ILC5061

Power Supply reset Monitor with 1% Precision

Features

- All-CMOS design in SOT-23 or SC70 package
- ±1% precision in Reset Detection
- Only 1µA of Iq
- 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

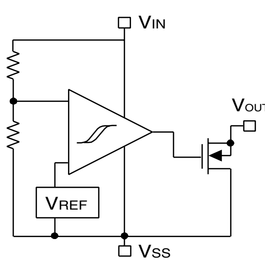
Description

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

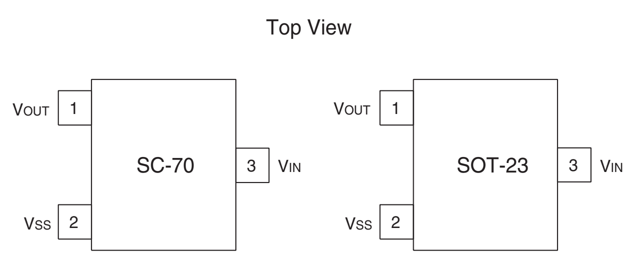
The ILC5061 comes in a series of ±1% accurate trip voltages to fit most microprocessor applications. Even though its output can sink 2mA, the device draws only 1µA in normal operation.

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~+V_{IN}+03	V
Continuous Total Power Dissipation	SOT 23	P_d	150	mW
Operation Ambient temperature		T_{opr}	-30~+80	ºC
Storage Temperature		T_{stg}	-40~+125	ºC

Electrical Characteristics T_A = 25°C

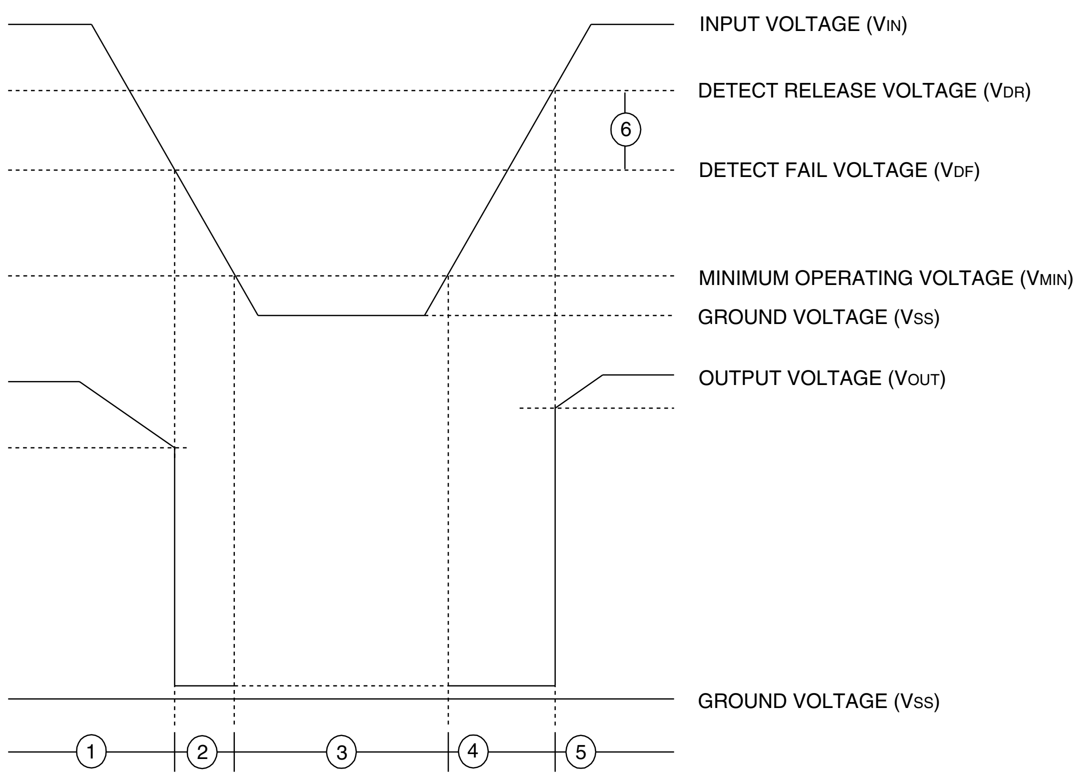
Parameter	Symbol	Conditions	Min	Type	Max	Units
Detect Fail Voltage	V_{DF}		V_{DF} X 0.99	V_{DF}	V_{DF} X 1.01	V
Hysteresis Range	V_{HYS}		V_{DF} X 0.02	V_{DF} X 0.05	V_{DF} X 0.08	V
Supply Current	I_{SS}	V_{IN} = 1.5V V_{IN} = 2.0V V_{IN} = 3.0V V_{IN} = 4.0V V_{IN} = 5.0V		0.9 1.0 1.3 1.6 2.0	2.6 3.0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

