_{CE} = 5.0\text{V}, I_C = 1.0\text{mA}$<br>$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$ | 250<br>250<br>250<br>250 | 650        |               |
| $V_{CE(sat)}$                       | Collector-Emitter Saturation Voltage  | $I_C = 10\text{mA}, I_B = 0.5\text{mA}$<br>$I_C = 100\text{mA}, I_B = 5.0\text{mA}$  |                          | 0.2<br>0.6 | V             |
| $V_{BE(on)}$                        | Base-Emitter On Voltage               | $V_{CE} = 5.0\text{V}, I_C = 1.0\text{mA}$   | 0.56                     | 0.66       | V             |
| <b>Small Signal Characteristics</b> |                                       |  |                          |            |               |
| $f_T$                               | Current gain Bandwidth Product        | $V_{CE} = 5.0\text{V}, I_C = 1.0\text{mA},$<br>$f = 100\text{MHz}$   | 100                      | 700        | MHz           |
| $C_{obo}$                           | Output Capacitance                    | $V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$  |                          | 3.0        | pF            |
| $C_{ibo}$                           | Input Capacitance                     | $V_{EB} = 0.5\text{V}, I_C = 0, f = 1.0\text{MHz}$   |                          | 8.0        | pF            |

\*Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

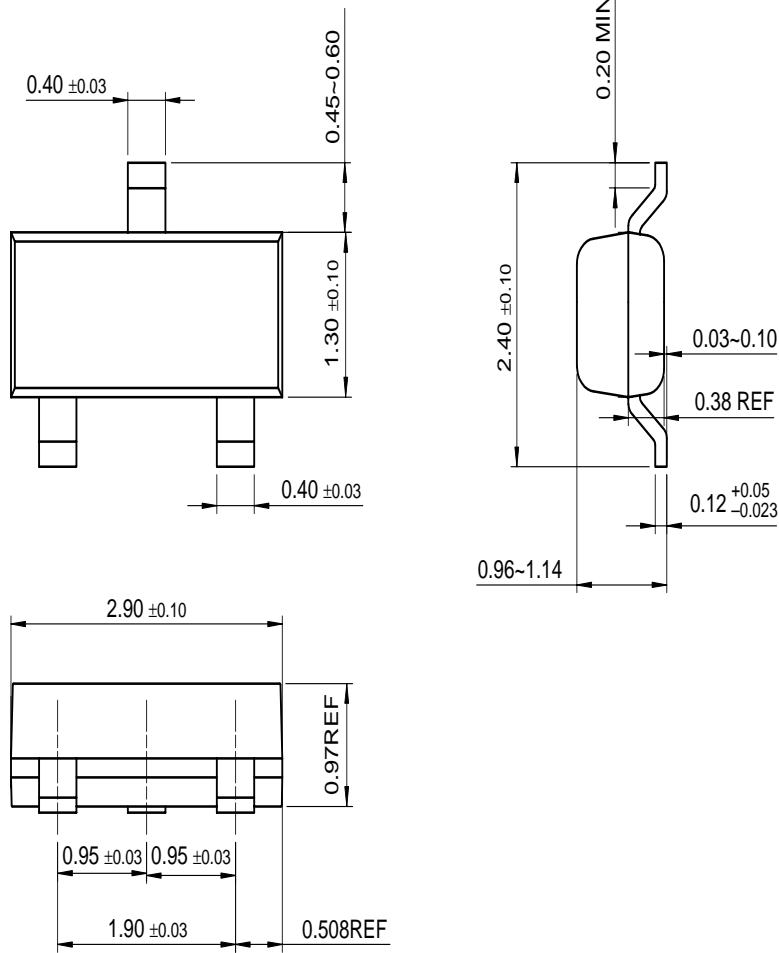
**Thermal Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise noted

| Symbol          | Parameter                               | Max. | Units                     |
|-----------------|---|------|---------------------------|
| $P_D$           | Total Device Dissipation                | 350  | mW                        |
|                 | Derate above $25^\circ\text{C}$         | 2.8  | mW/ $^\circ\text{C}$      |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case    |      | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357  | $^\circ\text{C}/\text{W}$ |

\*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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