

ILC5061

Power Supply reset Monitor with 1% Precision

Features

- All-CMOS design in SOT-23 or SC70 package
- $\pm 1\%$ precision in Reset Detection
- Only $1\mu\text{A}$ of I_q
- 2mA of sink current capability
- Built-in hysteresis of 5% of detection voltage
- Voltage options of 2.6, 2.9, 3.1, 4.4, and 4.6V fit most supervisory applications
- Open-Drain Reset Output

Applications

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

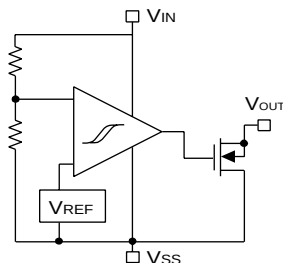
Description

All-CMOS Monitor circuits in either a 3-lead SOT-23 or SC70 package offer the best performance in power consumption and accuracy.

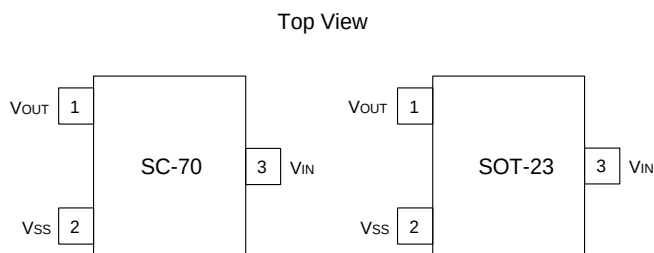
The ILC5061 comes in a series of $\pm 1\%$ accurate trip voltages to fit most microprocessor applications. Even though its output can sink 2mA, the device draws only $1\mu\text{A}$ in normal operation.

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

Block Diagram



Pin Package Configurations



Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltages		V_{IN}	12	V
Output Current		I_{OUT}	50	mA
Output Voltages		V_{OUT}	$V_{SS}-0.3 \sim +V_{IN}+0.3$	V
Continuous Total Power Dissipation	SOT 23	P_d	150	mW
Operation Ambient temperature		T_{opr}	-30~+80	°C
Storage Temperature		T_{stg}	-40~+125	°C

Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Type	Max	Units
Detect Fail Voltage	V_{DF}		$V_{DF} \times 0.99$	V_{DF}	$V_{DF} \times 1.01$	V
Hysteresis Range	V_{HYS}		$V_{DF} \times 0.02$	$V_{DF} \times 0.05$	$V_{DF} \times 0.08$	V
Supply Current	I_{SS}	$V_{IN} = 1.5\text{V}$ $V_{IN} = 2.0\text{V}$ $V_{IN} = 3.0\text{V}$ $V_{IN} = 4.0\text{V}$ $V_{IN} = 5.0\text{V}$		0.9 1.0 1.3 1.6 2.0	2.6 3.0 3.4 3.8 4.2	μA
Operating Voltage	V_{IN}	$V_{DF} = 2.1 \sim 6.0\text{V}$	1.5		10.0	V
Output Current	I_{OUT}	N-ch $V_{DS} = 0.5\text{V}$ $V_{IN} = 1.0\text{V}$ $V_{IN} = 2.0\text{V}$ $V_{IN} = 3.0\text{V}$ $V_{IN} = 4.0\text{V}$ $V_{IN} = 5.0\text{V}$		2.2 7.7 10.1 11.5 13.0		mA
Temperature Characteristics	$DV_{DF}/(DT_{opr} * V_{DF})$	$-30^\circ\text{C} \leq T_{opr} \leq 80^\circ\text{C}$	-200	± 100	+200	Ppm/°C
Delay Time Release Voltage Output Inversion)	T_{DLY} $(V_{DR} \text{ to } V_{OUT} \text{ inversion})$				0.1	ms

