



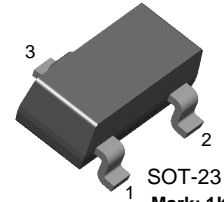
ON Semiconductor®

# 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	$V_{CE} = 5.0\text{V}, I_C = 10\mu\text{A}$ $V_{CE} = 5.0\text{V}, I_C = 100\mu\text{A}$ $V_{CE} = 5.0\text{V}, I_C = 1.0\text{mA}$ $V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$	250 250 250 250	650	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$		0.2 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	$V_{CE} = 5.0\text{V}, I_C = 1.0\text{mA},$ $f = 100\text{MHz}$	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  $\leq 2.0\%$

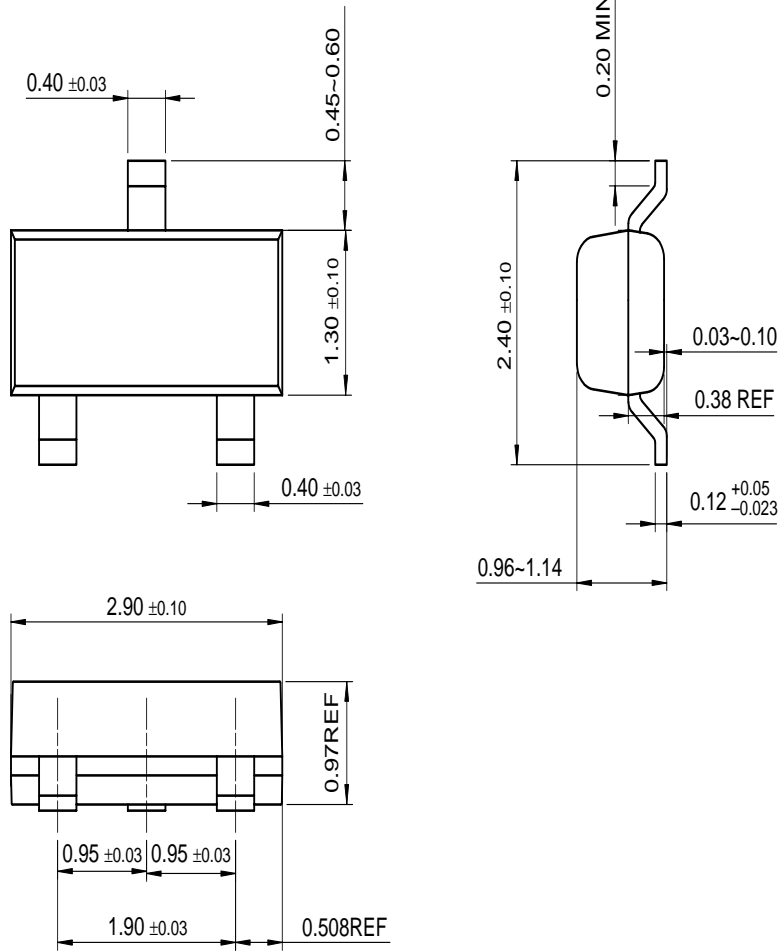
**Thermal Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise noted

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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