

# 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  $I_q$
- $2\text{mA}$  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

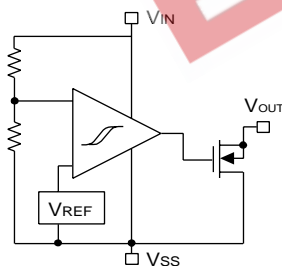
### Description

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  $2\text{mA}$ , the device draws only  $1\mu\text{A}$  in normal operation.

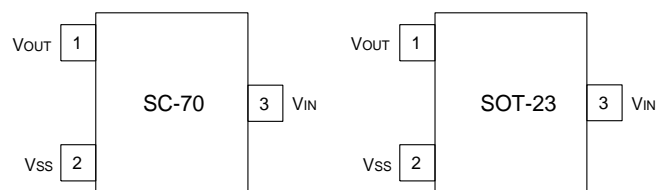
Additionally, a built-in hysteresis of 5% of detect voltage simplifies system design.

### Block Diagram



### Pin Package Configurations

Top View



## Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltages		$V_{IN}$	12	V
Output Current		$I_{OUT}$	50	mA
Output Voltages		$V_{OUT}$	$V_{SS}-0.3\sim+V_{IN}+03$	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 $T_A = 25^\circ\text{C}$

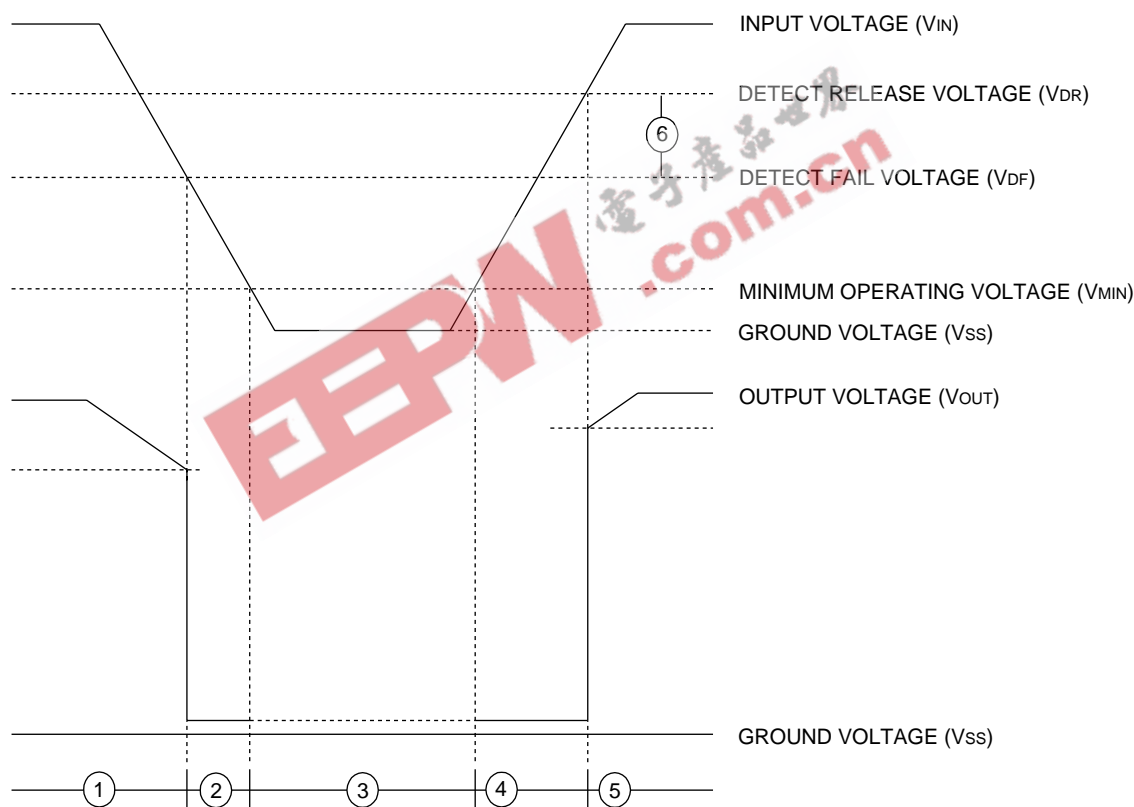
Parameter	Symbol	Conditions	Min	Type	Max	Units
Detect Fail Voltage	$V_{DF}$		$V_{DF} \times 0.99$	$V_{DF}$	$V_{DF} \times 1.01$	V
Hysteresis Range	$V_{HYS}$		$V_{DF} \times 0.02$	$V_{DF} \times 0.05$	$V_{DF} \times 0.08$	V
Supply Current	$I_{SS}$	$V_{IN} = 1.5\text{V}$ $V_{IN} = 2.0\text{V}$ $V_{IN} = 3.0\text{V}$ $V_{IN} = 4.0\text{V}$ $V_{IN} = 5.0\text{V}$		0.9 1.0 1.3 1.6 2.0	2.6 3.0 3.4 3.8 4.2	$\mu\text{A}$
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	$\pm 100$	+200	Ppm/°C
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  $V_{DR}$ .

