



Discription

The SGM811 is a general-purpose purpose 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. SGM811 also provide a manual reset pin. SGM811 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 SGM811 is available in SOT-143 package.

Features

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

Applications

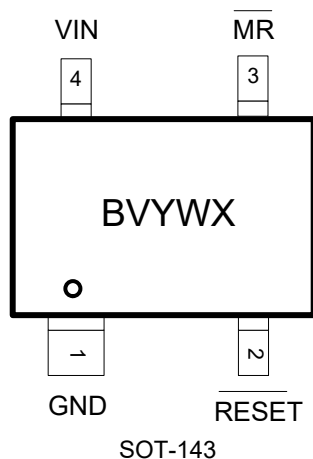
- Battery voltage monitor
- Power-on reset
- Set-top-box
- Voltage level trigger
- Press button debouncing
- Portable devices

Ordering Information

Part No	Voltage Detecting Level	Package	Tape & Reel
SGM811-ZXKA4/TR	2.32V	SOT-143	3K/Reel
SGM811-RXKA4/TR	2.63V		
SGM811-SXKA4/TR	2.93V		
SGM811-TXKA4/TR	3.08V		
SGM811-JXKA4/TR	4.00V		
SGM811-MXKA4/TR	4.38V		
SGM811-LXKA4/TR	4.63V		



Ordering information



The package of SGM811 is SOT-143, with pin assignment shown in following table:

Pin No	Name	Description
1	GND	Ground
2	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	MR	Manual Reset
4	VIN	The power input node as well as the voltage node to be detected



Absolute Ratings ($T_{amb}=25^{\circ}\text{C}$)

Parameters	Ratings	Units
Input voltage range	-0.3 to +8	V
Lead Temperature	260	$^{\circ}\text{C}$
Output Voltage RESET	-0.3 to $V_{IN} + 0.3$	V
Junction Temperature	-40 to +125	$^{\circ}\text{C}$
Continuous Power Dissipations Derate 4 mW/ $^{\circ}\text{C}$ above +70 $^{\circ}\text{C}$ (SOT-143)	0.3	W
Storage Temperature Range	-65 to +150	$^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient	280	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction-case.	90	$^{\circ}\text{C}/\text{W}$

Notes:

- Exceeding these ratings may damage the device.
- The maximum allowable power dissipation is a function of the maximum junction temperature $T_J(\text{MAX})$, 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 $P_D(\text{MAX}) = (T_J(\text{MAX}) - T_A) / \theta_{JA}$. 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.
- Measured on JESD51-7, 4-layer PCB.

Electrical Characteristics

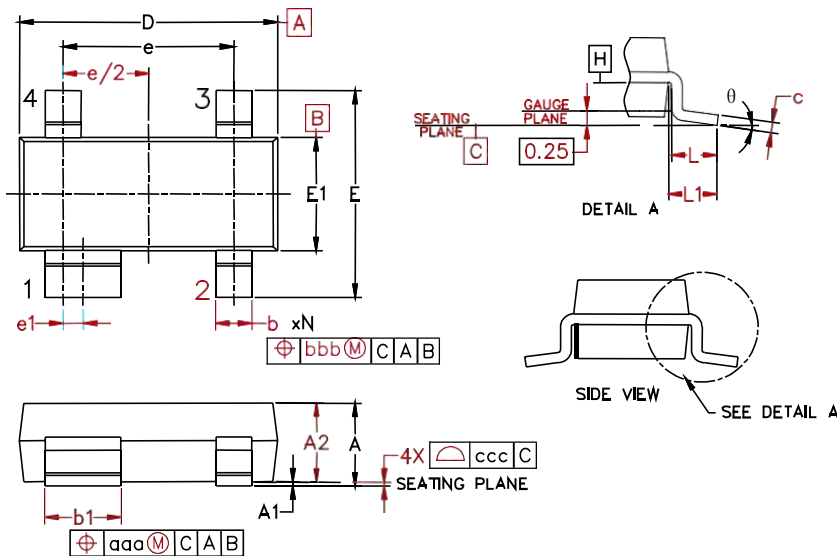
Parameter	Conditions	Min	Typ	Max	Units
Input voltage range, V_{IN}		1		6	V
Quiescent current, I_Q	$V_{IN} = 3.6\text{V}$, $T_A = 25^{\circ}\text{C}$	3	5	10	μA
	$V_{IN} = 3.6\text{V}$, $T_A = -40^{\circ}\text{C}$	2	3.5	10	μA
	$V_{IN} = 3.6\text{V}$, $T_A = 125^{\circ}\text{C}$	4	6.3	15	μA
Detecting voltage 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	$T_A = -40^{\circ}\text{C}$ to 85°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 SGM811 is a general-purpose voltage detector. It can work from 1V to 6V while consuming about 5uA at 3.6V SGM811 keeps monitoring its VIN voltage, and RESET will jump high if VIN voltage is higher than detecting level V_{DET} for 240ms. Given all these features, SGM811 is suitable for the applications like battery voltage monitoring, power-on reset, voltage comparison and even press button debouncing. SGM811 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		



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