RNA55A125FLP

CMOS System Reset IC

R03DS0053EJ0301
Rev.3.01
Mar 01, 2013

Description

RNA55A125 is microcomputer and system reset signal to be generated.
Detection voltage is set with external resistors can be, the internal reference voltage is 1.25 V.
Although the method is used to generate an internal counter when reset delay time, can freely set by an external resistor.

Features

- Reset detection voltage: 1.25 V ± 2.0%
- Delay time: 200 ms (R_{OSC} = 1 MΩ setting)
- Circuit current: 10 μA
- Open drain output
- Wide supply voltage range: 1.8 V to 5.5 V

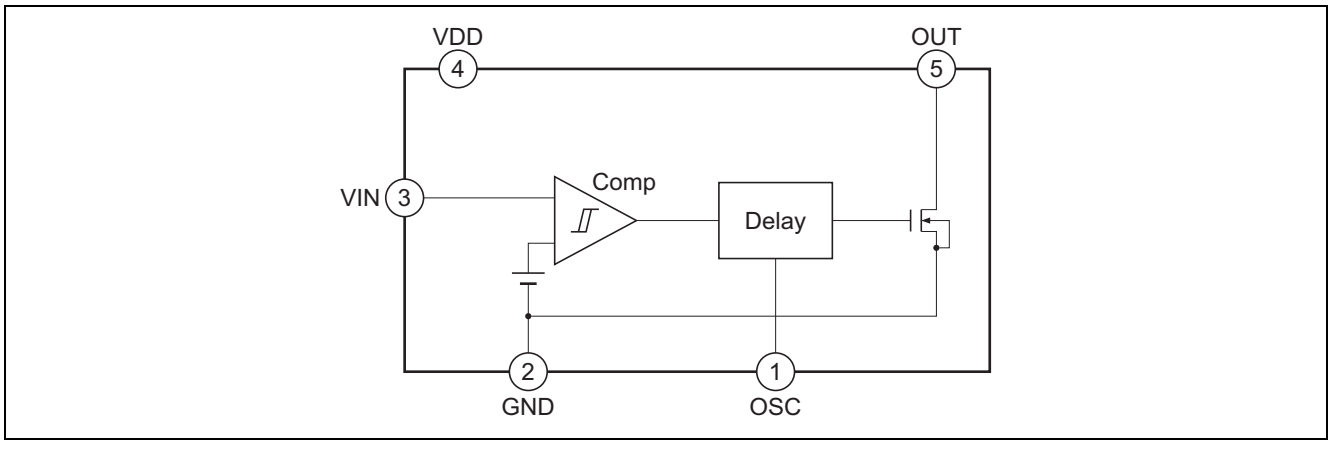
Ordering Information

Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)	Surface Treatment
RNA55A125FLPH1	MPAK-5	PLSP0005ZB-A	LP	H (3,000 pcs/reel)	1 (Sn/Bi)

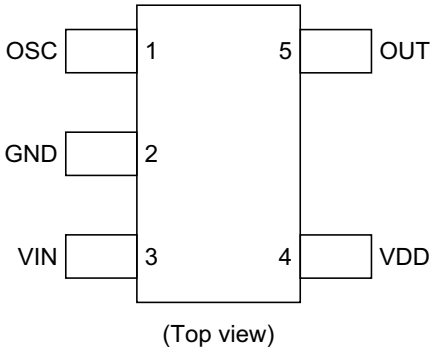
Application

- Power supply voltage monitoring for microprocessors
- Computers and notebook computers
- Digital still camera, digital video camera, and PDA
- Industrial equipment

Block Diagram



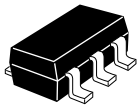
Pin Arrangement



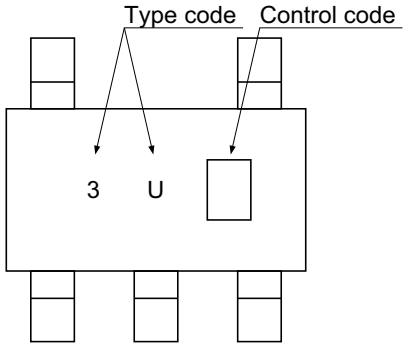
(Top view)

Marking Indication

RNA55A125FLP (Example)



