



## Discription

The CS811x is a general-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. CS811x also provide a manual reset pin. CS811x 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 CS811x 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

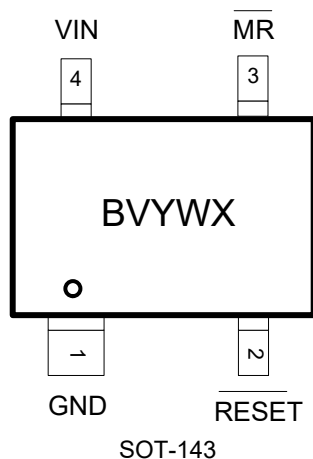
- Battery voltage monitor
- Power-on reset
- Set-top-box
- Voltage level trigger
- Press button debouncing
- Portable devices

## Ordering Information

Part No	Voltage Detecting Level	Package	Tape & Reel
CS811Z	2.32V	SOT-143	3K/Reel
CS811R	2.63V		
CS811S	2.93V		
CS811T	3.08V		
CS811J	4.00V		
CS811M	4.38V		
CS811TL	4.63V		



## Ordering information



The package of CS811x 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  $\theta_{JA}$ , 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

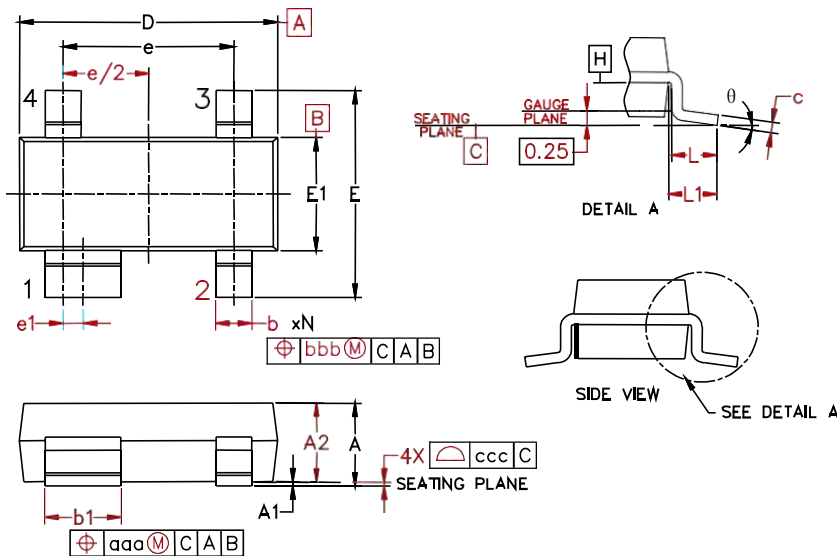
Parameter	Conditions	Min	Typ	Max	Units
Input voltage range, $V_{IN}$		1		6	V
Quiescent current, $I_Q$	$V_{IN} = 3.6\text{V}$ , $T_A = 25^{\circ}\text{C}$	3	5	10	$\mu\text{A}$
	$V_{IN} = 3.6\text{V}$ , $T_A = -40^{\circ}\text{C}$	2	3.5	10	$\mu\text{A}$
	$V_{IN} = 3.6\text{V}$ , $T_A = 125^{\circ}\text{C}$	4	6.3	15	$\mu\text{A}$
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 $85^{\circ}\text{C}$	150	240	560	ms
Reset falling delay	$V_{IN}$ falling below $V_{DET}$		2	50	$\mu\text{s}$
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 CS811x is a general-purpose voltage detector. It can work from 1V to 6V while consuming about 5uA at 3.6V CS811x 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, CS811x is suitable for the applications like battery voltage monitoring, power-on reset, voltage comparison and even press button debouncing. CS811x 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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