

ILC5062

SOT-23 Power Supply reset Monitor With Complementary CMOS Output

Features

- All-CMOS design in SOT-23 or SC70 package
- A grade $\pm 1\%$ precision in Reset Detection
- Standard grade : $\pm 2\%$ precision in Reset Detection
- Only $1\mu\text{A}$ of I_q
- 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

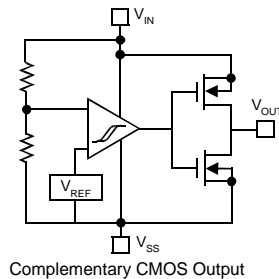
Description

All-CMOS voltage monitoring circuit in either a 3-lead SOT-23 or SC70 package offers the best performance in power consumption and accuracy.

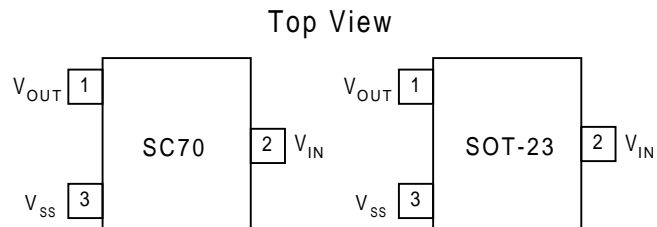
The ILC5062 is available in a series of $\pm 1\%$ (A-grade) or 2% (standard grade) accurate trip voltages to fit most microprocessor applications. Even though its output can sink over 2mA , the device draws only $1\mu\text{A}$ in normal operation.

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 Voltage	V_{IN}	12	V
Output Current	I_{OUT}	50	mA
Output Voltage	V_{OUT}	$V_{SS}-0.3\sim V_{IN}+0.3$	V
Continuous Total Power Dissipation (SOT-23)	P_D	150	mW
Operating Ambient Temperature	T_{opr}	-30~+80	°C
Storage Temperature	T_{stg}	-40~+125	°C

Electrical Characteristics ILC5062 ($T_A=25^\circ\text{C}$)

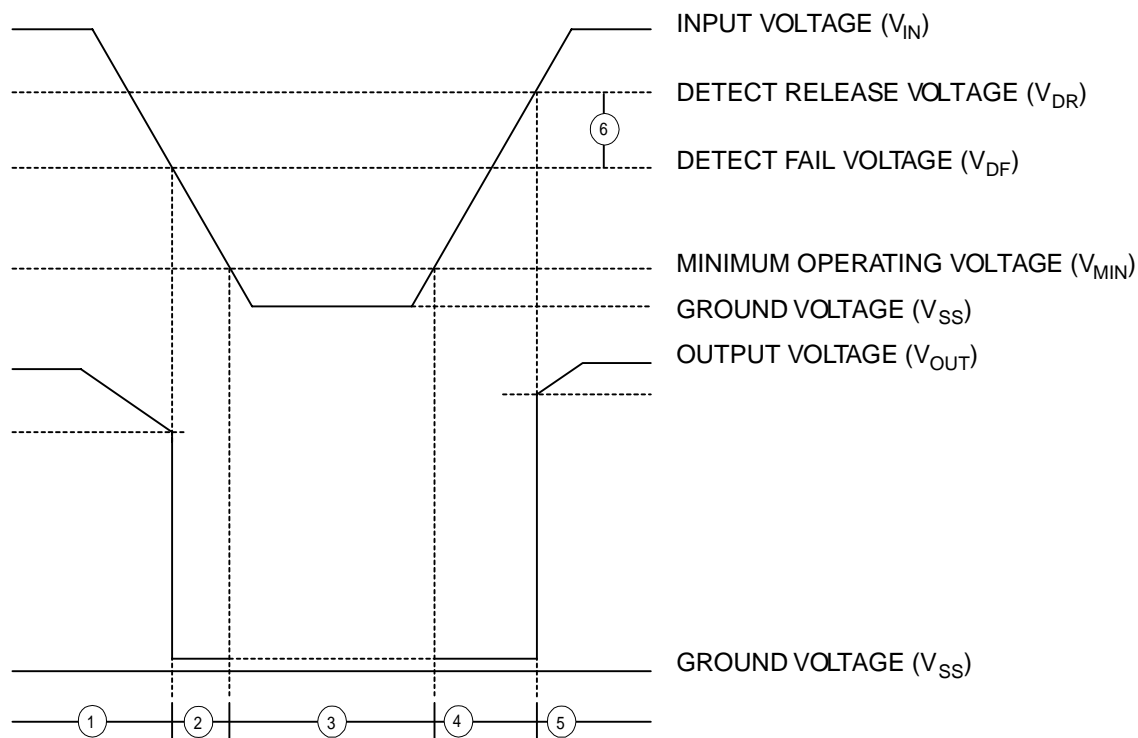
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Detect Fail Voltage	V_{DF}	A grade	$V_{DF} \times 0.99$	V_{DF}	$V_{DF} \times 1.01$	V
Detect Fail Voltage	V_{DF}	Standard grade	$V_{DF} \times 0.98$	V_{DF}	$V_{DF} \times 1.02$	V
Hysteresis Range	V_{HYS}		$V_{DF} \times 0.02$	$V_{DF} \times 0.05$	$V_{DF} \times 0.08$	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 $V_{DS} = 0.5\text{V}$ $V_{IN} = 1.0\text{V}$ $V_{IN} = 2.0\text{V}$ $V_{IN} = 3.0\text{V}$ $V_{IN} = 4.0\text{V}$ $V_{IN} = 5.0\text{V}$ P-Ch $V_{DS} = 2.1\text{V}$ $V_{IN} = 8\text{V}$		2.2 7.7 10.1 11.5 13.0 -10		mA
Temperature Characteristics	$\Delta V_{DF}/(\Delta T_{opr} \cdot V_{DF})$	$-30^\circ\text{C} \leq T_{opr} \leq 80^\circ\text{C}$		± 100		ppm/°C
Delay Time (Release Voltage \rightarrow Output Inversion)	t_{DLY} ($V_{DR} \rightarrow V_{OUT}$ Inversion)				0.2	ms

