M62032FP

VOLTAGE DETECTING, SYSTEM RESETTING IC

GENERAL DESCRIPTION

The M62032FP is an IC for detection of two different input voltages to reset almost all logic circuits including MCU.
It contains a delay circuit with which any delay time can be obtained only by adding an external capacitor.
The IC is widely applicable to a battery check circuit, a level detection circuit, a waveform shaping circuit, etc.

FEATURES

- A small number of external components
- Built-in 2 input voltage detection circuits
- Wide supply voltage range ..... 2 to 10V
- Small 8-pin package
- Open collector output

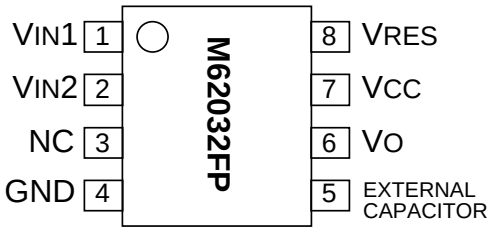
APPLICATION

Reset circuit of MPU, MCU and logics

RECOMMENDED OPERATING CONDITION

Supply voltage range ..... 2 to 10V

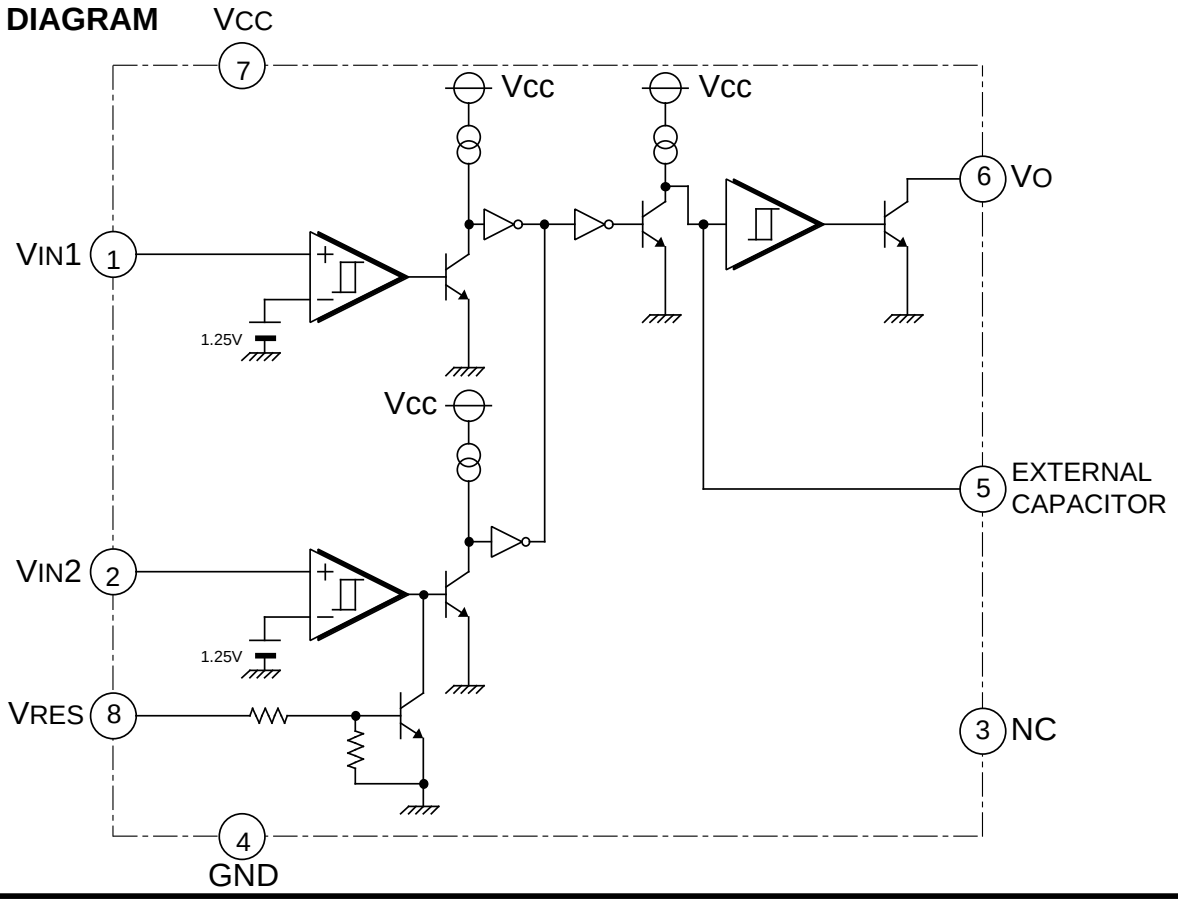
PIN CONFIGURATION (TOP VIEW)