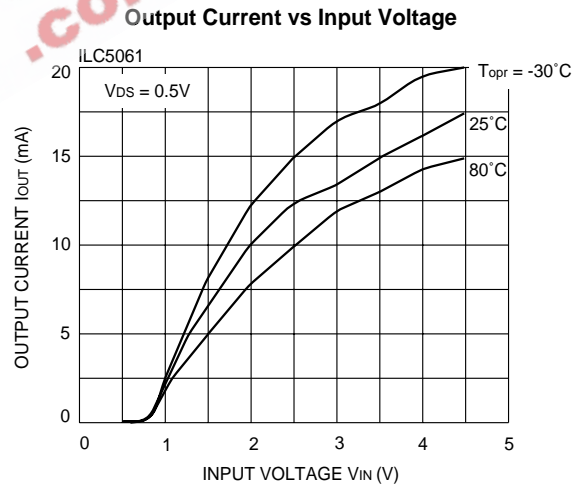
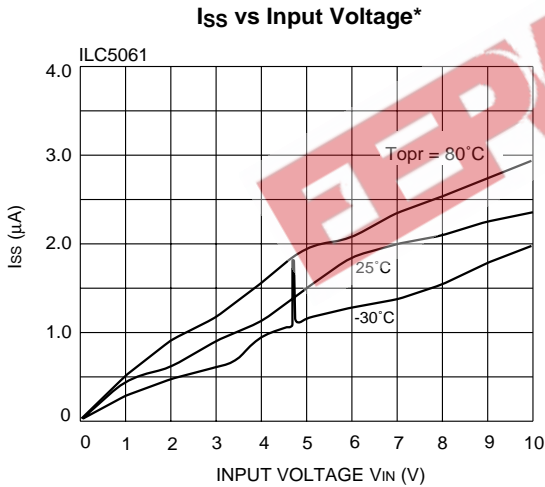
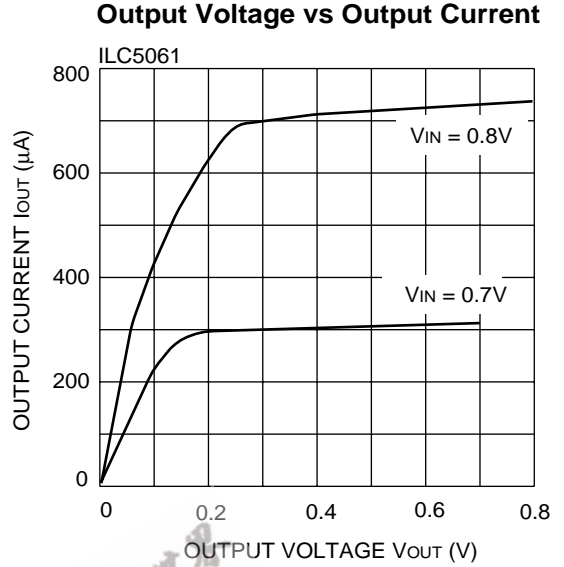
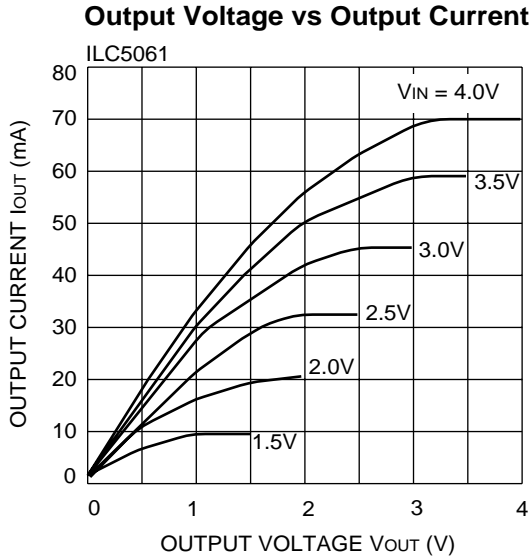
## Functional Description

