

PRELIMINARY
 Notice: This is not a final specification.
 Some parametric limits are subject to change.

MITSUBISHI Dig./Ana.INTERFACE

M62707ML,SL

VOLTAGE DETECTING, SYSTEM RESETTNG IC SERIES

GENERAL DESCRIPTION

The M62703ML/SL is a voltage threshold detector designed for detection of a supply voltage and generation of a system reset pulse for almost all logic circuits such as microcontroller.

It has extensive applications including battery checking, level detecting and waveform shaping circuits.

FEATURES

- Few external components
- Low operating threshold voltage (Supply voltage to keep a output low in a low supply operation)
 ...0.65V(typ) at $R_L = 22k$
- Wide supply voltage range 2V to 7V
- High immunity to a sudden supply voltage change
- Wide application range
- Extra small 3-pin package (3-pin FLAT)

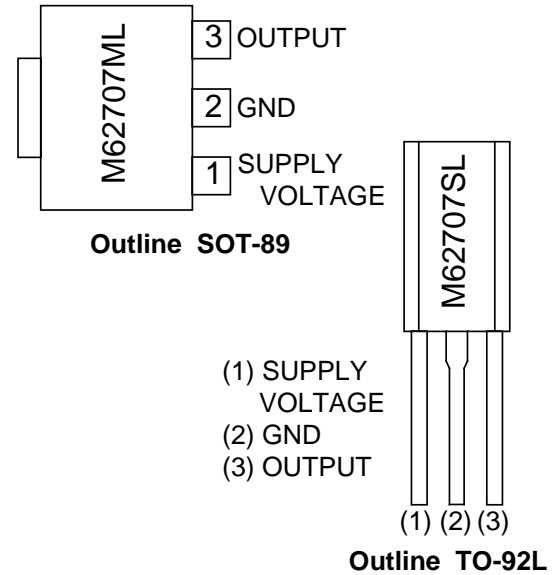
APPLICATION

- Reset pulse generation for almost all logic circuits
- Battery checking, level detecting, waveform shaping circuits
- Delayed waveform generating circuit
- Switching circuit to a back-up power supply
- DC/DC converter
- Over voltage protection circuit

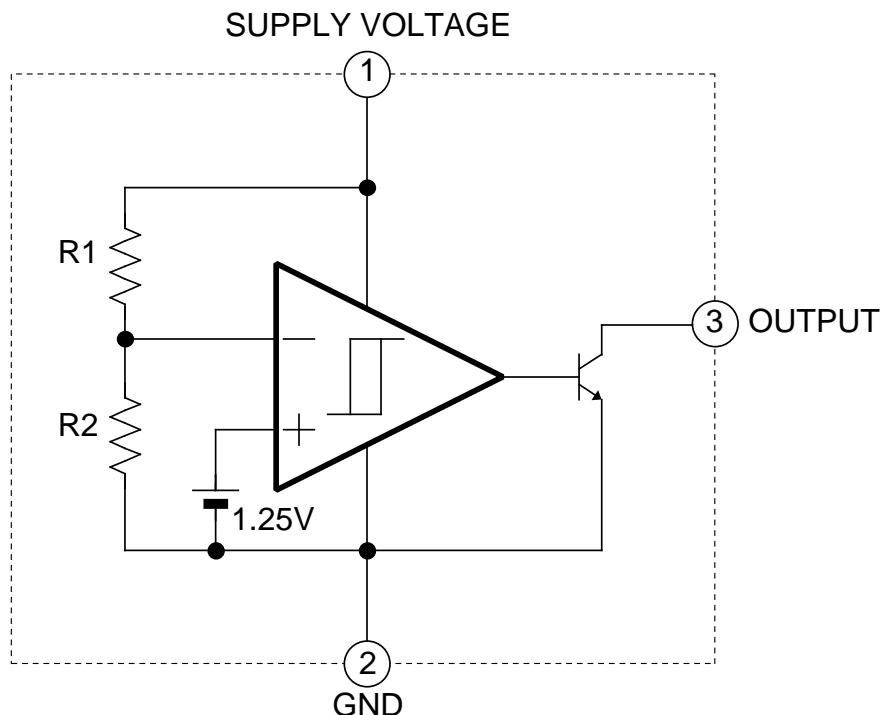
RECOMMENDED OPERATING CONDITION

- Supply voltage range 2V to 7V

PIN CONFIGURATION (TOP VIEW)



