

M51981ML/SL

Voltage Detecting, System Resetting IC Series

REJ03D0779-0400

Rev.4.00

Sep 18, 2007

Description

M51981ML/SL 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 circuit, 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):
0.6 V (Typ) at $R_L = 22 \text{ k}\Omega$
- Wide supply voltage range: 2 V to 17 V
- Wide application range

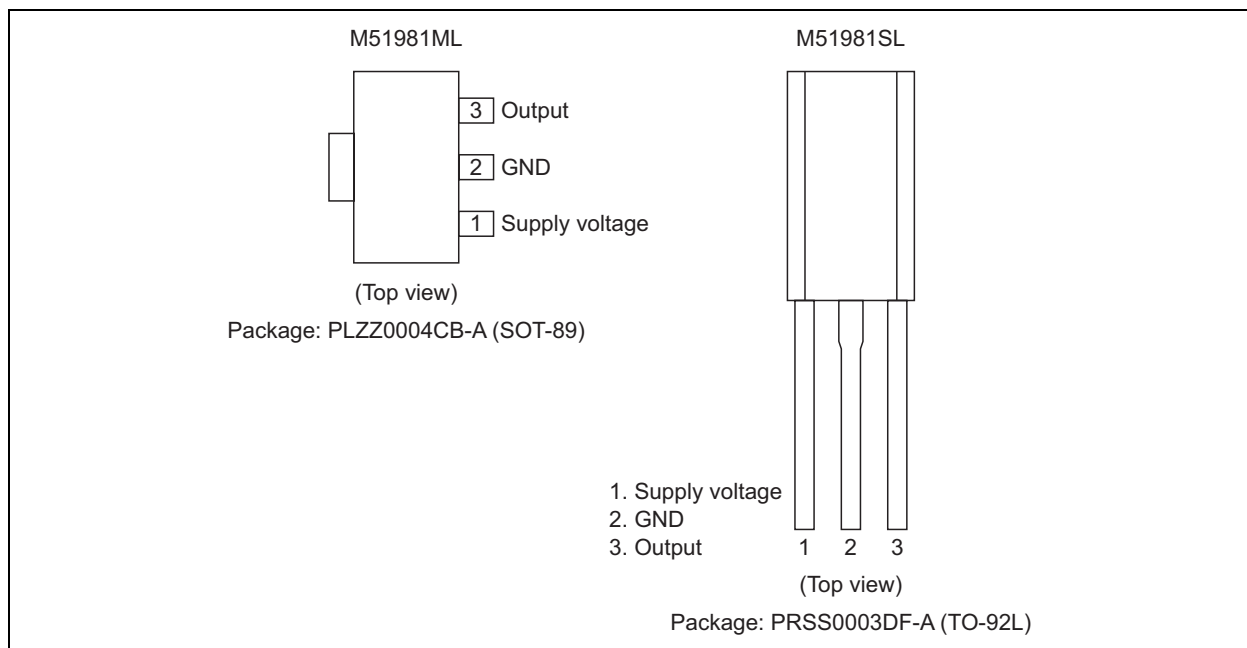
Application

- Reset circuit of Pch, Nch, CMOS, microcomputer, CPU and MCU, Reset of logic circuit, Battery check circuit, switching circuit back-up voltage, level detecting circuit, waveform shaping circuit, delay waveform generating circuit, DC/DC converter, over voltage protection circuit