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

Functional Description

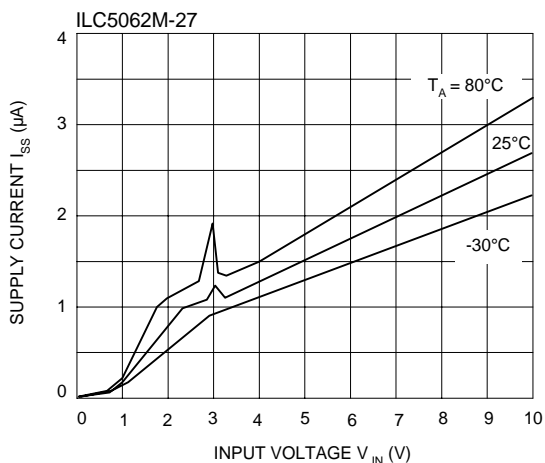
The following designators 1~6 refer to the timing diagram below.

1. While the input voltage (V_{IN}) is higher than the detect voltage (V_{DF}), the output voltage at V_{OUT} pin equals the input voltage at V_{IN} pin.
2. When the input V_{IN} voltage falls lower than V_{DF} , V_{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_{SS} voltage, V_{OUT} is undefined at the voltage below V_{MIN} . Exceeding the V_{MIN} 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} , the output voltage at V_{OUT} pin equals the input voltage at V_{IN} pin.
6. The difference between V_{DR} and V_{DF} is the hysteresis in the system.