BLOCK DIAGRAM



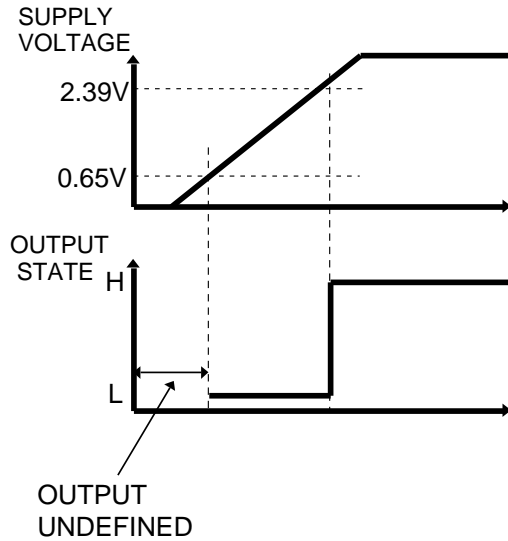
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FUNCTION DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C, Unless otherwise noted)

| Symbol | Parameter | Test condition | Ratings | Unit | |
|-------------------|-----------------------|-----------------------------------|-----------------|------|-------|
| I _{cc} | Supply Voltage | | 7 | V | |
| I _{sink} | Output Sink Current | | 6 | mA | |
| V _o | Output Voltage | Output with constant current load | V _{cc} | V | |
| P _d | Power Dissipation | 3pin SIL | 700 | mW | |
| | | 3pin FLAT | 500 | | |
| K _θ | Thermal Derating | Ta 25°C | 3PIN SIL | 7 | mW/°C |
| | | | 3PIN FLAT | 5 | |
| Topr | Operating Temperature | | -30 to +85 | °C | |
| Tstg | Storage Temperature | | -40 to +125 | °C | |

ELECTRICAL CHARACTERISTICS (Ta=25°C, Unless otherwise noted)

| Symbol | Parameter | Test condition | Limits | | | Unit | |
|--------------------|---|---|---|-----------------------|------|------|---|
| | | | MIN | TYP | MAX | | |
| V _s | Detecting Voltage | | 2.28 | 2.39 | 2.50 | V | |
| V _s | Hysteresis Voltage | | 50 | 80 | 110 | mV | |
| V _s / T | Detecting Voltage Temperature Coefficient | | — | 0.01 | — | %/°C | |
| I _{cc} | Circuit Current | V _{cc} =2.7V | — | 200 | 320 | μA | |
| V _{sat} | Output Saturation Voltage | V _{cc} =2V, I _{sink} =4mA | — | 0.2 | 0.4 | V | |
| V _{oPL} | Threshold Operating Voltage | Minimum supply voltage for IC operation | R _L =2.2k, V _{sat} 0.4V | — | 0.7 | 0.8 | V |
| | | | R _L =100k, V _{sat} 0.4V | — | 0.6 | 0.7 | |
| I _{oc} | Output Load Current | V _{cc} =2V, V _o =1/2V _{cc} | -40 | -25 | -17 | μA | |
| V _{OH} | Output HIGH Voltage | | V _{cc} -0.2 | V _{cc} -0.06 | | V | |
| t _{PHL} | Propagation Delay Time | Response time when V _{cc} changes H to L | — | 6 | — | μs | |
| t _{PLH} | | Response time when V _{cc} changes L to H | — | 3 | — | | |

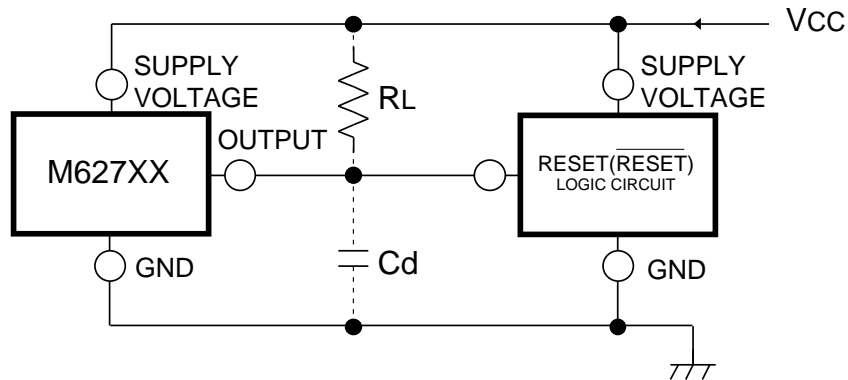
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Example of application circuit Reset Circuit of M627XX Series



Note 1.

This IC can be used whether or not a pull-up resistor is included in the logic circuit.

Note 2.

The logic circuit preferably should not have a pull-down resistor. However in the case it has the resistor, the load resistor R_L must be much less than the pull-down resistor. (refer to the above application circuit)

⚠ Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit design, in order to prevent fires from spreading, redundancy, malfunction or other mishap.