

LR8808 Microprocessor Reset Circuits

General Description

The LR8808 series are ultra-low current voltage detectors, which can be used to monitor the power supplies in microprocessor and digital systems. There are two output forms, and Nch open-drain and CMOS output are available.

The LR8808 series are available SOT23(-3 -5) package. Performance is specified for -40°C to +85°C temperature range.

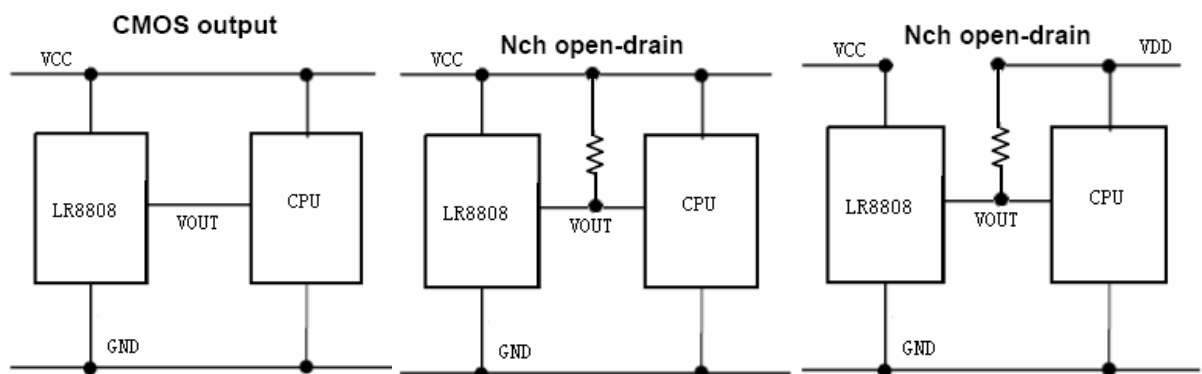
Features

- ★ 0.95V to 8V input range
- ★ Reset Threshold: 1.5V~6.0V in 0.1V increments
- ★ High-precision detection voltage: $\pm 2.0\%$
- ★ Ultra-low current consumption: $1.0\mu A @ 3.5V$ (typ)
- ★ SOT23-3 SOT23-5 package
- ★ NMOS Open Drain and CMOS Output (Active Low)
- ★ 40°C to +85°C junction temperature range for operation

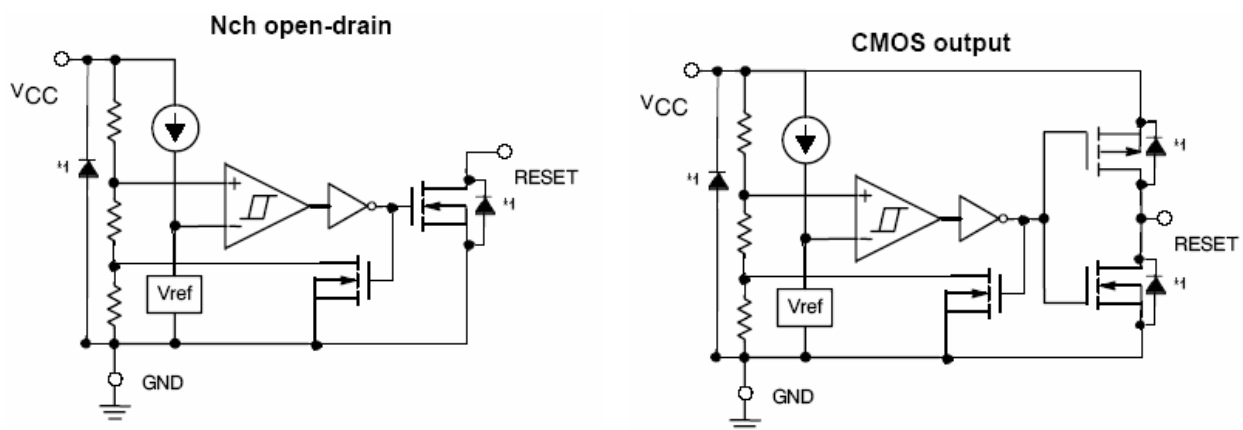
Applications

- ★ Battery-Powered Systems
- ★ Power Supply Monitoring
- ★ Handheld and Portable Equipment
- ★ Processor Supervisor Reset

Typical Application Circuit



Block Diagram(*1: parasitic diode)

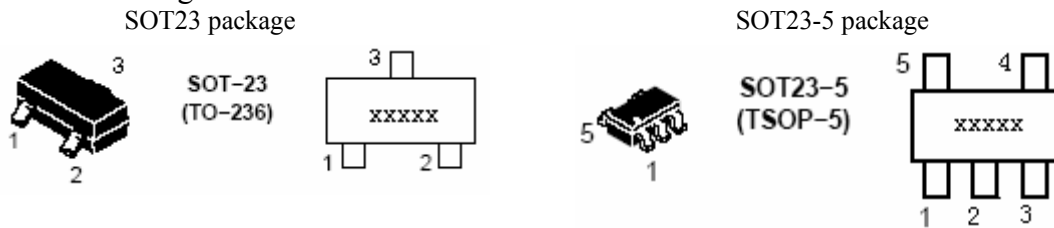


LR8808

Pin Descriptions

Pin No	SOT23		SOT23-5
	A	M	R
1	Gnd	Vout	Vout
2	Vout	Gnd	Vcc
3	Vcc	Vcc	Gnd
4	—	—	No connection
5	—	—	No connection