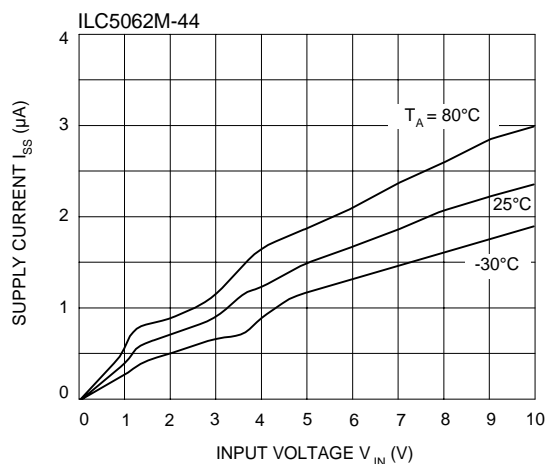


Typical Performance Characteristics - General conditions for all curves

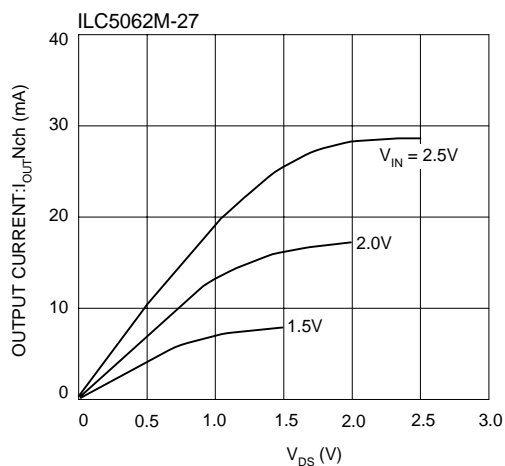
Supply Current vs Input Voltage



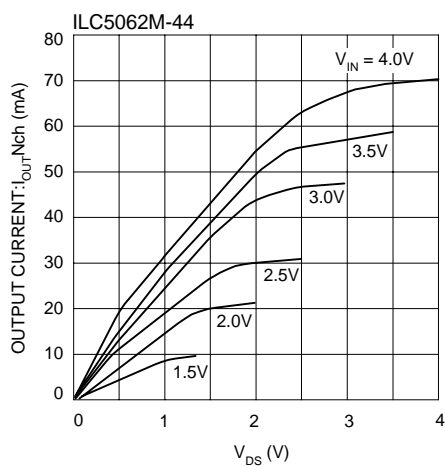
Supply Current vs Input Voltage



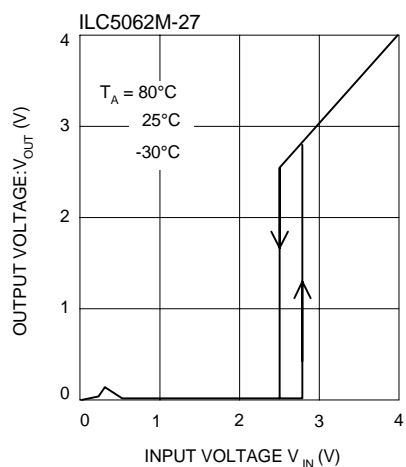
N-ch Driver Output Current vs V_{DS}



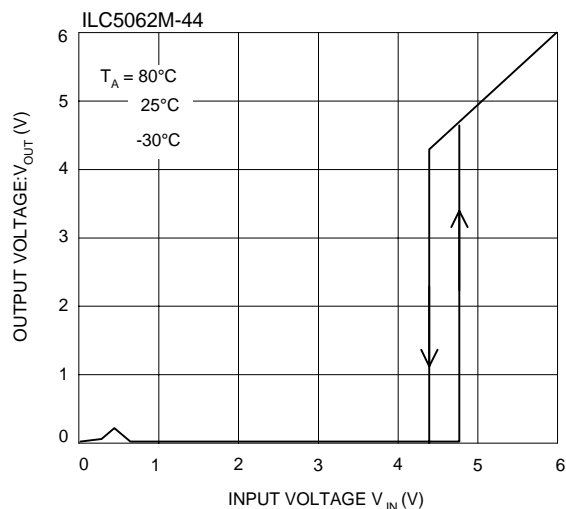
N-ch Driver Output Current vs V_{DS}



V_{OUT} vs V_{IN}

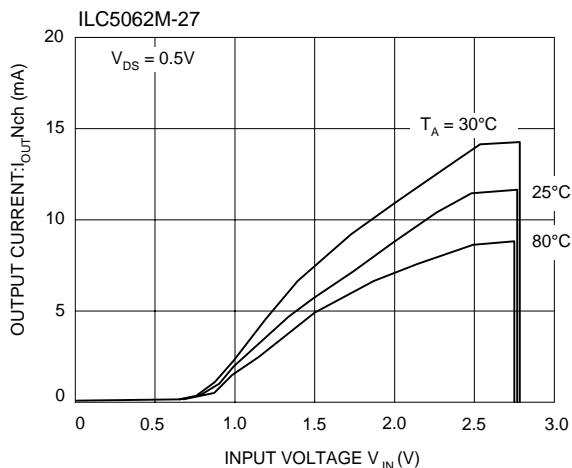


V_{OUT} vs V_{IN}