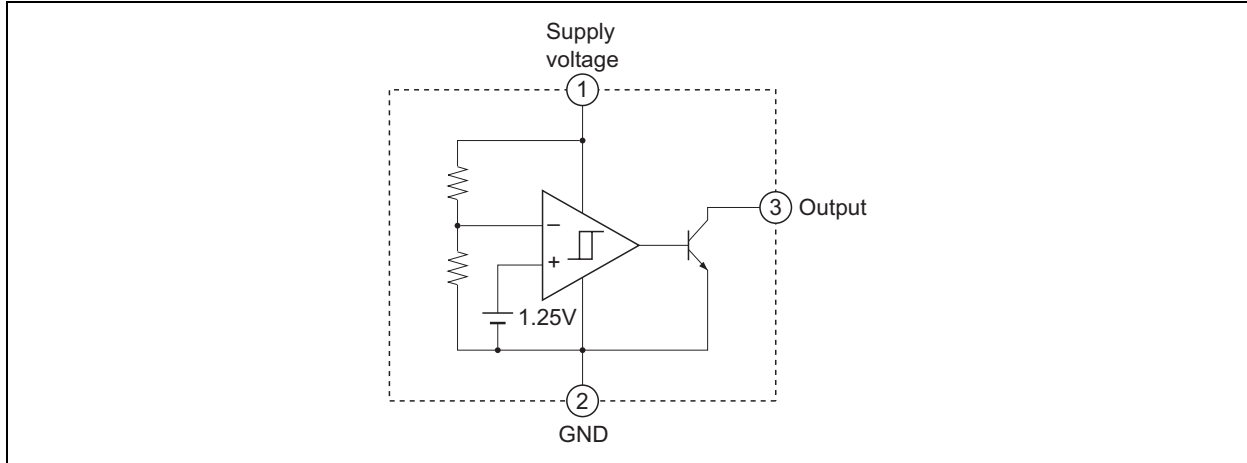
Recommended Operating Condition

- Supply voltage range: 2 V to 17 V

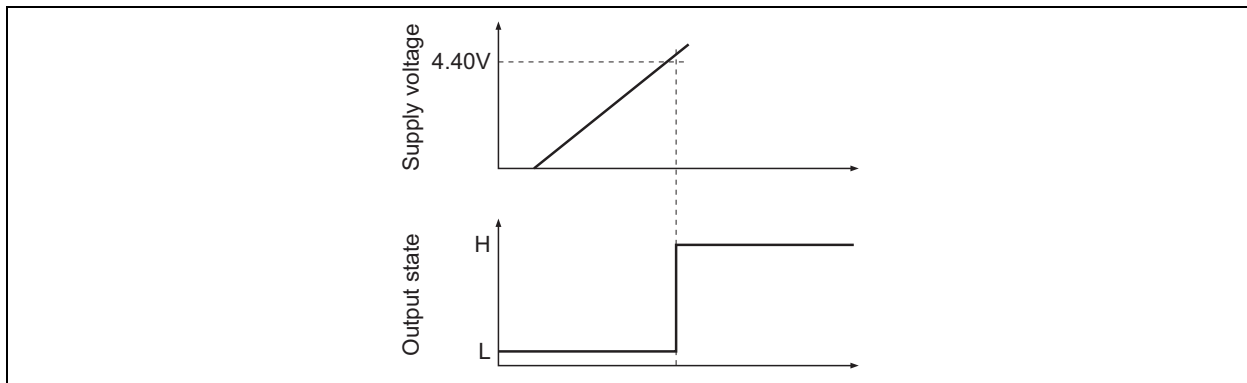
Pin Arrangement



Block Diagram



Operating Waveform



Absolute Maximum Ratings

(Ta = 25°C, unless otherwise noted)

Item	Symbol	Ratings	Unit	Conditions	
Supply voltage	V _{CC}	18	V		
Output sink current	I _{sink}	6	mA		
Output voltage	V _O	18	V	Output with constant current load	
Power dissipation	P _d	700	mW	SL: TO-92L	
		500		ML: SOT-89	
Thermal derating	Kθ	7	mW/°C	Ta ≥ 25°C	SL: TO-92L
		5			ML: SOT-89
Operating temperature	T _{opr}	-30 to +85	°C		
Storage temperature	T _{stg}	-40 to +125	°C		

Electrical Characteristics

(Ta = 25°C, unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions	
Detecting voltage	V _S	4.20	4.40	4.60	V		
Hysteresis voltage	ΔV _S	30	50	80	mV		
Detecting voltage temperature coefficient	V _S /ΔT	—	0.01	—	%/°C		
Circuit current	I _{CC}	—	340	510	μA	V _{CC} = 5V	
Output saturation voltage	V _{sat}	—	0.2	0.4	V	V _{CC} = 4V, I _{sink} = 4mA	
Threshold operating voltage	V _{OPL}	—	0.67	0.8	V	L reset type minimum supply voltage for IC operation	R _L = 2.2kΩ, V _{sat} ≤ 0.4V
		—	0.55	0.7			R _L = 100kΩ, V _{sat} ≤ 0.4V
Output leakage current	I _{OH}	—	—	30	nA		
Propagation delay time	t _{PHL}	—	6	—	μs	Response time when V _{CC} changes H → L	
	t _{PLH}	—	3	—		Response time when V _{CC} changes L → H	