Connection Diagrams



Ordering Information

The package type, the detector threshold, the output type and the taping type of LR8808 series can be designated at user's request as following:

LR8808-x.xxx
 ↑ ↑
 a bc

CODE	SYMBOL	DESCRIPTION
a	1.5~6.0	Detect Voltage
b	C	CMOS Output
	N	Nch open drain Output
c	A/M	Package:SOT23
	R	Package:SOT23-5

Absolute Maximum Ratings

V_{IN}	Gnd to Gnd +10V
V_{OUT}	Gnd to Gnd +10V
Junction Temperature	-40°C to +85°C
Storage Temperature	-40°C to +125°C
Power Dissipation	
SOT23	250mW

Operating Ratings

V_{IN}	0.95V to 8V
V_{OUT}	0 to V_{IN}
Junction Temperature	-40°C to +85°C
Junction-to-Ambient Thermal Resistance (θ_{JA})	
SOT23	301°C/W
SOT23-5	220°C/W

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Electrical Characteristics

Unless otherwise specified, Typical values and limits appearing in standard typeface are for $T_a = 25^\circ\text{C}$.

Symbol	Item	Conditions	Min	Type	Max	Unit	
$-V_{DET}$ (Figure1)	Detection voltage	—	$-V_{DET} (S) \times 0.98$	$-V_{DET} (S)$	$-V_{DET} (S) \times 1.02$	V	
V_{HYS} (Figure1)	Hysteresis Width	—	$-V_{DET} (S) \times 0.02$	$-V_{DET} (S) \times 0.05$	$-V_{DET} (S) \times 0.08$	V	
Iss	Current Consumption	$V_{CC} = -V_{DET} + 0.5V$	LR8808—2.0~2.6 C/N	—	1.0	2.0	μA
			LR8808—2.6~3.9 C/N	—	1.2	2.5	μA
			LR8808—3.9~6.0 C/N	—	1.5	3.0	μA
Vcc	Operating voltage	—	0.95	—	8	V	
I _{OUT}	Output Current	NMOS: $V_{OUT} = 0.5V$ $V_{CC} = -V_{DET} - 0.5$	LR8808—2.0~2.6 C/N	3.0	13.0	—	mA
			LR8808—2.6~3.9 C/N	3.0	15.0	—	mA
			LR8808—3.9~6.0 C/N	3.0	18.0	—	mA
		PMOS: $V_{CC} - V_{OUT} = 0.5V$ $V_{CC} = -V_{DET} + 0.5$	LR8808—2.0~2.6 C/N	1.5	4.0	—	mA
			LR8808—2.6~3.9 C/N	1.5	6.0	—	mA
			LR8808—3.9~6.0 C/N	1.5	8.0	—	mA
I _{LEAK}	Leakage current	Only for NMOS open-drain output products, $V_{CC} = 8.0V, V_{OUT} = 8.0V$	—	—	0.1	μA	
	Temperature coefficient	$T_a = -40^\circ\text{C}$ to $+85^\circ\text{C}$	—	± 120	± 360	ppm/ $^\circ\text{C}$	
T _{PLH}	Delay time				200	μs	

