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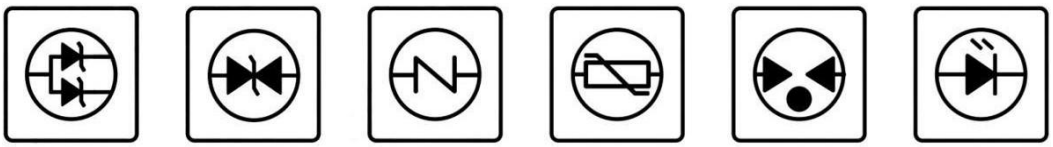
SEMICONDUCTOR




# CAT811XTBI-GT3-MS

产品手册

## GENERAL DESCRIPTION

The CAT811XTBI-GT3-MS is a general-purpose voltage detector which only consume about 5uA at 3.6V, which can be widely used in all electronic system to either monitor a battery voltage or generate a power-on reset signal. It can work under the voltage ranging from 1V to 6V. CAT811XTBI-GT3-MS also provide a manual reset pin.

CAT811XTBI-GT3-MS employs a low voltage reference, low offset comparator, timer and push-pull output stage. Its push-pull output is pushed high after input voltage is greater than the internal setting level for 240ms .

The CAT811XTBI-GT3-MS is available in SOT-143 package.

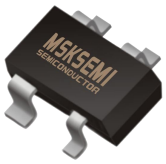
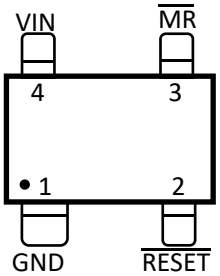
## FEATURES

- Wide operation range: 1-6V
- Voltage detecting level setting range: 2.3-5V
- SOT-143 package
- Detection delay time: 240ms
- Reset pin output kept low when input voltage < 1V
- 4KV ESD

## APPLICATION

- Battery voltage monitor
- Power-on reset
- Set-top-box
- Voltage level trigger
- Press button debouncing
- Portable devices

## PINASSIGNMENT

| PACKAGE | PIN DEFINITION |
|---|---|
|  |  |
| SOT-143 | |



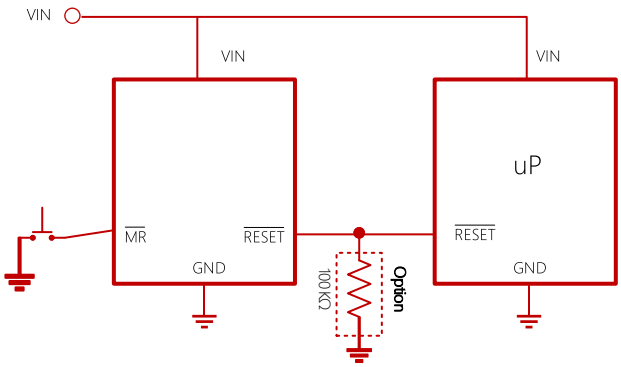
| | | |
|---|---|---|
| 1 | GND | Ground |
| 2 | $\overline{\text{RESET}}$ | The push pull output node, pulled low when $V_{IN}$ is lower than detect level and pushed high when $V_{IN}$ is higher than detect level for 240ms |
| 3 | $\overline{\text{MR}}$ | Manual Reset |
| 4 | VIN | The power input node as well as the voltage node to be detected |

## ORDER INFORMATION AND MARKING

| Part No | Voltage Detecting Level | Package | Tape & Reel |
|---|---|---|---|
| CAT811RTBI-GT3-MS | 2.63V | SOT-143 | 3000 |
| CAT811STBI-GT3-MS | 2.93V | | 3000 |
| CAT811TTBI-GT3-MS | 3.08V | | 3000 |

| CAT811RTBI-GT3-MS | CAT811STBI-GT3-MS | CAT811TTBI-GT3-MS |
|---|---|---|
| VEA3 | VEA2 | VEA1 |

## TYPICAL APPLICATION




Detector output remains low if $V_{IN}$ is below detecting level, and jumps to high if VIN is above detecting level for 240ms

## ABSOLUTE MAXIMUMRATINGS

$V_{IN}$ [1]·····-0.3V to 8V

$V_{RESET, MR}$ [1]·····-0.3V to $V_{IN}$+0.3V

Continuous Power Dissipation ($T_A$ = 25°C) [2]

SOT-143 ·····0.3W

Junction Temperature·····-40°C to 125°C

Lead Temperature·····260°C

Storage Temperature·····-65°C to +150°C

Thermal Resistance [3] $\theta_{JA}$ $\theta_{JC}$

SOT-143 ·····280°C /W·····90°C /W

Notes:

(1) Exceeding these ratings may damage the device.

(2) The maximum allowable power dissipation is a function of the maximum junction temperature $T_J$(MAX), the junction-to-ambient thermal resistance $\theta_{JA}$, and the ambient temperature $T_A$. The maximum allowable continuous power dissipation at any ambient temperature is calculated by $P_D$(MAX)=($T_J$(MAX)-$T_A$)/$\theta_{JA}$. Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage.

(3) Measured on JESD51-7, 4-layer PCB.