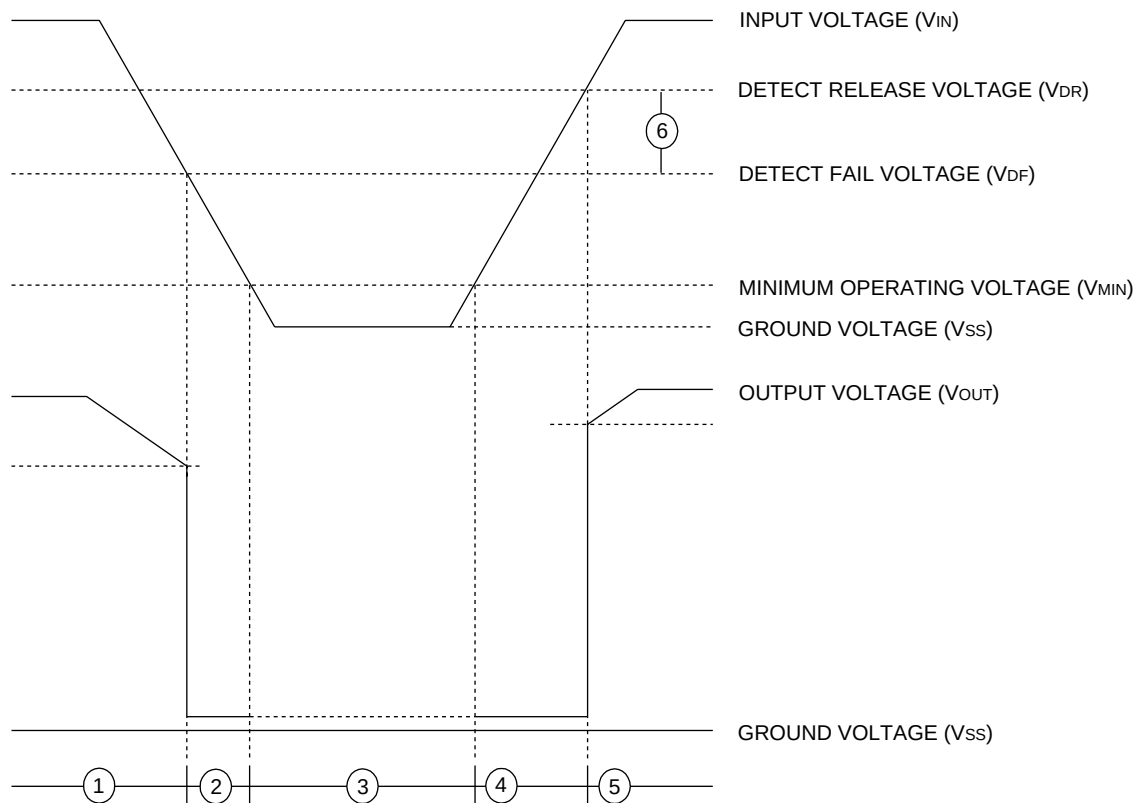
Note:

1. An additional resistor between the V_{IN} pin and supply voltage may cause deterioration of the characteristics due to increasing V_{DR} .

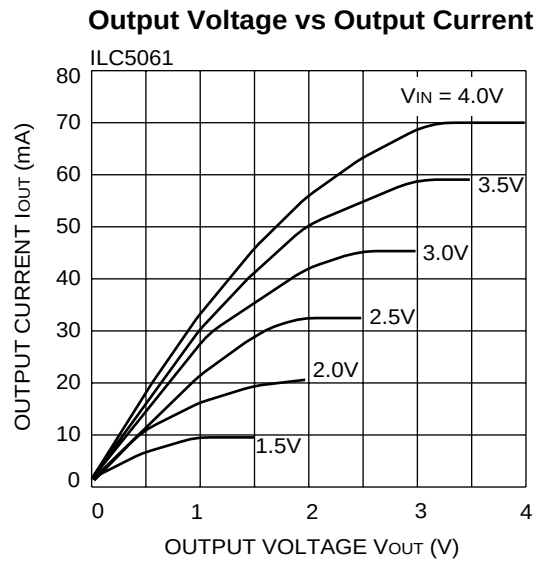
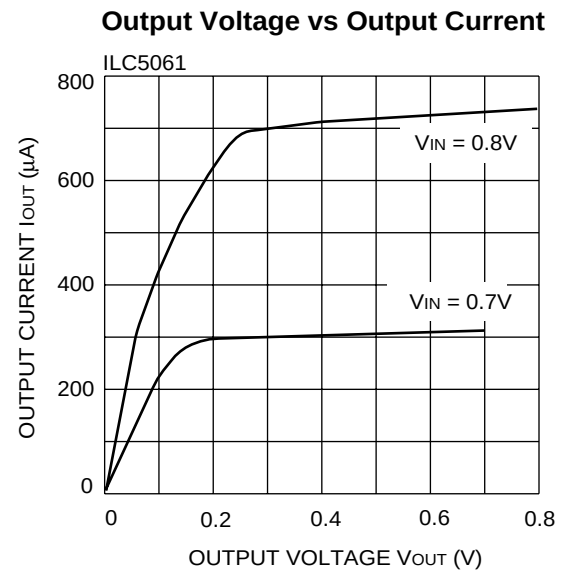
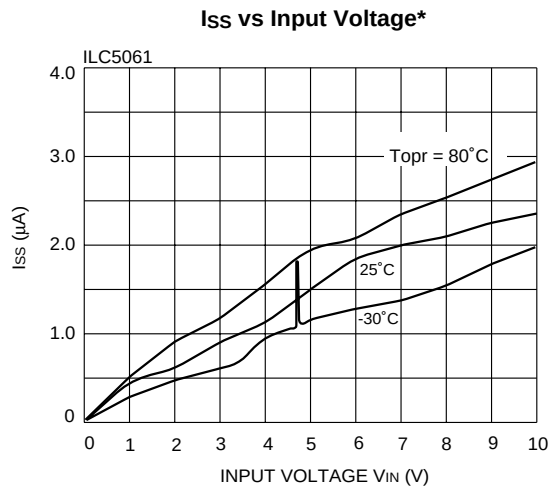
Functional Description