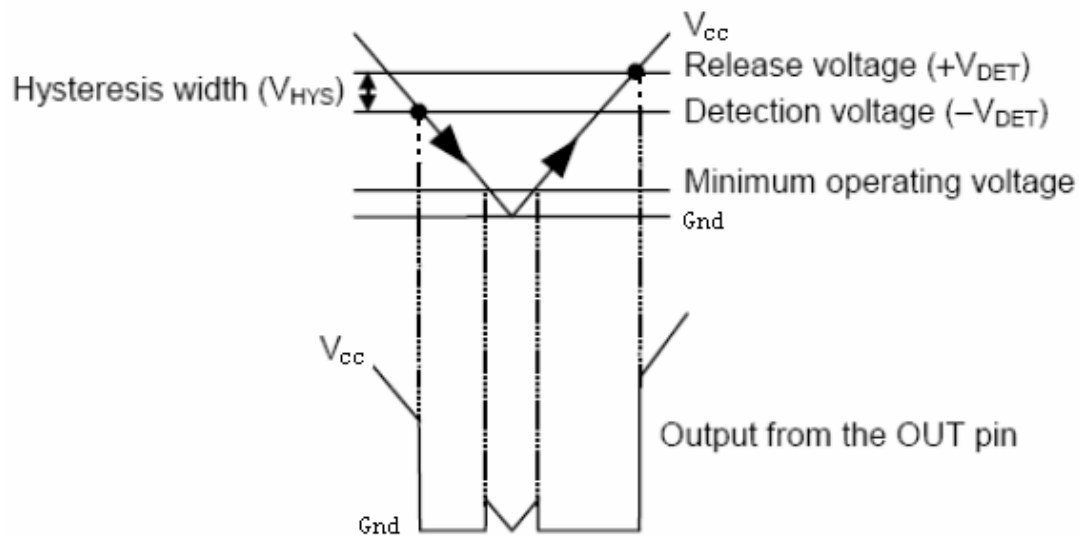


Figure1

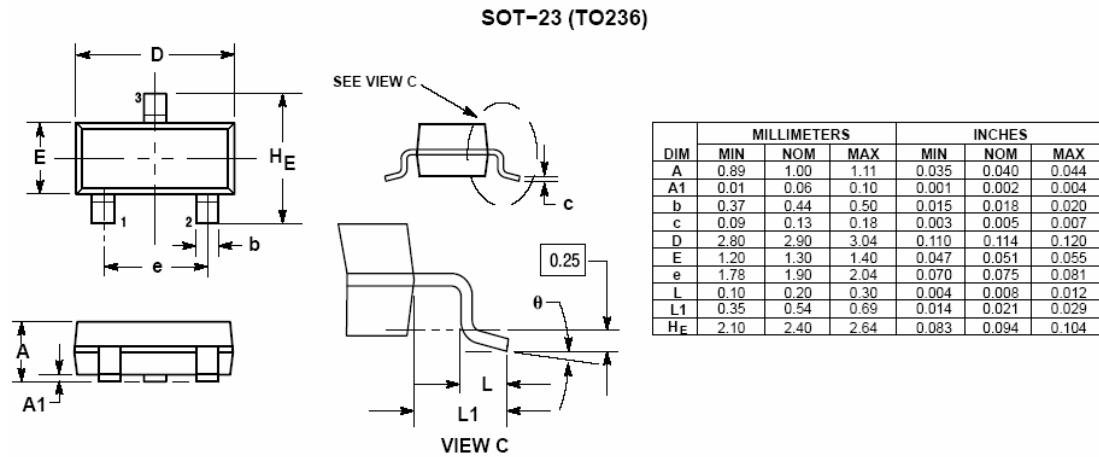
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Making Information

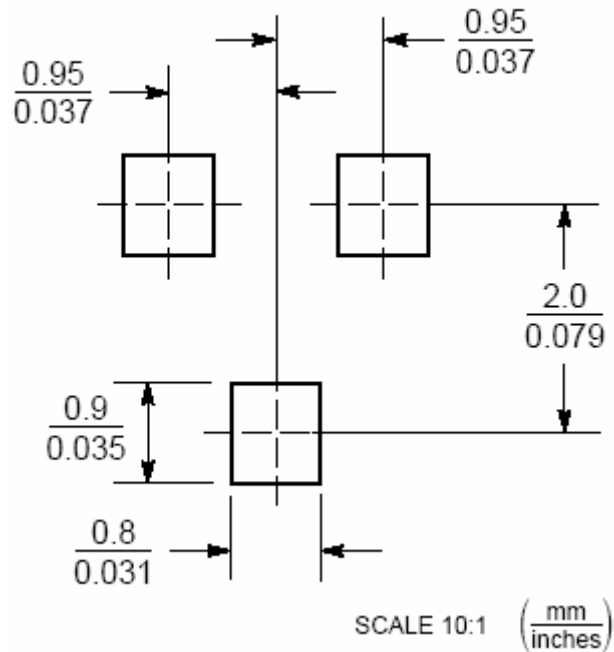
DN159	LR8808-1.5	DN389	LR8808-3.8
DN169	LR8808-1.6	DN399	LR8808-3.9
DN179	LR8808-1.7	DN409	LR8808-4.0
DN189	LR8808-1.8	DN419	LR8808-4.1
DN199	LR8808-1.9	DN429	LR8808-4.2
DN209	LR8808-2.0	DN439	LR8808-4.3
DN219	LR8808-2.1	DN449	LR8808-4.4
DN229	LR8808-2.2	DN459	LR8808-4.5
DN239	LR8808-2.3	DN469	LR8808-4.6
DN249	LR8808-2.4	DN479	LR8808-4.7
DN259	LR8808-2.5	DN489	LR8808-4.8
DN269	LR8808-2.6	DN499	LR8808-4.9
DN279	LR8808-2.7	DN509	LR8808-5.0
DN289	LR8808-2.8	DN519	LR8808-5.1
DN299	LR8808-2.9	DN529	LR8808-5.2
DN309	LR8808-3.0	DN539	LR8808-5.3
DN319	LR8808-3.1	DN549	LR8808-5.4
DN329	LR8808-3.2	DN559	LR8808-5.5
DN339	LR8808-3.3	DN569	LR8808-5.6
DN349	LR8808-3.4	DN579	LR8808-5.7
DN359	LR8808-3.5	DN589	LR8808-5.8
DN369	LR8808-3.6	DN599	LR8808-5.9
DN379	LR8808-3.7	DN609	LR8808-6.0

LR8808

Physical Dimensions



SOLDERING FOOTPRINT*



LR8808

SOT23-5 (TSOP-5)

