



Discription

The IMP811xEUS/T 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. IMP811xEUS/T also provide a manual reset pin. IMP811xEUS/T 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 IMP811xEUS/T 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

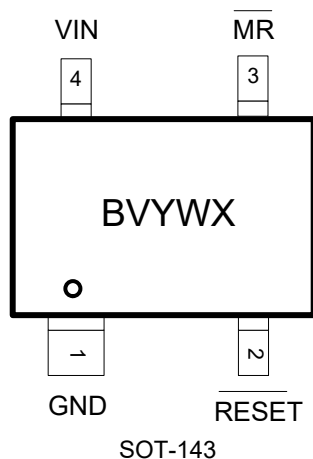
- Battery voltage monitor
- Power-on reset
- Set-top-box
- Voltage level trigger
- Press button debouncing
- Portable devices

Ordering Information

Part No	Voltage Detecting Level	Package	Tape & Reel
IMP811ZEUS/T	2.32V	SOT-143	3K/Reel
IMP811REUS/T	2.63V		
IMP811SEUS/T	2.93V		
IMP811TEUS/T	3.08V		
IMP811JEUS/T	4.00V		
IMP811MEUS/T	4.38V		
IMP811LEUS/T	4.63V		



Ordering information



The package of IMP811xEUS/T 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

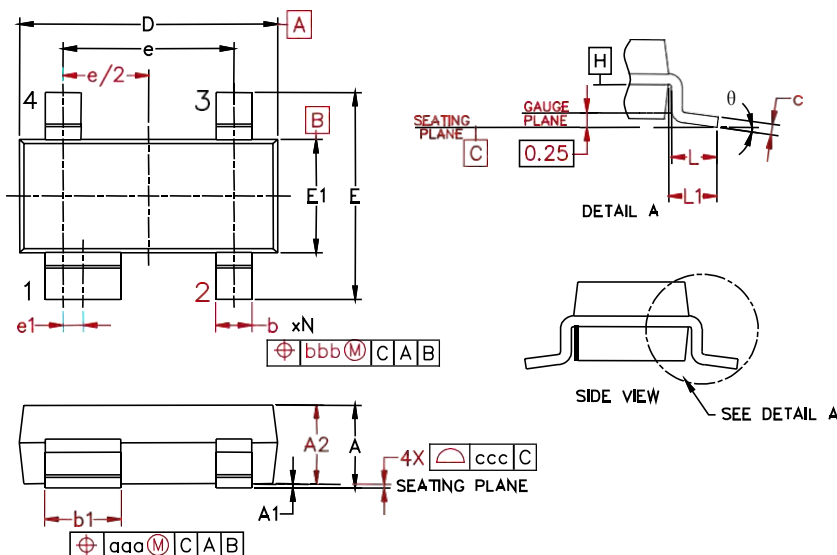
Parameter	Conditions	Min	Typ	Max	Units
Input voltage range, V_{IN}		1		6	V
Quiescent current, I_Q	$V_{IN} = 3.6\text{V}$, $T_A = 25^{\circ}\text{C}$	3	5	10	μA
	$V_{IN} = 3.6\text{V}$, $T_A = -40^{\circ}\text{C}$	2	3.5	10	μA
	$V_{IN} = 3.6\text{V}$, $T_A = 125^{\circ}\text{C}$	4	6.3	15	μA
Detecting voltage 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 IMP811xEUS/T is a general-purpose voltage detector. It can work from 1V to 6V while consuming about 5uA at 3.6V IMP811xEUS/T 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, IMP811xEUS/T is suitable for the applications like battery voltage monitoring, power-on reset, voltage comparison and even press button debouncing. IMP811xEUS/T 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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