



Reset, Low Voltage Detector Built-in Delay 240mS

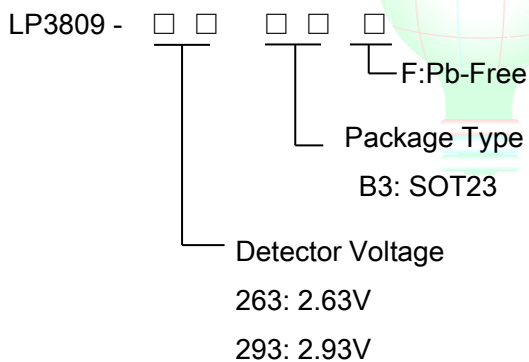
General Description

LP3809 is a series of high precision voltage detector with ultra low current consumption. It can work at very low voltage, which makes it perfect for system reset.

LP3809 is composed of high precision voltage reference, comparator, delay circuit, output driver and resistor array. Internally preset detect voltage has a low temperature drift and requires no external trimming.

LP3809 is available in SOT-23 packages which are Pb free.

Order Information



Features

- ◆ High-precision detection Voltage 3%
- ◆ Detection Voltage 0.9V~5.5V (in 0.1V steps)
- ◆ Precise hysteresis 4% typ.
- ◆ Operating Voltage range 0.9V~5.5V

Applications

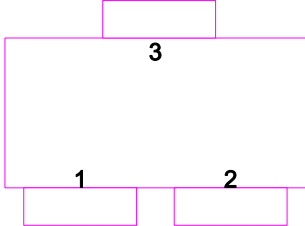
- ◇ Power monitor for portable equipment
- ◇ PDA, DSC, Mobile phone, Notebook, MP3
- ◇ CPU and Logic Circuit Reset
- ◇ Battery Checker
- ◇ Battery Back-up Circuit
- ◇ Power Failure Detector

Marking Information

Device	Marking	Package	Shipping
LP3809-263B3F	LPS AFYW	SOT23	3K/REEL
LP3809-293B3F	LPS ADYW	SOT23	3K/REEL

Marking indication:
Y: Production year W: Production week

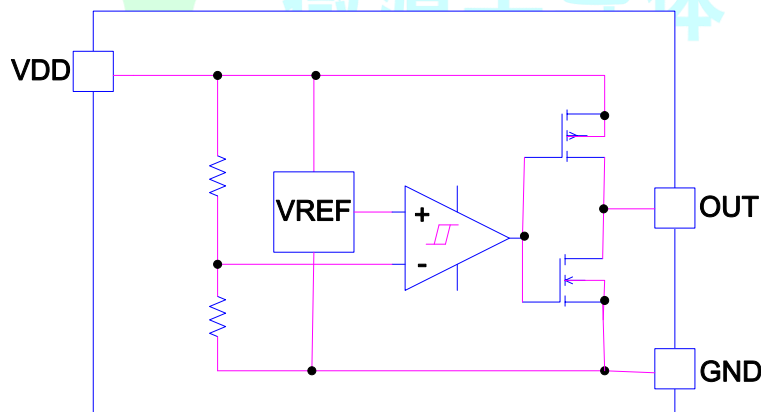
Pin Assignment

Package Type	Pin Configurations
SOT23	

Pin Description

Pin Number	Pin Name	Function
1	VSS	GND pin.
2	Vout	Voltage detection output pin.
3	VDD	Voltage input pin.