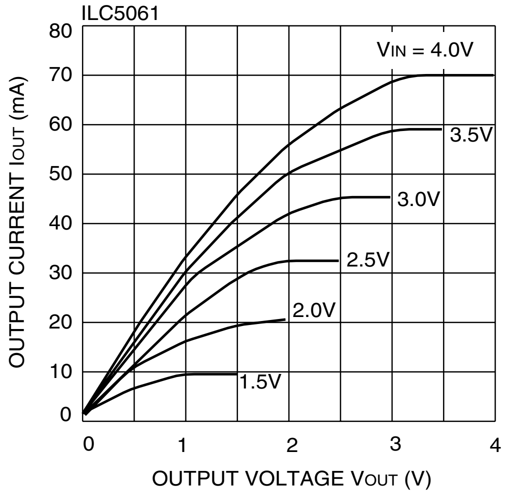
The following designators 1~6 refer to the timing diagram below.

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.

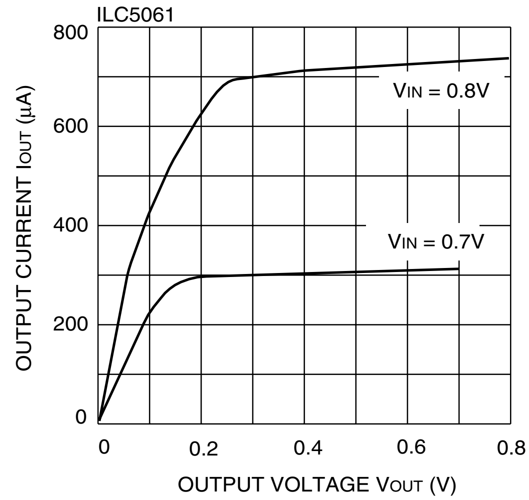


Typical Performance Characteristics (General conditions for all curves)

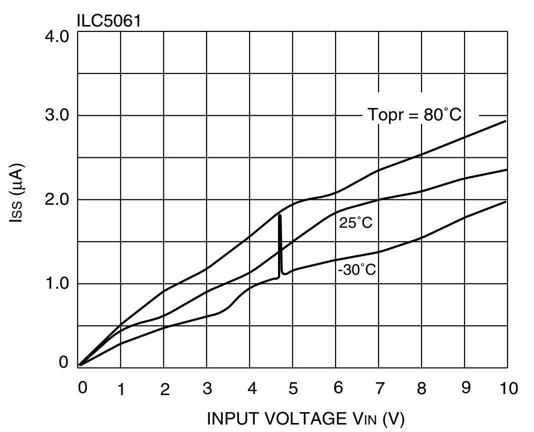
Output Voltage vs Output Current



Output Voltage vs Output Current

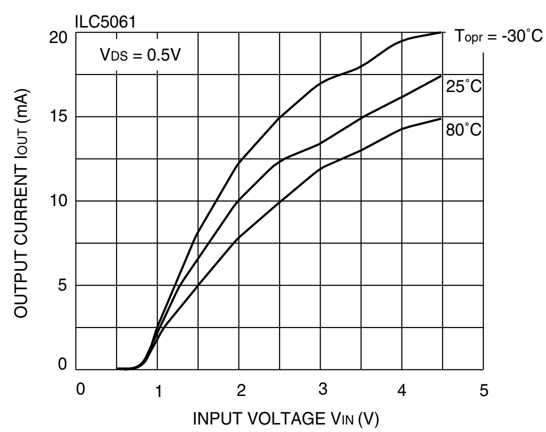


I_{SS} vs Input Voltage*

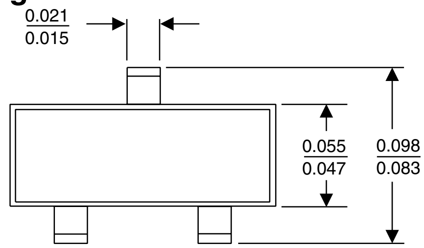


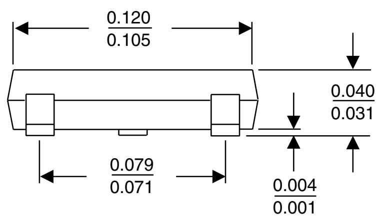
* A spike of 1/2 to 1µA may appear as V_{IN} crosses V_{DR} or V_{DF}