Example of Application Circuit

Reset Circuit of M51981

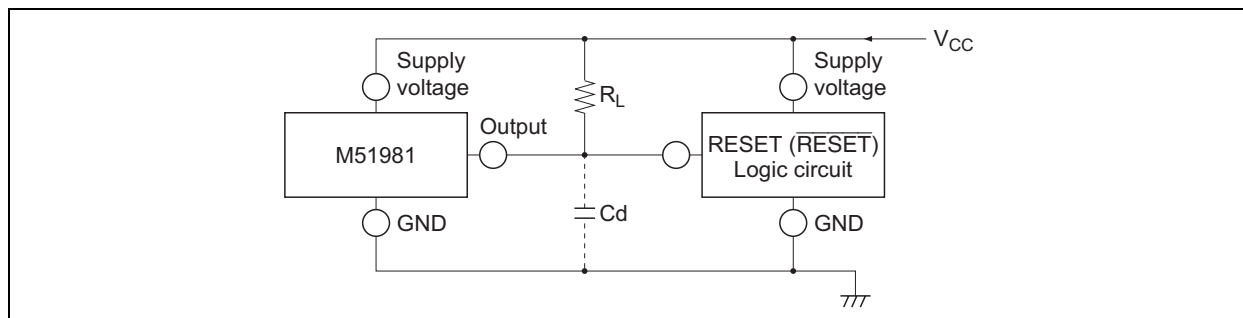
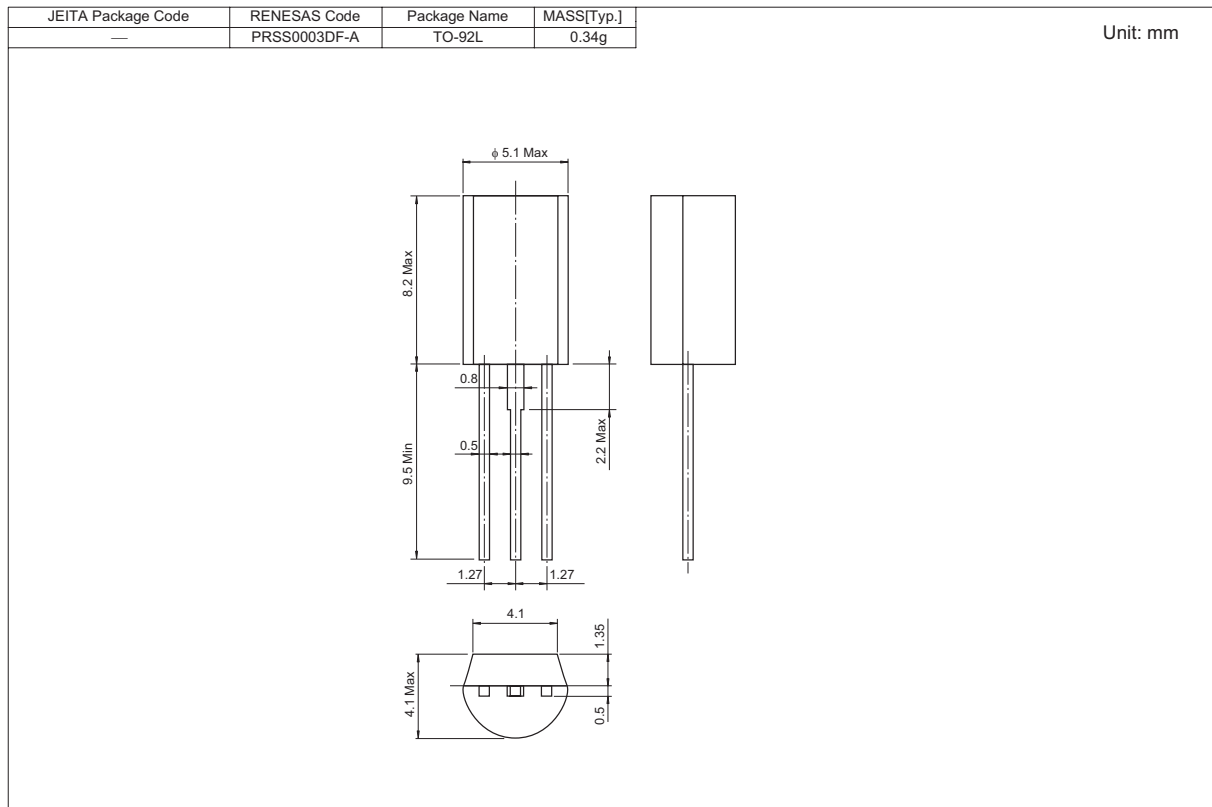
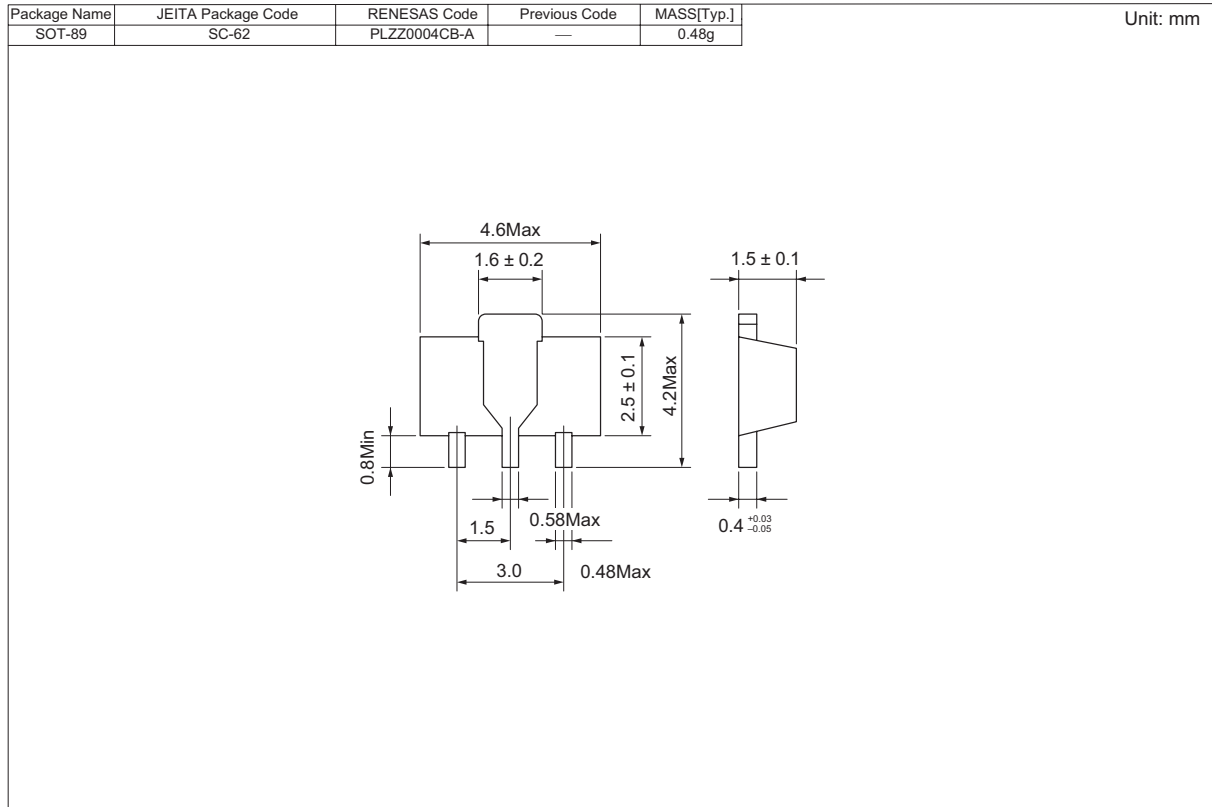


Figure 1 Reset Circuit of M51981

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.

Package Dimensions



Notes:

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