Block Diagram



Absolute Maximum Ratings

◇ Input Voltage range	-----	-0.3V~6V
◇ Output Voltage range	-----	-0.3V~6V
◇ Maximum Output current	-----	60mA
◇ Maximum power dissipation	-----	150mW
◇ Ambient temperature	-----	-40~+85°C
◇ Storage temperature	-----	-40~125°C
◇ Lead temperature and time	-----	260°C,10S

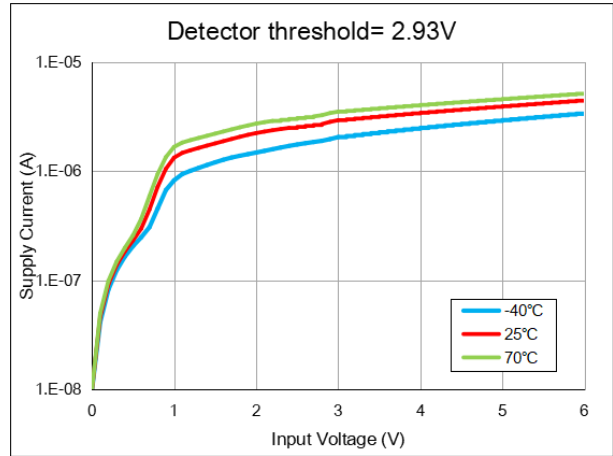
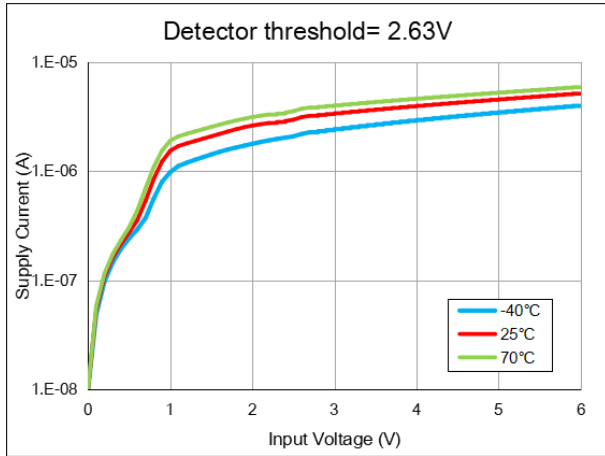
Electrical Characteristics

(T=25°C, Unless otherwise specified.)

Symbol	Parameter	Conditions	Reference data			Unit
			Min.	Typ.	Max.	
VDET	Detector Threshold	LP3809-263B3F		2.63		V
		LP3809-293B3F		2.93		
ΔVDET	Voltage Accuracy		-3	---	+3	%
VHYS	Detector Threshold Hysteresis			0.108		V
IQ				4	7	uA
VDDH	Maximum operating voltage				5.5	V
VDDL	Minimum Operating voltage		0.9			V
IOUT	Output current	Nch VDS=0.05V VDD=0.7V	0.01	0.05		mA
		Pch VDS=-1V VDD=4.50V		33		mA
TDELAY	Output Delay Time			240		mS