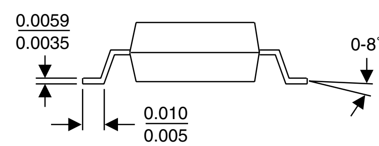
Output Current vs Input Voltage



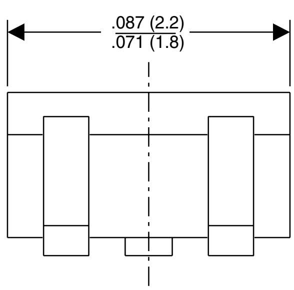
SOT-23 Package

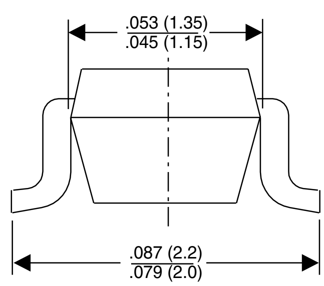


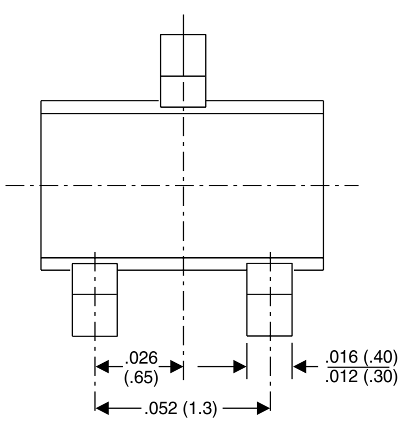


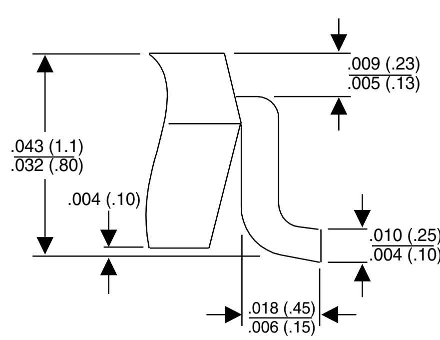


SC70 Package









Ordering Information

PART NUMBER	TOP MARKING	RESET THRESHOLD (V)	OUTPUT TYPE	PACKAGE	PACKING METHOD
ILC5061AM23	M3AY	2.3 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM25	M5AY	2.5 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM26	M6AY	2.6 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM27	M7AY	2.7 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM28	M8AY	2.8 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM29	M9AY	2.9 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM31	N1AY	3.1 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM32	N2AY	3.2 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM34	N4AY	3.4 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM44	P4AY	4.4 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AM46	P6AY	4.6 ± 1%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M23	M3Y	2.3 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M25	M5Y	2.5 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M26	M6Y	2.6 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M27	M7Y	2.7 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M28	M8Y	2.8 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M29	M9Y	2.9 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M31	N1Y	3.1 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M32	N2Y	3.2 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M34	N4Y	3.4 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M44	P4Y	4.4 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061M46	P6Y	4.6 ± 2%	Open-Drain, active LOW	3-Pin, SOT23	3000 units in T&R
ILC5061AIC23	M3AY	2.3 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC25	M5AY	2.5 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC26	M6AY	2.6 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC27	M7AY	2.7 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC28	M8AY	2.8 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC29	M9AY	2.9 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC31	N1AY	3.1 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC32	N2AY	3.2 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC34	N4AY	3.4 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC44	P4AY	4.4 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061AIC46	P6AY	4.6 ± 1%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC23	M3Y	2.3 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC25	M5Y	2.5 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC26	M6Y	2.6 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC27	M7Y	2.7 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
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ILC5061IC34	N4Y	3.4 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC44	P4Y	4.4 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 units in T&R
ILC5061IC46	P6Y	4.6 ± 2%	Open-Drain, active LOW	3-Pin, SC70	3000 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.

1/31/02 0.0m 001
Stock#DSxxxxxxxx