# H Impala Linear Corporation

# ILC5062

SOT-23 Power Supply reset Monitor With Complementary CMOS Output



#### General Description

All-CMOS voltage monitoring circuit in a 3-lead SOT-23 package offers the best performance in power consumption and accuracy.

The ILC5062 is available in a series of  $\pm 1\%$  (A-grade) or 2% (standard grade) accurate trip voltages to fit most microprocessor applications. Even though its output can sink over 2mA, the device draws only 1µA in normal operation.

Additionally, a built-in hysteresis of 5% of detect voltage simplifies system design.

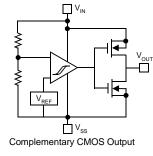
#### Features

- All-CMOS design in SOT-23 package
- A grade ±1% precision in Reset Detection
- Standard grade : ±2% precision in Reset Detection
- Only 1µA of Iq
- Over 2mA of sink current capability
- · Built-in hysteresis of 5% of detection voltage
- Voltage options of 2.6, 2.7, 2.8, 2.9, 3.1, 4.4, and 4.6V fit most supervisory applications

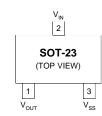
#### Applications

- · Microprocessor reset circuits
- Memory battery back-up circuitry
- · Power-on reset circuits
- · Portable and battery powered electronics

### Block Diagram



#### Pin-Package Configurations



Ordering Information					
ILC5062AM-26	2.6V±1% Monitor in SOT-23				
ILC5062AM-27	2.7V±1% Monitor in SOT-23				
ILC5062AM-28	2.8V±1% Monitor in SOT-23				
ILC5062AM-29	2.9V±1% Monitor in SOT-23				
ILC5062AM-31	3.1V±1% Monitor in SOT-23				
ILC5062AM-44	4.4V±1% Monitor in SOT-23				
ILC5062AM-46	4.6V±1% Monitor in SOT-23				
ILC5062M-26	2.6V±2% Monitor in SOT-23				
ILC5062M-27	2.7V±2% Monitor in SOT-23				
ILC5062M-28	2.8V±2% Monitor in SOT-23				
ILC5062M-29	2.9V±2% Monitor in SOT-23				
ILC5062M-31	3.1V±2% Monitor in SOT-23				
ILC5062M-44	4.4V±2% Monitor in SOT-23				
ILC5062M-46	4.6V±2% Monitor in SOT-23				

Standard product offering comes in tape & reel, quantity 3000 per reel, orentation right

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1

## Absolute Maximum Ratings (T<sub>A</sub>=25°C)

Parameter	Symbol	Ratings	Units	
Input Voltage	V <sub>IN</sub>	12	V	
Output Current	Ι <sub>ΟυΤ</sub>	50	mA	
Output Voltage	V <sub>OUT</sub>	V <sub>SS</sub> -0.3~V <sub>IN</sub> =+0.3	V	
Continuous Total Power Dissipation (SOT-23)	P <sub>d</sub>	150	mW	
Operating Ambient Temperature	T <sub>opr</sub>	-30~+80	°C	
Storage Temperature	T <sub>stg</sub>	-40~+125	°C	

## Electrical Characterisitcs ILC5062 (T<sub>A</sub>=25°C)

Parameter	Symbol	Conditions	Min	Тур	Max	Units
Detect Fail Voltage	V <sub>DF</sub>	A grade	V <sub>DF</sub> X 0.99	V <sub>DF</sub>	V <sub>DF</sub> X 1.01	V
Detect Fail Voltage	V <sub>DF</sub>	Standard grade	V <sub>DF</sub> X 0.98	V <sub>DF</sub>	V <sub>DF</sub> X 1.02	V
Hysteresis Range	V <sub>HYS</sub>		V <sub>DF</sub> X 0.02	V <sub>DF</sub> X 0.05	V <sub>DF</sub> X 0.08	V
Supply Current	I <sub>SS</sub>	$V_{IN} = 1.5V$ $V_{IN} = 2.0V$ $V_{IN} = 3.0V$ $V_{IN} = 4.0V$ $V_{IN} = 5.0V$		0.9 1.0 1.3 1.6 2.0	2.6 3.0 3.4 3.8 4.2	μA
Operating Voltage	V <sub>IN</sub>	V <sub>DF</sub> = 2.1 ~ 6.0V	1.5		10.0	V
Output Current	Ι <sub>Ουτ</sub>	N-ch $V_{DS} = 0.5V$ $V_{IN} = 1.0V$ $V_{IN} = 2.0V$ $V_{IN} = 3.0V$ $V_{IN} = 4.0V$ $V_{IN} = 5.0V$ P-Ch $V_{DS} = 2.1V$ $V_{IN} = 8V$		2.2 7.7 10.1 11.5 13.0 -10		mA
Temperature Characteristics	$\Delta V_{DF}/(\Delta T_{opr} \bullet V_{DF})$	$-30^{\circ}C \leq T_{opr} \leq 80^{\circ}C$		±100		ppm/°C
Delay Time (Release Voltage → Output Inversion)	t <sub>DLY</sub> (V <sub>DR</sub> → V <sub>OUT</sub> Inversion)				0.2	ms

Note: An additional resistor between the V<sub>IN</sub> pin and supply voltage may cause deterioration of the characteristics due to increasing of V<sub>DR</sub>.

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2

## **Functional Description**

The following designators 1~6 refer to the timing diagram below.

1. While the input voltage ( $V_{IN}$ ) is higher than the detect voltage ( $V_{DF}$ ), the output voltage at  $V_{OUT}$  pin equals the input voltage at  $V_{IN}$  pin.