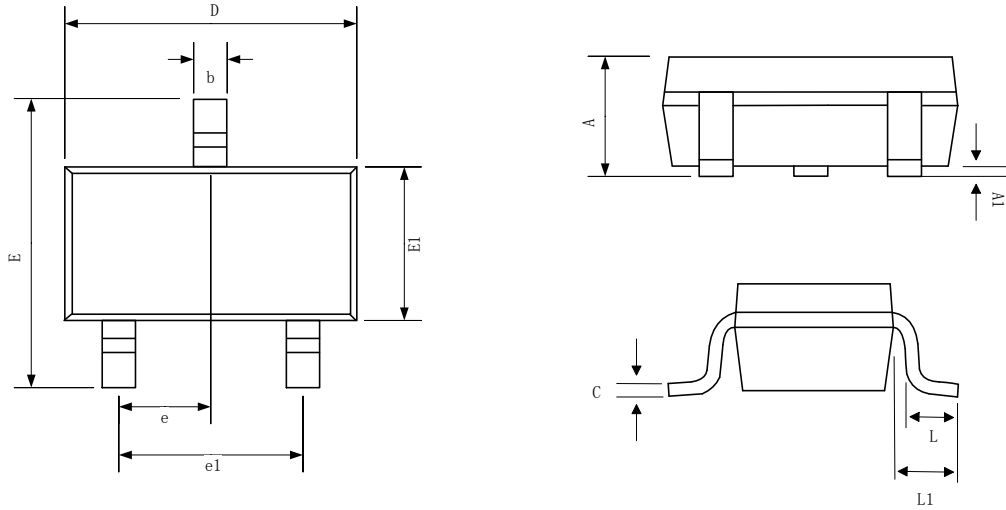
Typical Electrical Characteristics

Supply Current vs. Input Voltage





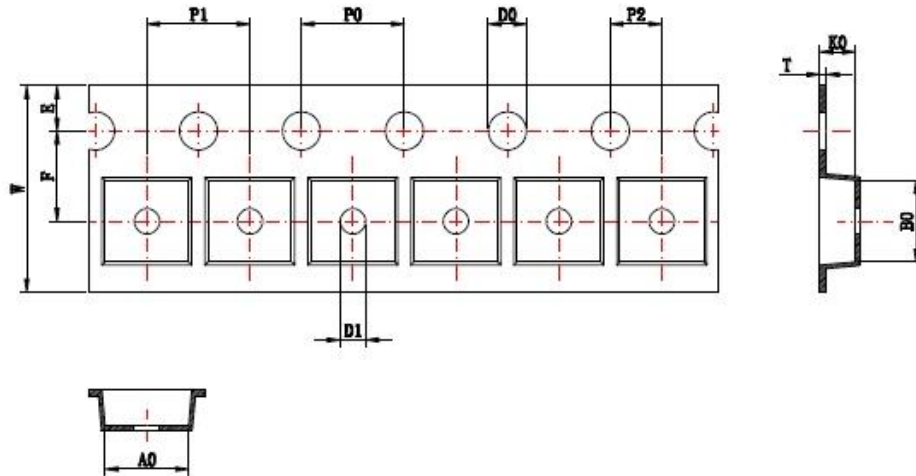
Packaging Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.900		1.200
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.008	0.120	0.150
D	2.800	2.900	3.000
E	2.250	2.400	2.550
E1	1.200	1.300	1.400
e	0.950BSC		
e1	1.900BSC		
L	0.200	0.350	0.500
L1	0.550REF		



Tape Information



Symbol	Millimeters
A0	3.2 ± 0.2
B0	2.7 ± 0.2
D0	1.5 ± 0.1
D1	1.0 (MIN)
K0	1.2 (MIN)
P0	4.0 ± 0.1
P1	4.0 ± 0.1
P2	2.0 ± 0.1
W	8.0 ± 0.3
E	1.75 ± 0.1
F	3.5 ± 0.1

Classification of IR Reflow Profile

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat/Soak		
Temperature Min(T_{SMIN})	100°C	150°C
Temperature Max(T_{SMAX})	150°C	200°C
Time(T_s) from (T_{SMIN} to T_{SMAX})	60~120 seconds	60~120 seconds
Ramp-up rate (T_L to T_P)	3°C/second max	3°C/second max
Liquidous temperature(T_L)	183°C	217°C
Time(t_L) maintained above T_L	60~150 seconds	60~150 seconds
Peak package body temperature (T_P)	For users T_P must not exceed the Classification temp in Table 1. For suppliers T_P must equal or exceed the Classification temp in Table 1.	For users T_P must not exceed the Classification temp in Table 2. For suppliers T_P must equal or exceed the Classification temp in Table 2.
Time(t_P)* within 5°C of the specified classification temperature(T_C), see Figure 1	20* seconds	30* seconds
Ramp-down rate (T_P to T_L)	6°C/second max	6°C/second max
Time 25°C to peak temperature	6 minutes max	8 minutes max
* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.		