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

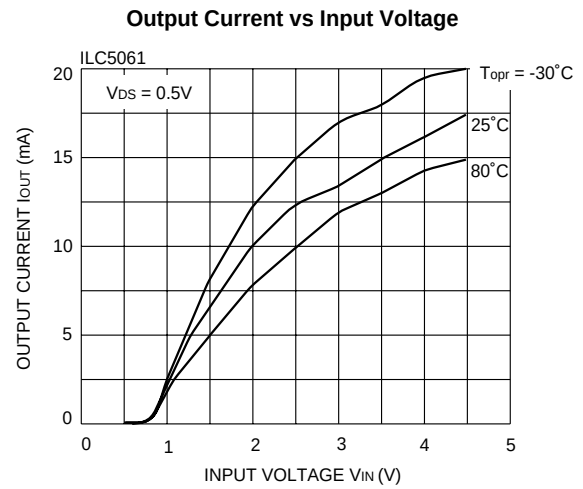
1. While the input voltage (V_{IN}) is higher than the detect voltage (V_{DF}), the V_{OUT} output pin is at high impedance state.
2. When the input V_{IN} voltage falls lower than V_{DF} , V_{OUT} drops near to ground voltage
3. If the input voltage further decreases below the minimum operating voltage (V_{MIN}), the V_{OUT} output becomes unstable. In this condition, if the V_{OUT} pin is pulled up, V_{OUT} indicates the V_{IN} voltage.
4. During an increase of the input voltage from the V_{SS} voltage, V_{OUT} is not stable in the voltage below the V_{MIN} . Exceeding that level, the output stays at the ground level (V_{SS}) between the minimum operating voltage (V_{MIN}) and the detect release voltage (V_{DR}).
5. If the input voltage increases more than V_{DR} , then the V_{OUT} output pin is at high impedance state.
6. The difference between V_{DR} and V_{DF} is the hysteresis in the system.

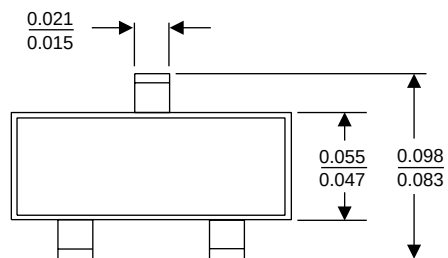
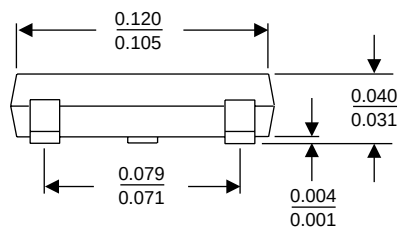
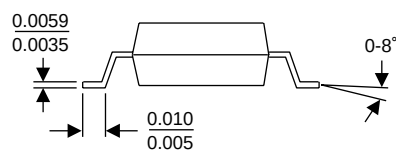
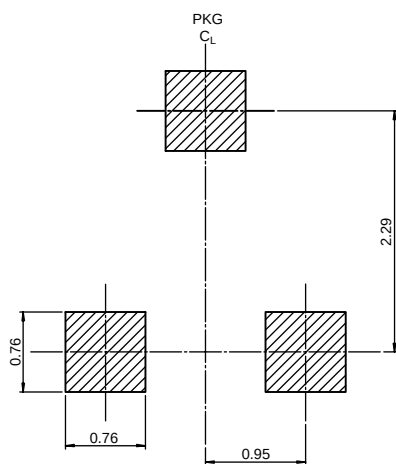


Typical Performance Characteristics (General conditions for all curves)



