

RNA51943A, B

Voltage Detecting, System Resetting IC Series

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Description

RNA51943A,B are semiconductor integrated circuits designed for detecting supply voltage and resetting all types of logic circuits such as CPUs.

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

Features

- Few external parts
- Wide supply voltage range: 2 V to 17 V
- Wide application range
- Ordering Information

Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)	Surface Treatment
RNA51943AUPH1	UPAK	PLZZ0004CA-A	UP	H (1,000 pcs / Reel)	1 (Sn-Bi)
RNA51943BUPH1	UPAK	PLZZ0004CA-A	UP	H (1,000 pcs / Reel)	1 (Sn-Bi)

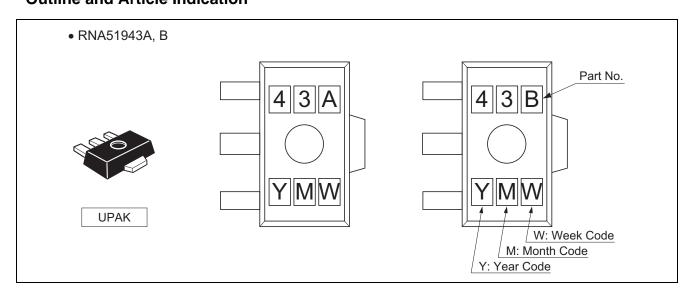
Application

 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

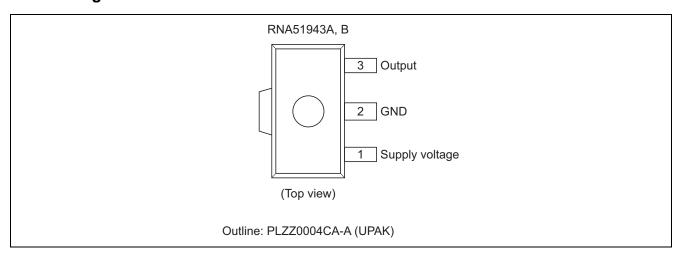
Recommended Operating Condition

• Supply voltage range: 2 V to 17 V

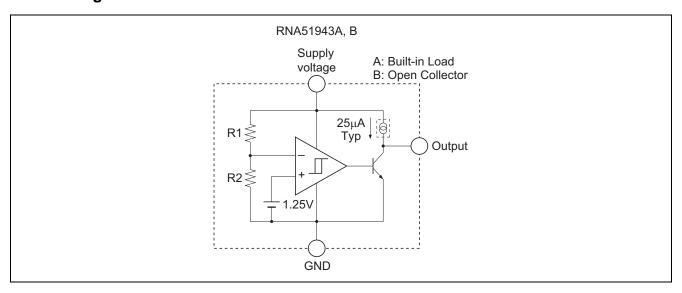
Outline and Article Indication



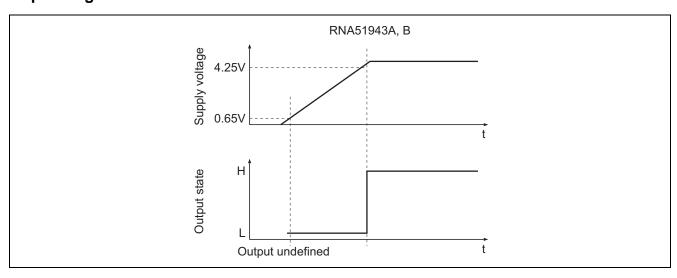
Pin Arrangement



Block Diagram



Operating Waveform



Absolute Maximum Ratings

(Ta = 25°C, unless otherwise noted)

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	Vcc	18	V	
Output sink current	Isink	6	mA	
Output voltage	Vo	Vcc	V	Type A (output with constant current load)
		18		Type B (open collector output)
Power dissipation	Pd	640 * ¹	mW	
Thermal derating	Κθ	6.4	mW/°C	Refer to the thermal derating curve.
Operating temperature	Topr	-40 to +85	°C	
Storage temperature	Tstg	-55 to +125	°C	

Note: 1. 15 mm \times 25 mm \times 0.7 mmt alumina ceramic board, Ta \leq 25°C. If Ta > 25°C, derate by 6.4 mW/°C.