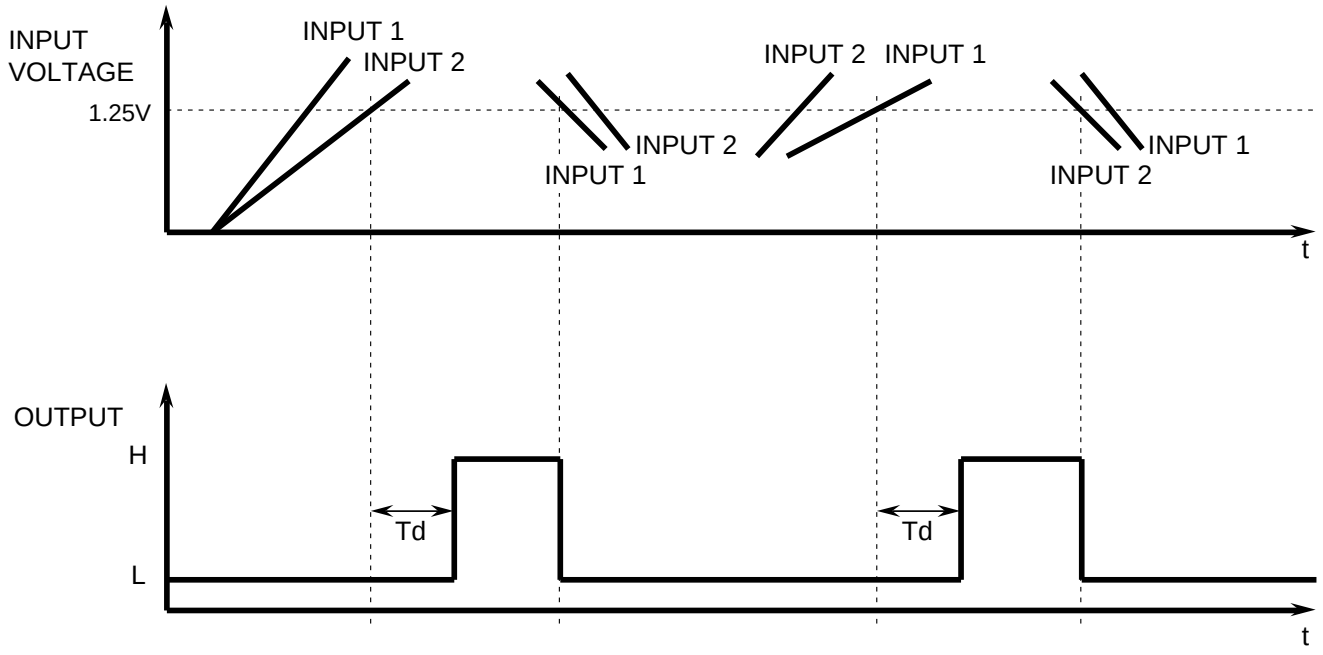
Outline 8P2S-A

NC: NO CONNECTION

BLOCK DIAGRAM



FUNCTIONAL DIAGRAM



TERMINAL DESCRIPTION

Terminal No.	Symbol	Functional Description
①	V_{IN1}	Detecting voltage input 1
②	V_{IN2}	Detecting voltage input 2
③	NC	No connection
④	GND	Ground
⑤	EXTERNAL CAPACITOR	Delay capacitor connection
⑥	Vo	Output (open collector)
⑦	Vcc	Supply voltage
⑧	V_{RES}	It outputs "L" and "H" to the Vo terminal when V_{RES} input is "H" and "L", respectively.

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

Symbol	Parameter	Conditions	Ratings	Unit
Vcc	Supply Voltage		10	V
ISINK	Output Sink Current		8.0	mA
Vo	Output Voltage		10	V
VRES	Self Reset Input Voltage		10	V
Pd	Power Dissipation		300	mW
Ktheta	Thermal Derating	Ta ≥ 25°C	3.0	mW/°C
Topr	Operating Temperature		-20 to +75	°C
Tstg	Storage Temperature		-40 to +125	°C

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

<Reset circuit1>

Symbol	Parameter	Test Conditions	Limits			Unit
			Min	Typ	Max	
VS1	Detecting Voltage 1		1.20	1.25	1.30	V
ΔVS1	Hysteresis Voltage 1		9	15	23	mV
VIN	Input Voltage Range	VCC ≤ 7V	-0.3		VCC	V
		VCC > 7V	-0.3		7.0	
IIN	Input Current	VIN = 1.25V		100	500	nA
IPD	Constant Current			-1		uA
VOL	Low Output Voltage 1	IOL = 5mA		0.2	0.4	V
tpd1	Delay Time	Cd = 0.01uF		10		mS
tpdmax	Maximum Delay Time	Cd = 0.68uF		680	1130	

* The delay time can be varied by changing the connecting capacitance (Cd).
Tpd = CV/I = Cd x 1(V)/1(uA) = Cd x 1E6 (sec)

