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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.

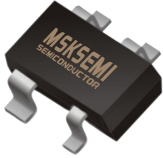
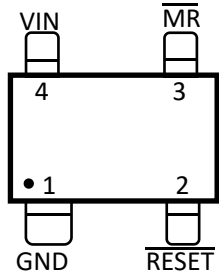
FEATURES

- 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

PIN ASSIGNMENT

PACKAGE	PIN DEFINITION
	
SOT-143	

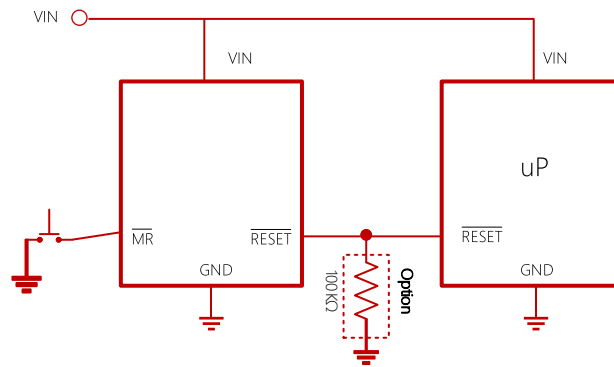
1	GND	Ground
2	$\overline{\text{RESET}}$	The push pull output node, pulled low when V_{IN} is lower than detect level and pushed high when V_{IN} is higher than detect level for 240ms
3	$\overline{\text{MR}}$	Manual Reset
4	VIN	The power input node as well as the voltage node to be detected

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 V_{IN} is above detecting level for 240ms

ABSOLUTE MAXIMUM RATINGS

$V_{IN}^{(1)}$	-0.3V to 8V	
$V_{RESET, MR}^{(1)}$	-0.3V to $V_{IN}+0.3V$	
Continuous Power Dissipation ($T_A = 25^{\circ}C$) ⁽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⁾	θ_{JA}	θ_{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 θ_{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 $T_j=25^{\circ}\text{C}$ (unless otherwise noted)

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

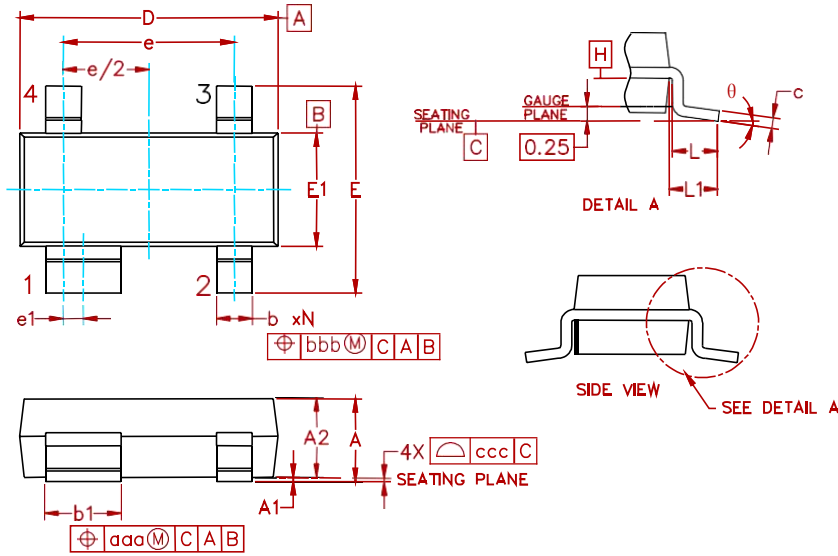
FUNCTION DESCRIPTIONS

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 V_{IN} voltage, and RESET will jump high if V_{IN} voltage is higher than detecting level V_{DET} 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.

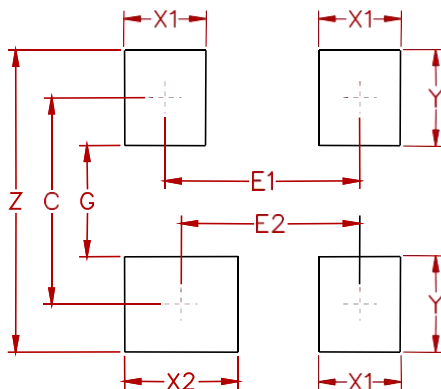
CAT811XTBI-GT3-MS also provide a manual reset pin.

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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