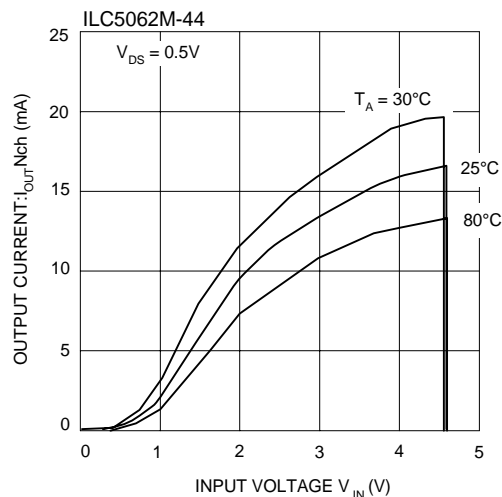


Typical Performance Characteristics - General conditions for all curves

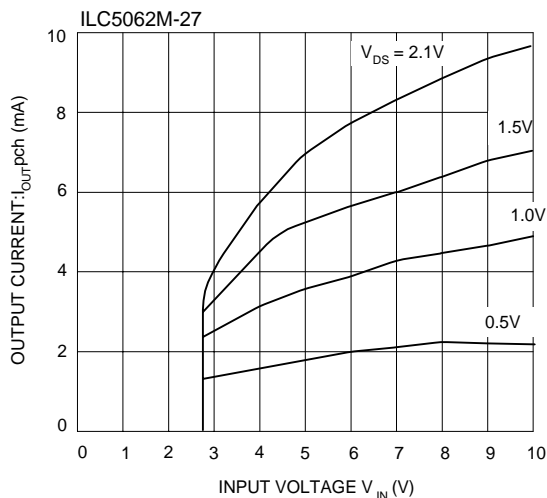
N-ch Driver Output Current vs Input Voltage



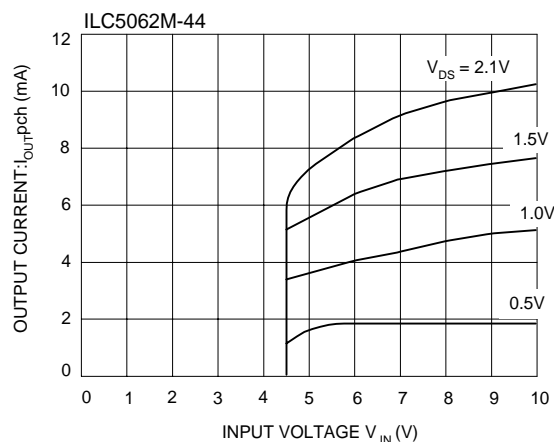
N-ch Driver Output Current vs Input Voltage



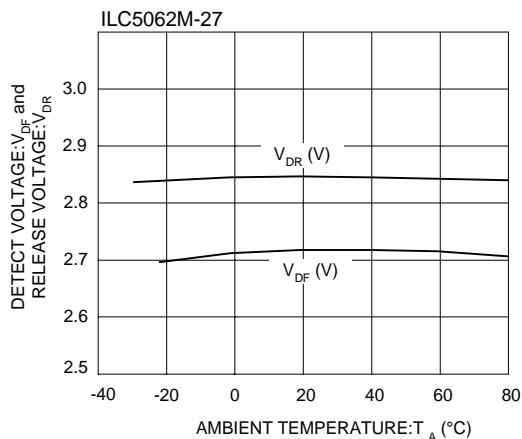
P_ch Driver Output Current vs Input Voltage



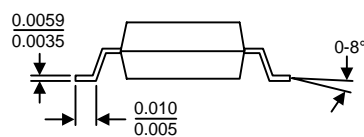
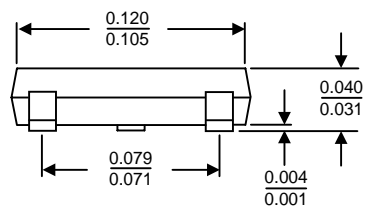
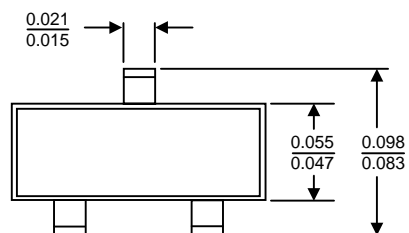
P_ch Driver Output Current vs Input Voltage