2. When the input  $V_{\text{IN}}$  voltage falls lower than  $V_{\text{DF}},\,V_{\text{OUT}}$  drops near ground voltage.

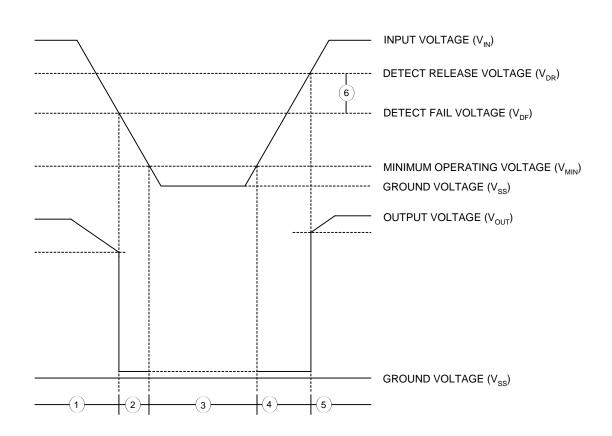
3. If the input voltage decreases below the minimum operating voltage (V\_{MIN}), the V\_{OUT} output voltage will be undefined.

4. During an increase of the input voltage from the V<sub>SS</sub> voltage, V<sub>OUT</sub> is undefined at the voltage below V<sub>MIN</sub>. Exceeding the V<sub>MIN</sub> level, the ouput stays at the ground level (V<sub>SS</sub>) between the minimum operating voltage (V<sub>MIN</sub>) and the detect release voltage (V<sub>DR</sub>).

5. If the input voltage increases more than  $V_{DR}$ , the output voltage at  $V_{OUT}$  pin equals the input voltage at  $V_{IN}$  pin.

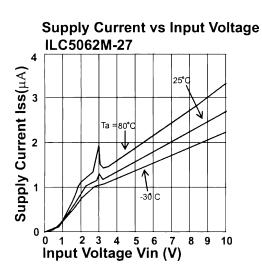
6. The difference between  $V_{\text{DR}}$  and  $V_{\text{DF}}$  is the hysteresis in the system.

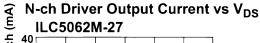
## **Timing Diagram**

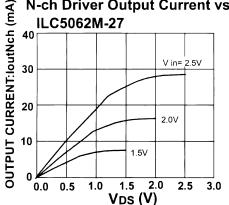


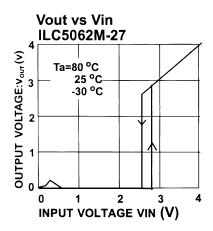
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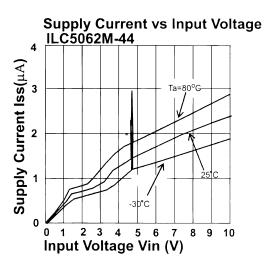
## Typical Performance Characteristics - general conditions for all curves.

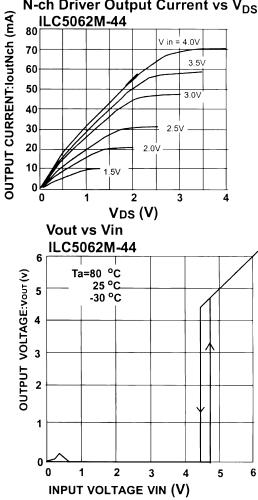






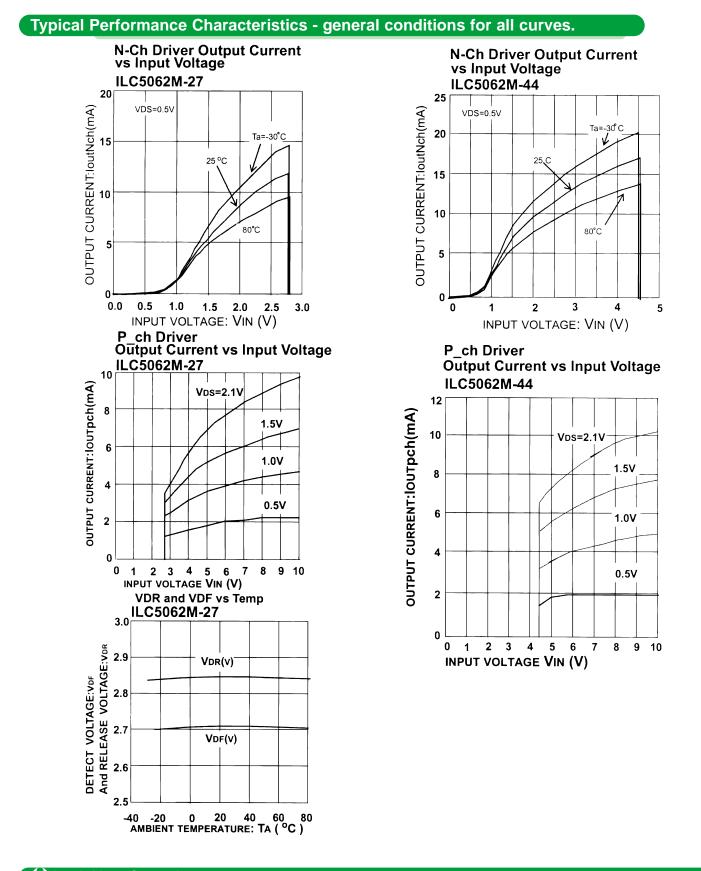






N-ch Driver Output Current vs V<sub>DS</sub>

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