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.

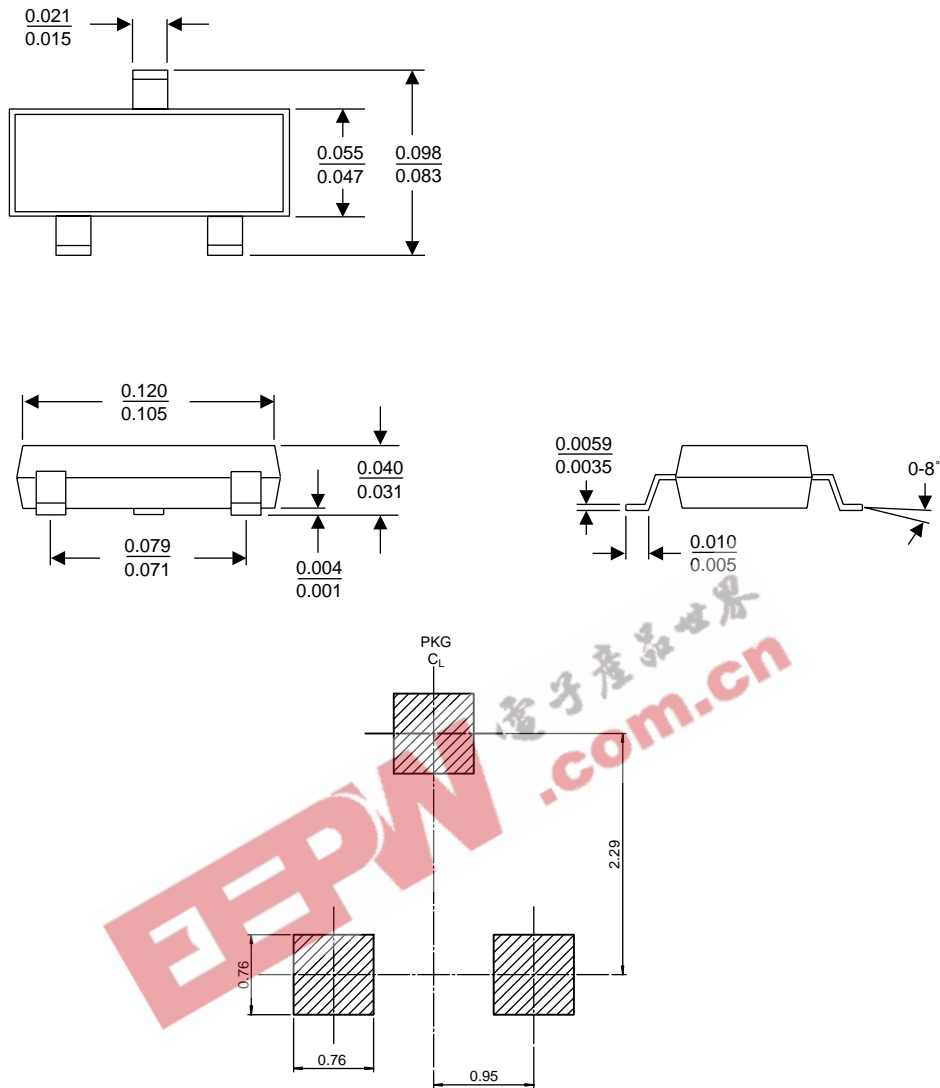


### Typical Performance Characteristics (General conditions for all curves)



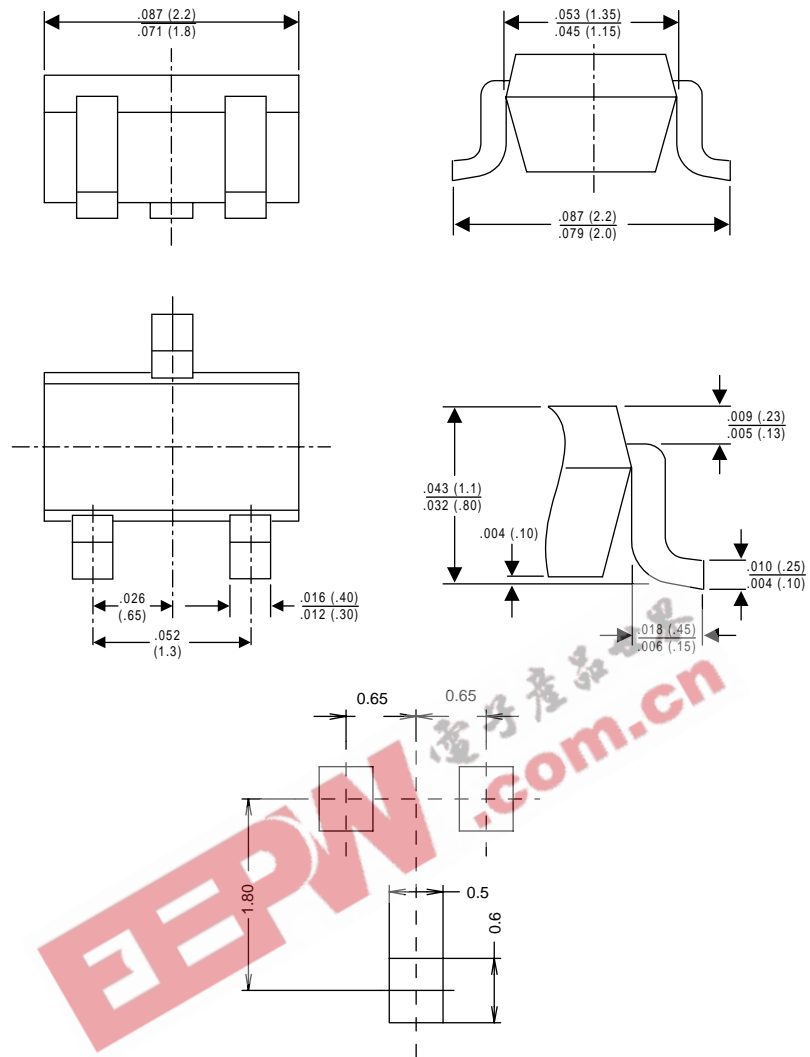
\* A spike of 1/2 to 1  $\mu A$  may appear as  $V_{IN}$  crosses  $V_{DR}$  or  $V_{DF}$

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

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