

M51981ML / SL

VOLTAGE DETECTING, SYSTEM RESETTING IC SERIES

DESCRIPTION

M51981 are semiconductor integrated circuits designed for detecting supply voltage and resetting all types of logic circuits such as CPUs.

They find extensive applications, including battery checking circuits, level detecting circuit and waveform shaping circuit.

FEATURES

- Few external parts.
- Low threshold operating voltage (Supply voltage to keep low-state at low supply voltage) 0.6V(TYP.) at $R_L=22k$
- Wide supply voltage range 2 to 17V
- Sudden change in power supply has minimal effect on the ICs
- Wide application range

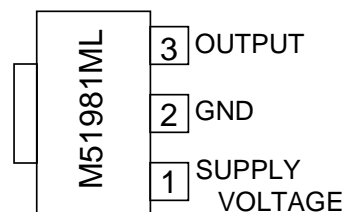
APPLICATION

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

RECOMMENDED OPERATING CONDITION

- Supply voltage range 2 to 17V

PIN CONFIGURATION (TOP VIEW)



Outline SOT-89

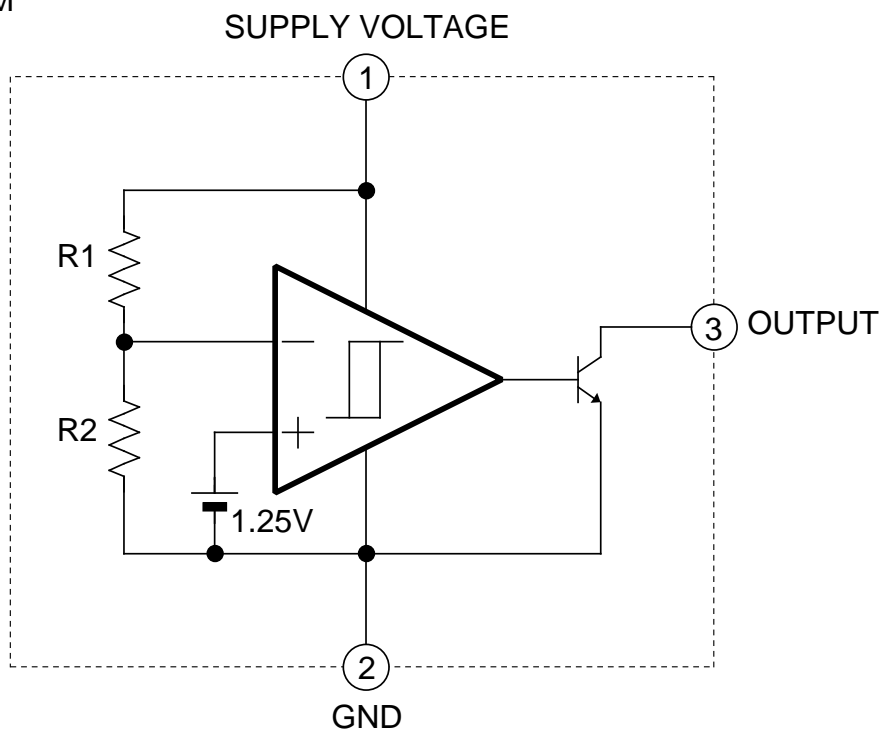


- (1) SUPPLY VOLTAGE
- (2) GND
- (3) OUTPUT

(1) (2) (3)

Outline TO-92L

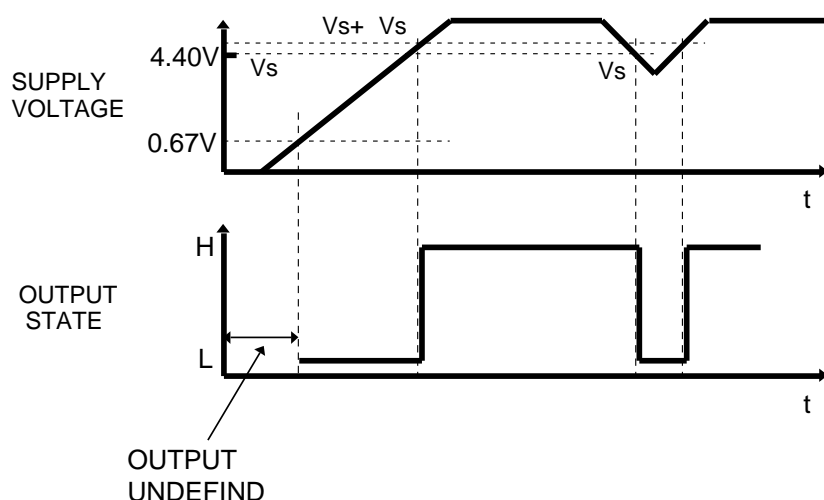
BLOCK DIAGRAM



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FUNCTION DIAGRAM



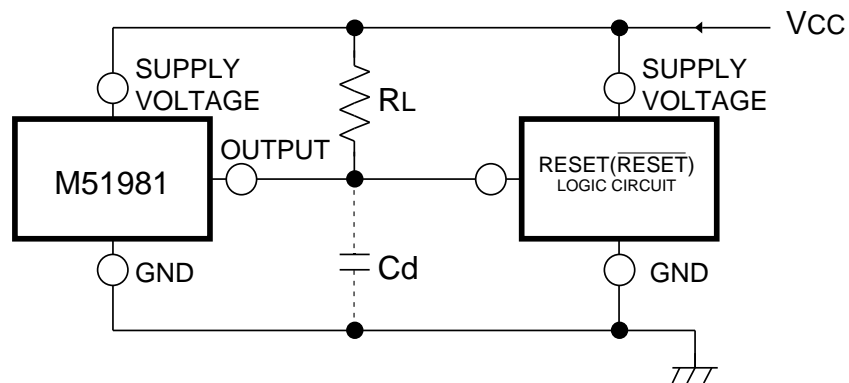
ABSOLUTE MAXIMUM RATINGS (Ta=25°C Unless otherwise noted)

Symbol	Parameter	Test condition	Ratings	Unit	
I _{CC}	Supply Voltage		18	V	
I _{sink}	Output Sink Current		6	mA	
V _O	Output Voltage	Output with constant current load	18	V	
P _d	Power Dissipation	SL:TO-92L	700	mW	
		ML:SOT-89	500		
K _θ	Thermal Derating	Ta 25°C	SL:TO-92L ML:SOT-89	7 5	mW/°C
T _{opr}	Operating Temperature			-30 to +85	
T _{stg}	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		4.20	4.40	4.60	V	
V _S	Hysteresis Voltage		30	50	80	mV	
V _S /T	Detecting Voltage Temperature Coefficient		—	0.01	—	%/°C	
I _{CC}	Circuit Current	V _{CC} =5V	—	340	510	μA	
V _{sat}	Output Saturation Voltage	V _{CC} =4V, 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	—	0.67	0.8	V
			R _L =100k, V _{sat} 0.4V	—	0.55	0.7	
I _{OH}	Output Leakage Current		—	—	30	nA	
		Ta= -30 to +85°C	—	—	1	μA	
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 M51981**Note 1.**

The logic circuit preferably should not have a pull-down resistor, but if one is present, add load resistor R_L to overcome the pull-down resistor.