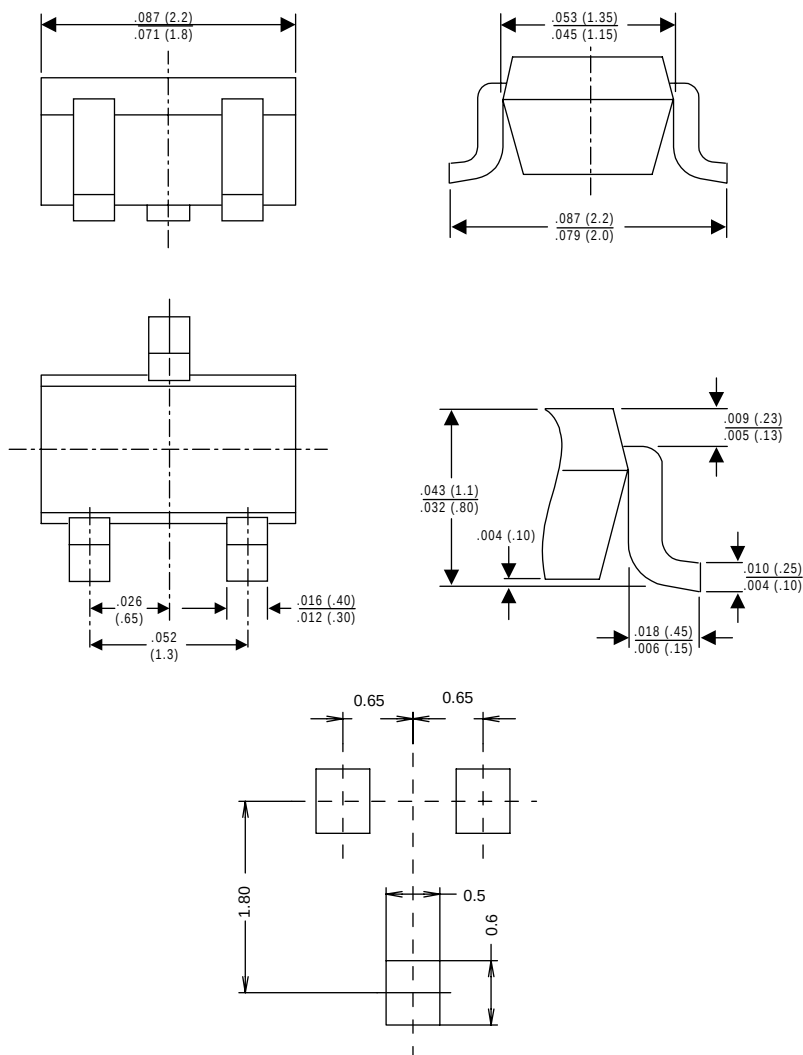
* A spike of 1/2 to 1 μA may appear as V_{IN} crosses V_{DR} or V_{DF}



SOT-23 Package

LAND PATTERN RECOMMENDATION

SC70 Package



Land Pattern Recommendation

Ordering Information

PART NUMBER	TOP MARKING	RESET THRESHOLD (V)	OUTPUT TYPE	PACKAGE	PACKING METHOD
ILC5061AM23X	M3AY	2.3 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM25X	M5AY	2.5 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM26X	M6AY	2.6 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM27X	M7AY	2.7 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM28X	M8AY	2.8 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM29X	M9AY	2.9 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM31X	N1AY	3.1 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM32X	N2AY	3.2 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM34X	N4AY	3.4 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM37X	N7AY	3.7 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM44X	P4AY	4.4 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061AM46X	P6AY	4.6 ± 1 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M23X	M3Y	2.3 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M25X	M5Y	2.5 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M26X	M6Y	2.6 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M27X	M7Y	2.7 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M28X	M8Y	2.8 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M29X	M9Y	2.9 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M31X	N1Y	3.1 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M32X	N2Y	3.2 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M34X	N4Y	3.4 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M37X	N7Y	3.7 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M44X	P4Y	4.4 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R
ILC5061M46X	P6Y	4.6 ± 2 %	Open-Drain, active low	3-Pin, SOT23	3K units in T&R

Note 1:Last digit in the "Top Marking" information (represented by "Y" in the above table) represents internal assembly lot number

Note 2:Orientation of Tape & Reeled devices is Right.

Ordering Information

PART NUMBER	TOP MARKING	RESET THRESHOLD (V)	OUTPUT TYPE	PACKAGE	PACKING METHOD
ILC5061AIC23X	M3AY	2.3 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC25X	M5AY	2.5 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC26X	M6AY	2.6 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC27X	M7AY	2.7 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC28X	M8AY	2.8 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC29X	M9AY	2.9 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC31X	N1AY	3.1 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC32X	N2AY	3.2 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC34X	N4AY	3.4 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC37X	N7AY	3.7 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC44X	P4AY	4.4 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061AIC46X	P6AY	4.6 ± 1 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC23X	M3Y	2.3 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC25X	M5Y	2.5 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC26X	M6Y	2.6 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC27X	M7Y	2.7 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC28X	M8Y	2.8 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC29X	M9Y	2.9 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC31X	N1Y	3.1 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC32X	N2Y	3.2 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC34X	N4Y	3.4 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC37X	N7Y	3.7 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC44X	P4Y	4.4 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R
ILC5061IC46X	P6Y	4.6 ± 2 %	Open-Drain, active low	3-Pin, SC70	3K units in T&R

Note 1: Last digit in the "Top Marking" information (represented by "Y" in the above table) represents internal assembly lot number

Note 2: Orientation of Tape & Reeled devices is Right.

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