## ELECTRICAL CHARACTERISTICS

All typical values are at Tj=25℃(unless otherwise noted)

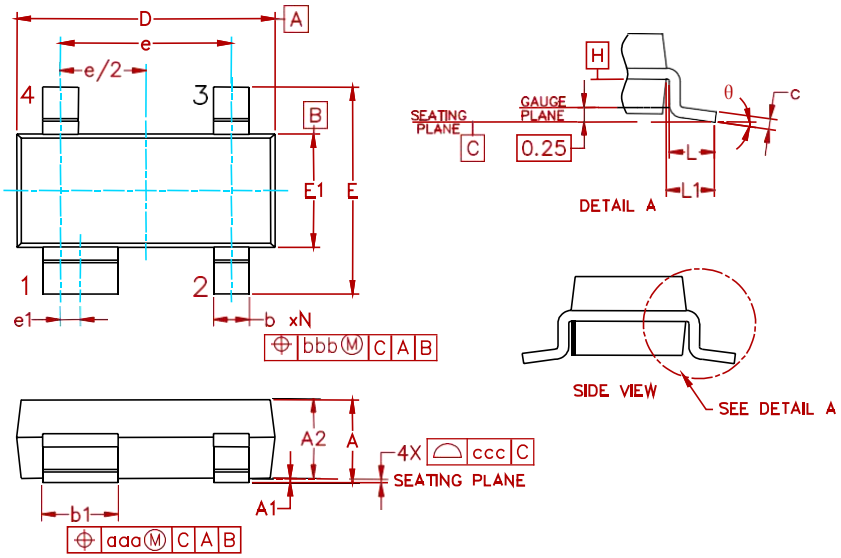
| PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Input voltage range, $V_{IN}$ | | 1 | | 6 | V |
| Quiescent current, $I_Q$ | $V_{IN}$ = 3.6V, $T_A$=25℃ | 3 | 5 | 10 | μA |
| | $V_{IN}$ = 3.6V, $T_A$=-40℃ | 2 | 3.5 | 10 | μA |
| | $V_{IN}$ = 3.6V, $T_A$=125℃ | 4 | 6.3 | 15 | μA |
| Detecting voltage level, $V_{DET}$ | $V_{DET}$ = 2.32V | 2.262 | 2.32 | 2.378 | V |
| | $V_{DET}$ = 2.63V | 2.564 | 2.63 | 2.696 | V |
| | $V_{DET}$ = 2.93V | 2.857 | 2.93 | 3.003 | V |
| | $V_{DET}$ = 3.08V | 3.003 | 3.08 | 3.157 | V |
| | $V_{DET}$ = 4.00V | 3.92 | 4.00 | 4.08 | V |
| | $V_{DET}$ = 4.38V | 4.292 | 4.38 | 4.468 | V |
| | $V_{DET}$ = 4.63V | 4.537 | 4.63 | 4.723 | V |
| Delay time | $T_A$ = -40。C to 85℃ | 150 | 240 | 560 | ms |
| Reset falling delay | $V_{IN}$ falling below $V_{DET}$ | | 2 | 50 | μs |
| Reset output low voltage, $V_{OL}$ | $I_{SINK}$ = 1.2mA, $V_{IN}$=2V | 0 | 0.03 | 0.3 | V |
| Reset output high voltage, $V_{OH}$ | $I_{SOURCE}$ = 1.2mA, $V_{IN}$=3V | $V_{IN}$-0.3 | $V_{IN}$-0.05 | $V_{IN}$ | V |
| MR Theshold | VIH | 0.7xVIN | | | V |
| | VIL | | | 0.3x$V_{IN}$ | V |

## FUNCTIONDESCRIPTIONS

The CAT811XTBI-GT3-MS is a general-purpose voltage detector. It can work from 1V to 6V while consuming about 5uA at 3.6V.

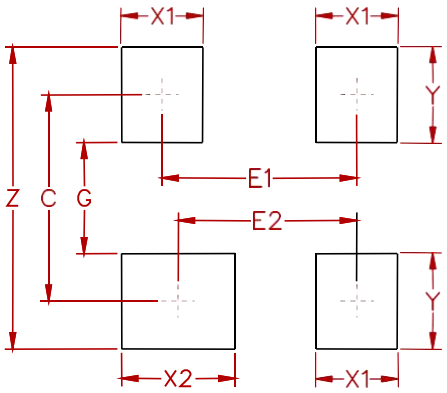
CAT811XTBI-GT3-MS keeps monitoring its VIN voltage, and RESET will jump high if VIN voltage is higher than detecting level VDET for 240ms. Given all these features,CAT811XTBI-GT3-MS is suitable for the applications like battery voltage monitoring, power on reset, voltage comparison and even press button debouncing. CAT811XTBI-GT3-MS also provide a manual reset pin.

## PACKAGE MECHANICAL DATA




| Symbol | Inches | | | Millimeters | | |
|---|---|---|---|---|---|---|
| | Min. | Nom. | Max. | Min. | Nom. | Max. |
| A | 0.031 | - | 0.048 | 0.80 | - | 1.22 |
| A1 | 0.000 | - | 0.008 | 0.013 | - | 0.15 |
| A2 | 0.020 | 0.035 | 0.042 | 0.75 | 0.90 | 1.07 |
| b | 0.011 | - | 0.020 | 0.30 | - | 0.51 |
| b1 | 0.029 | - | 0.037 | 0.76 | - | 0.94 |
| c | 0.003 | - | 0.008 | 0.08 | - | 0.20 |
| D | 0.110 | 0.114 | 0.120 | 2.80 | 2.90 | 3.04 |
| E | 0.082 | 0.093 | 0.104 | 2.10 | 2.37 | 2.64 |
| E1 | 0.047 | 0.051 | 0.055 | 1.20 | 1.30 | 1.40 |
| e | 0.075 | | | 1.92 BSC | | |
| e1 | 0.008 | | | 0.20 BSC | | |
| L | 0.015 | 0.020 | 0.024 | 0.40 | 0.50 | 0.60 |
| L1 | (0.021) | | | (0.54) | | |
| N | 4 | | | 4 | | |
| θ | 0° | - | 8° | 0° | - | 8° |
| aaa | 0.006 | | | 0.15 | | |
| bbb | 0.008 | | | 0.20 | | |
| ccc | 0.004 | | | 0.10 | | |

## Suggested Pad Layout



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