

PRELIMINARY

MITSUBISHI Dig./Ana.INTERFACE

M51943AGP

VOLTAGE DETECTING, SYSTEM RESETTNG IC SERIES

DESCRIPTION

M51943A 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
- Detecting Voltage4.25V typ. (4.05V to 4.45V)
- Low threshold operating voltage (Supply voltage to keep low-state at low supply voltage) ...0.6V(TYP.) at $R_L=22k\Omega$
- Wide supply voltage range 2 to 17V
- Sudden change in power supply has minimal effect on the ICs
- Wide application range
- Extra small package (SOT-25)

(M51943ASL:3pin SIP, M51943AML:3pin SOP,
M51943AL:5pin SIP already Mass production)

APPLICATION

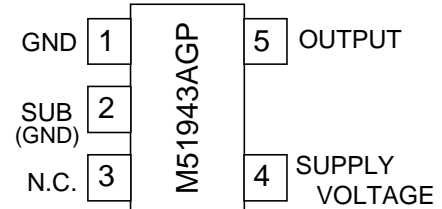
- Reset pulse generation for almost all logic circuits
- Battery checking, level detecting, waveform shaping circuits
- Delayed waveform generator
- Switching circuit to a back-up power supply
- DC/DC converter
- Over voltage protection circuit

RECOMMENDED OPERATING CONDITION

- Supply voltage range 2 to 17V

This product is under the development, therefore the technical specifications may be changed in the future.

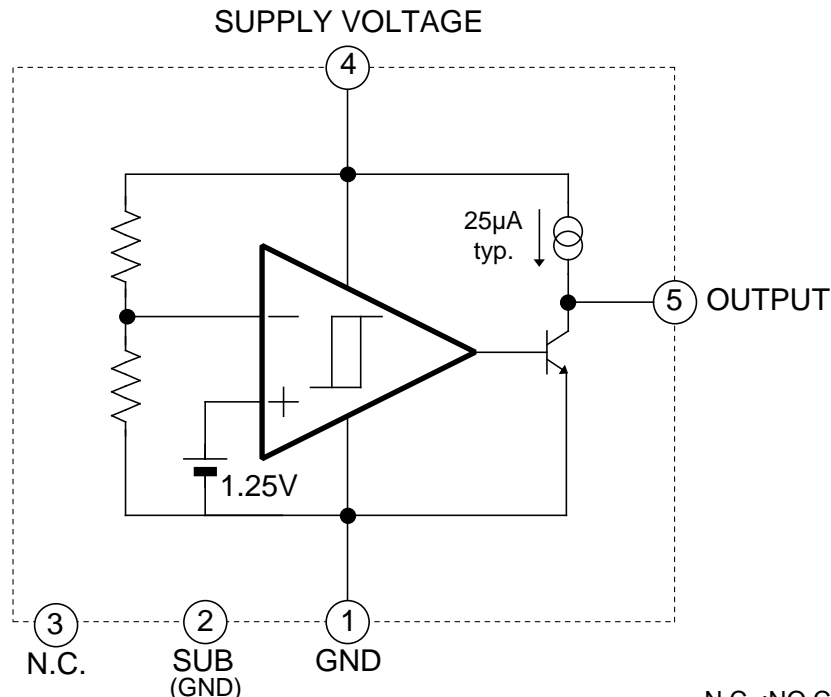
PIN CONFIGURATION (TOP VIEW)



Outline SOT-25

N.C. :NO CONNECTION

BLOCK DIAGRAM

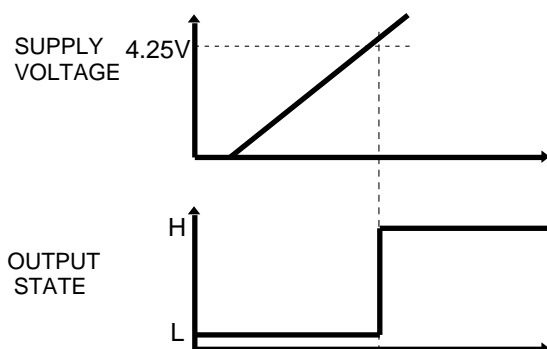


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FUNCTION DIAGRAM



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		V _{CC}	V
P _d	Power Dissipation	5pin SOP(SOT-25)		200	mW
K _θ	Thermal Derating	Ta≥25°C	5pin SOP	2	mW/°C
T _{opr}	Operating Temperature			-30 to +85	°C
T _{stg}	Storage Temperature			-40 to +125	°C

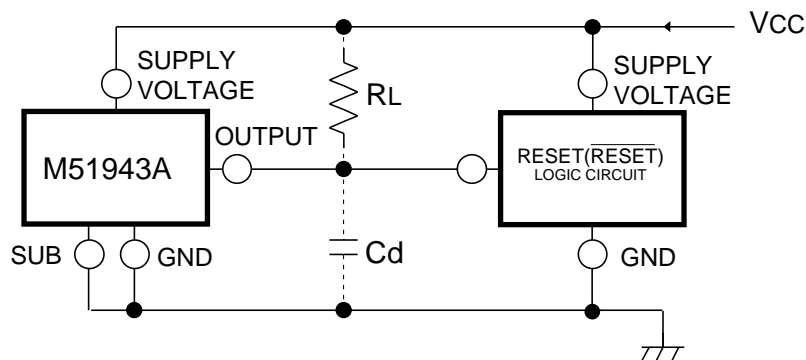
ELECTRICAL CHARACTERISTICS (Ta=25°C, Unless otherwise noted)

Symbol	Parameter	Test condition	Limits			Unit	
			MIN	TYP	MAX		
V _s	Detecting Voltage		4.05	4.25	4.45	V	
ΔV _s	Hysteresis Voltage		30	50	80	mV	
V _s /ΔT	Detecting Voltage Temperature Coefficient		—	0.01	—	%/°C	
I _{CC}	Circuit Current	V _{CC} =5V	—	370	560	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 =2.2kΩ, V _{sat} ≤0.4V	—	0.67	0.8	V
			R _L =100kΩ, V _{sat} ≤0.4V	—	0.55	0.7	
I _{OC}	Output Load Current	V _{CC} =5V, 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 M51943AGP



Note 1.

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

Note 2.

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

⚠ 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.