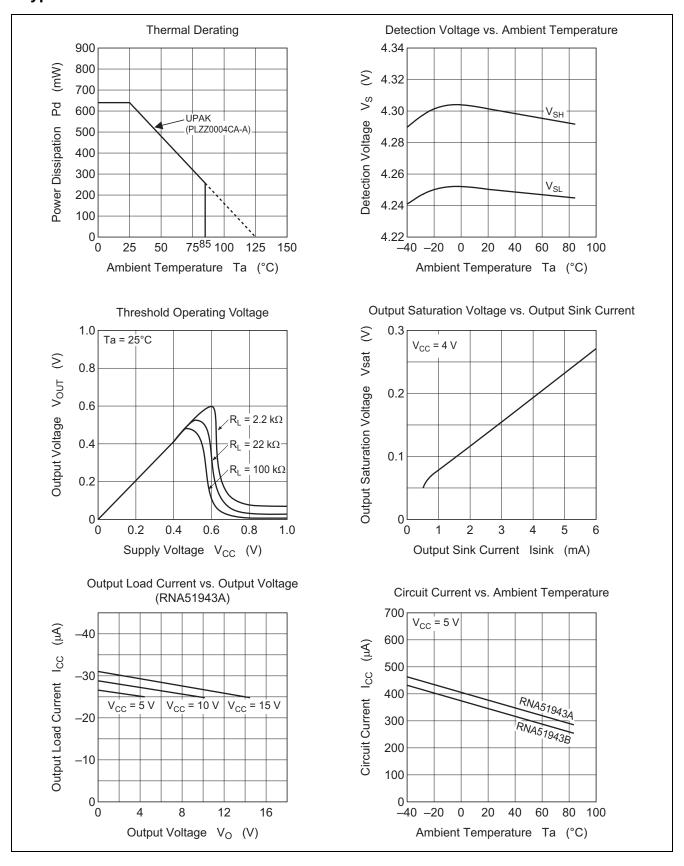
Electrical Characteristics

(Ta = 25°C, unless otherwise noted)

• "L" reset type

Item	Symbol	Min	Тур	Max	Unit	Test Conditions	
Detecting voltage	Vs	4.05	4.25	4.45	V		
Hysteresis voltage	ΔVs	30	50	80	mV		
Detecting voltage temperature coefficient	V _S /ΔT		0.01		%/°C		
Circuit current	I _{cc}	_	370	560	μΑ	Type A, V _{CC} = 5V	
		_	340	510		Type B, V _{CC} = 5V	
Output saturation voltage	Vsat	_	0.2	0.4	V	V _{CC} = 4V, Isink = 4mA	
Threshold operating	M	_	0.67	8.0		L reset type minimum supply voltage for IC operation	$R_L = 2.2k\Omega$, $Vsat \le 0.4V$
voltage	V _{OPL}	_	0.55	0.7	V		$R_L = 100k\Omega$, $Vsat \le 0.4V$
Output leakage current	Іон			30	nA	Type B	
Output load current	I _{oc}	-40	-25	-17	μΑ	Type A, $V_{CC} = 5V$, $V_O = 1/2 \times V_{CC}$	
Output high voltage	V _{OH}	V _{CC} -0.2	V _{cc} -0.06	_	V	Type A	
Propagation delay time	t _{PHL}	_	6	_		Response time when V_{CC} changes $H \rightarrow L$	
	t _{PLH}	_	3	μs		Response time when V_{CC} changes $L \to H$	

Typical Characteristics



Example of Application Circuit

Reset Circuit of RNA51943

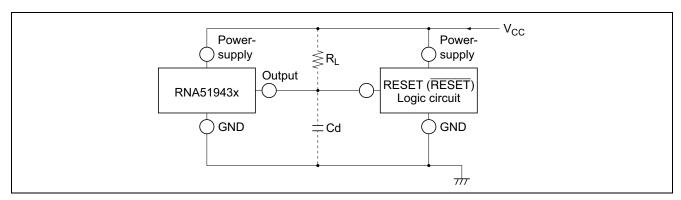
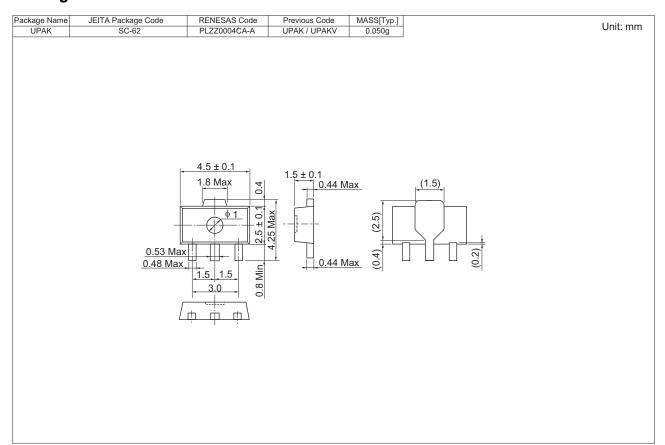


Figure 1 Reset Circuit of RNA51943

Notes: 1. If the RNA5194xx and the logic circuit share a common power source, type A (built-in load type) can be used whether a pull-up resistor is included in the logic circuit or not.

- 2. 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.
- 3. It is better to use the RNA5195xx series to cause a delay, but if the delay is caused by the RNA5194xx, the delay capacitor Cd is applied between the output and GND.
- 4. When a negative supply voltage is used, the supply voltage side of RNA5194xx and the GND side are connected to GND and the negative supply voltage respectively.

Package Dimensions



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