**When delay time setting goes over 100msec, add a condenser for chattering protection (0.01uF) to the output.

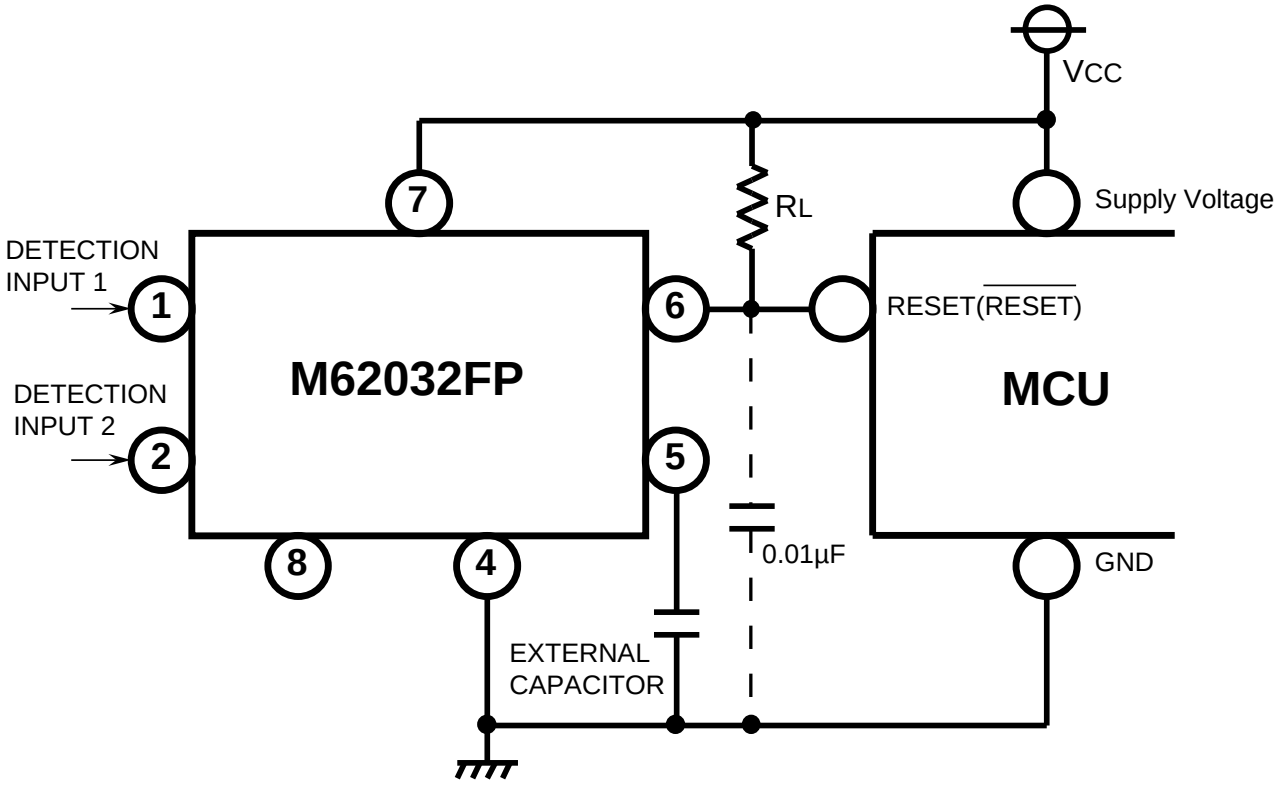
<Reset circuit2>

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
VS2	Detecting Voltage2		1.20	1.25	1.30	V
ΔVS2	Hysteresis Voltage2		9	15	23	mV
VIN	Input Voltage Range	VCC ≤ 7V	-0.3		VCC	V
		VCC > 7V	-0.3		7.0	
IIN	Input Current	VIN = 1.25V		100	500	nA

Common specification

Symbol	Parameter		Test conditions	Limits			Unit
				Min	Typ	Max	
VCC	Supply Voltage Range			2		10	V
ICC	Circuit Current in OFF		VCC = 5V		0.7	1.4	mA
VS/ΔT	Detecting Voltage Temperature Coefficient				0.01		%/°C
ΔVS/ΔT	The Hysteresis Voltage Temperature Coefficient				0.01		%/°C
TPLH/ΔT	Propagation Delay Time Temperature Coefficient				0.10		%/°C
IOH	Output Leak Current					1	uA
TPHL	Output "L" Propagation Delay Time		CL = 100pF		10		µs
VOPL	Threshold Operating Voltage		RL = 2.2kΩ, VOL ≤ 0.4V		0.67	0.80	V
			RL = 100kΩ, VOL ≤ 0.4V		0.55	0.70	
VRESH	Self reset	Input high voltage		2		VCC	V
IRESH		Input high current	VRES = 2V			80	µA
VRESL		Input low voltage		-0.3		0.8	V

AN EXAMPLE OF THE APPLICATION CIRCUIT



* A forced reset signal (high) into pin 8 from outside can reset this IC (low output) regardless of input signals to pins 1 and 2.

⚠ 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.