

# M62022L,FP

## VOLTAGE DETECTING,SYSTEM RESETTNG IC

### DESCRIPTION

The M62022 is a semiconductor integrated circuit resets logic circuits according to supply voltage. It is used with many types of circuits, including central processing units.

With the built-in delay circuit, delay time can be adjusted at the user's option by externally adding capacitance.

This circuit can also be used in other applications, such as battery check, level detection and waveform shaping.

### FEATURES

- Requires only a few external components.
- Ensures long delay time at low capacitance.  
e.g. Delay time is 100ms at 0.33 $\mu$ F.
- Limit operating voltage\* is low.  
0.6V standard (Resistance  $R_L=22k$  )  
(\*Minimum supply voltage at which output can be kept low.)
- Wide supply voltage range.....2~17V
- Highly resistant to rapid voltage fluctuation
- Wide application range
- 5-pin single in-line package equivalent in height to dual in-line package

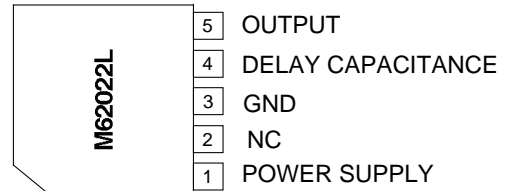
### APPLICATION

Reset circuit in p-channel metal-oxide semiconductors, n-channel metal-oxide semiconductors, complementary metal-oxide semiconductors, microcomputers, central processing units, microcomputer units and other logic circuits, Battery check circuit, Backup power selection circuit, Level detection circuit, Waveform shaping circuit, Delay waveform generation circuit, DC-DC converter, and Overvoltage protection circuit.

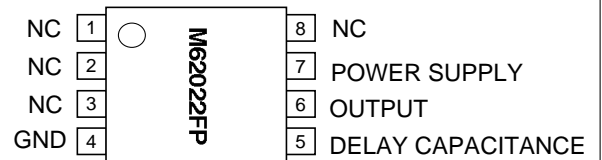
### RECOMMENDED OPERATING VOLTAGE

Supply voltage range.....2~17V

### PIN CONFIGURATION (TOP VIEW)



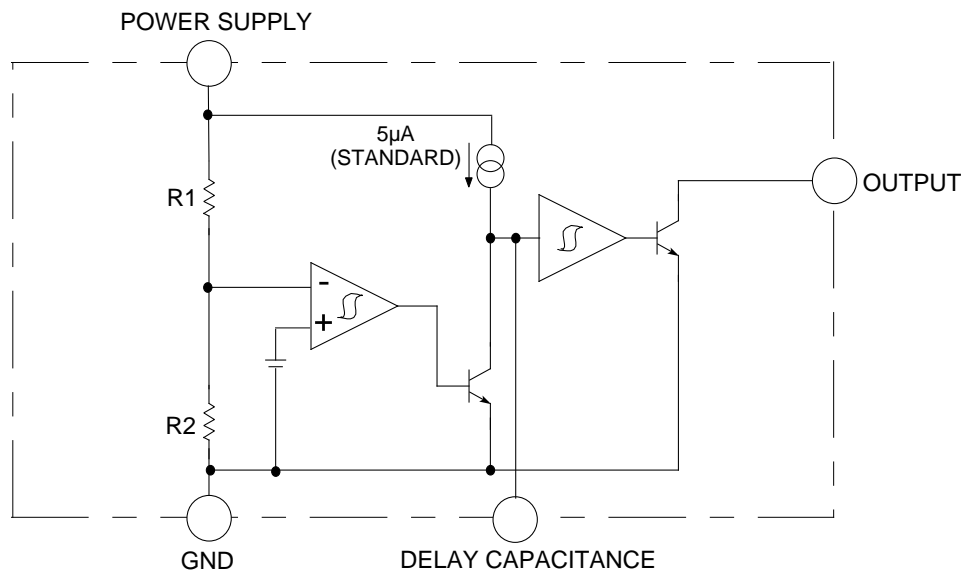
Outline 5P5T



Outline 8P2S-A

NC:NO CONNECTION

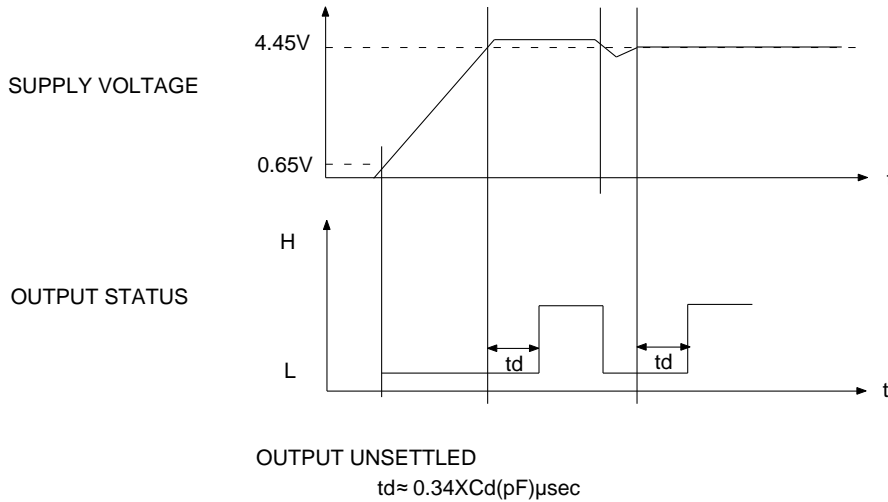
### BLOCK DIAGRAM



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### OPERATION WAVEFORM



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

Symbol	Parameter	Conditions	Ratings	Unit
V <sub>cc</sub>	Supply voltage		18	V
I <sub>SINK</sub>	Output sink current		6	mA
V <sub>o</sub>	Output voltage		18	V
P <sub>d</sub>	Power dissipation		450(SIP)/300(FP)	mW
K <sub>θ</sub>	Thermal derating	(Ta 25°C)	4.5(SIP)/3.0(FP)	mW/°C
T <sub>opr</sub>	Operating temperature		-30 ~ +85	°C
T <sub>stg</sub>	Storage temperature		-40 ~ +125	°C

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

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V <sub>s</sub>	Detection voltage		4.30	4.45	4.60	V
V <sub>s</sub>	Hysteresis voltage		30	50	80	mV
V <sub>s</sub> / T	Coefficient of detection voltage to temperature			0.01		%/°C
I <sub>cc</sub>	Circuit current	V <sub>cc</sub> =5V		420	630	μA
t <sub>pd</sub>	Delay time	Ta=-30~+85°C Cd=0.01μF(Note)	1.6	3.4	7.0	ms
I <sub>pd</sub>	Delay current		-8	-5	-3	μA
V <sub>sat</sub>	Output saturation voltage	V <sub>cc</sub> =5V I <sub>sink</sub> =4mA		0.2	0.4	V
V <sub>OPL</sub>	Limit operating voltage	RL=2.2k V <sub>sat</sub> 0.4V		0.67	0.80	V
		RL=100k V <sub>sat</sub> 0.4V		0.55	0.70	
I <sub>OH</sub>	Output leak current				30	nA
		Ta=-30~+85°C			1	μA

Note.Delay time can be varied by changing the capacitance.