Table 1 Sn-Pb Eutectic Process - Classification Temperatures (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 Pb-Free Process - Classification Temperatures (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350~2000	Volume mm ³ ≥350
<1.6mm	260°C	260°C	260°C
1.6mm~2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

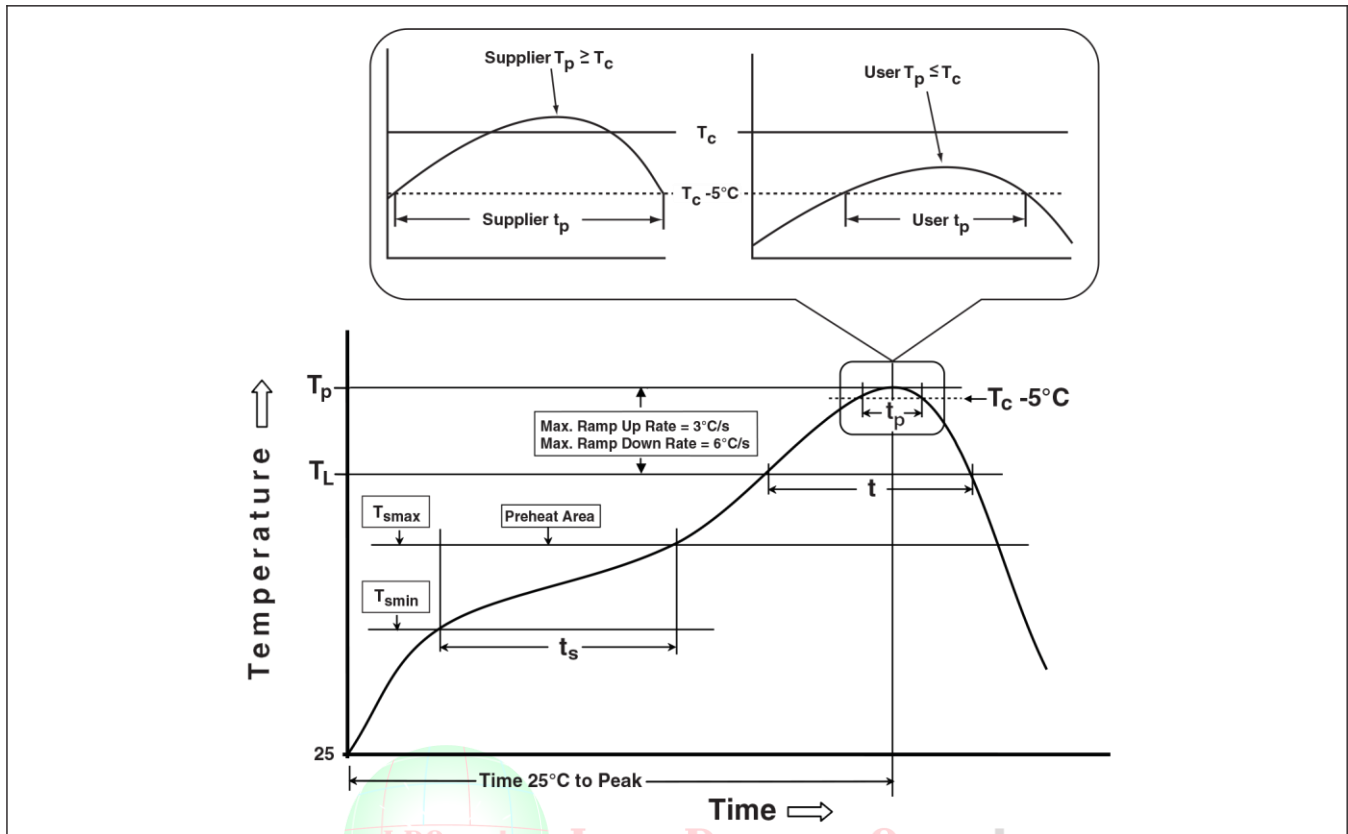


Figure 1 Classification Profile (Not to scale)

Products shipped conform to “Rohs” standards;

Moisture Sensitivity Level: MSL3 (CONDITION: $\cong 30\text{ }^\circ\text{C}/60\%\text{RH}$ 、Time control: 168 hours) ;