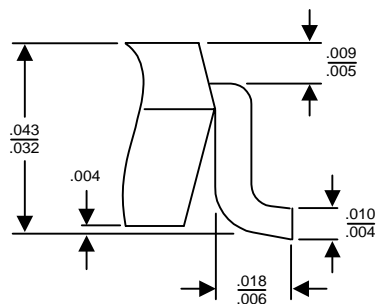
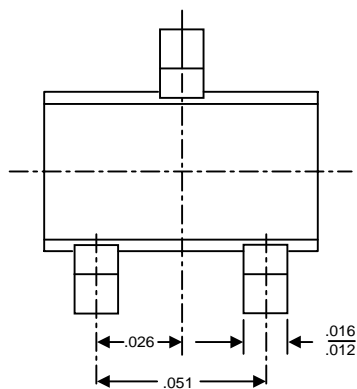
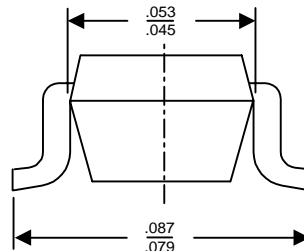
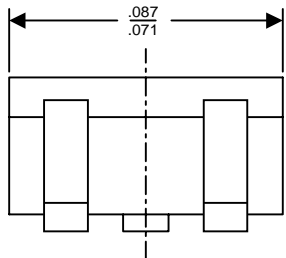
V_{DR} and V_{DF} vs Temperature



SOT-23



SC70



Ordering Information*	
ILC5062AM-23	2.3V±1% Monitor in SOT-23
ILC5062AM-25	2.5V±1% Monitor in SOT-23
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-37	3.7V±1% Monitor in SOT-23
ILC5062AM-44	4.4V±1% Monitor in SOT-23
ILC5062AM-46	4.6V±1% Monitor in SOT-23
ILC5062 -23	2.3V±2% Monitor in SOT-23
ILC5062 -25	2.5V±2% Monitor in SOT-23
ILC5062 -26	2.6V±2% Monitor in SOT-23
ILC5062 -27	2.7V±2% Monitor in SOT-23
ILC5062 -28	2.8V±2% Monitor in SOT-23
ILC5062 -29	2.9V±2% Monitor in SOT-23
ILC5062 -31	3.1V±2% Monitor in SOT-23
ILC5062 -37	3.7V±2% Monitor in SOT-23
ILC5062 -44	4.4V±2% Monitor in SOT-23
ILC5062 -46	4.6V±2% Monitor in SOT-23

Ordering Information*	
ILC5062AIC-23	2.3V±1% Monitor in SC-70
ILC5062AIC-25	2.5V±1% Monitor in SC-70
ILC5062AIC-26	2.6V±1% Monitor in SC-70
ILC5062AIC-27	2.7V±1% Monitor in SC-70
ILC5062AIC-28	2.8V±1% Monitor in SC-70
ILC5062AIC-29	2.9V±1% Monitor in SC-70
ILC5062AIC-31	3.1V±1% Monitor in SC-70
ILC5062AIC-37	3.7V±1% Monitor in SC-70
ILC5062AIC-44	4.4V±1% Monitor in SC-70
ILC5062AIC-46	4.6V±1% Monitor in SC-70
ILC5062AC-23	2.3V±2% Monitor in SC-70
ILC5062AC-25	2.5V±2% Monitor in SC-70
ILC5062AC-26	2.6V±2% Monitor in SC-70
ILC5062AC-27	2.7V±2% Monitor in SC-70
ILC5062AC-28	2.8V±2% Monitor in SC-70
ILC5062AC-29	2.9V±2% Monitor in SC-70
ILC5062AC-31	3.1V±2% Monitor in SC-70
ILC5062AC-37	3.7V±2% Monitor in SC-70
ILC5062AC-44	4.4V±2% Monitor in SC-70
ILC5062AC-46	4.6V±2% Monitor in SC-70

*Standard product offering comes in tape & reel, quantity 3000 per reel, orientation right.

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