MPAK-5

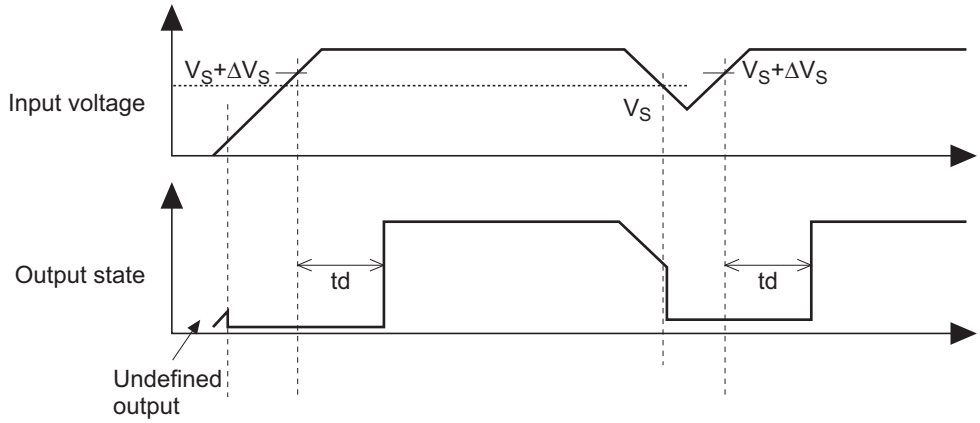


Control code	Starting in January "A", "B", "C", "D", "E", "F", "G", "H", "J", "K", "L", "M"

Pin Description

Pin No.	Pin Name	I/O	Function
1	OSC	—	• Connect a resistor for setting the delay time. • 200 ms is obtained is 1 MΩ. • Range of resistance: 500(kΩ) to 2(MΩ)
2	GND	—	• Ground
3	VIN	I	• Input pin for reset detection. • Supply voltage applied to resistor divider.
4	VDD	—	• Sorcing power-supply voltage.
5	OUT	O	• Open drain output • Low will be output when the reset detection • Range pull-up resistance: 2.2(kΩ) to 100(kΩ)

Operational Waveform Diagram



td = Delay time setting range
100 ms to 400 ms (Standard setting: 200 ms)

Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage	V_{DD}	6.5	V
Output voltage (open-drain type)	V_{OUT}	–0.3 to +6.5	V
Input voltage	V_{IN}	–0.3 to V_{DD}	V
Output current	I_{OUT}	6	mA
Power dissipation	Pd	120 (Ta = 25°C)	mW
Operating temperature	Topr	–40 to +85	°C
Storage temperature	Tstg	–40 to +125	°C

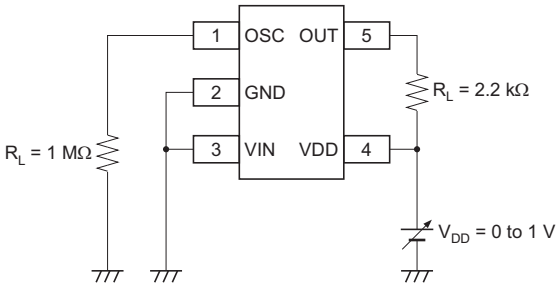
Electrical Characteristics

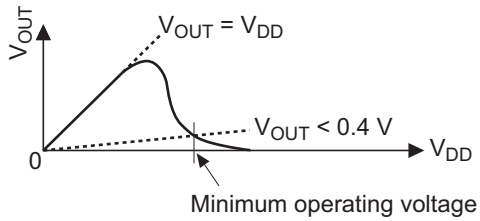
(V_{DD} = 3.3 V, Ta = 25°C, unless otherwise noted)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold operating voltage	V_{OUL}	—	—	0.9	V	R_L = 2.2 (kΩ), V_{OUT} < 0.4 V
Circuit current	I_{DD}	—	10	20	μA	V_{DD} = 5.0 V, V_{OUT} = Hi (V_{DD})
Detecting voltage	V_S	1.225	1.25	1.275	V	
Detecting voltage temperature coefficient	$V_S/\Delta T$	—	±100	—	ppm/°C	
Hysteresis voltage	V_{HYS}	3	5	8	%	
Output low voltage	V_{OL}	—	0.2	0.4	V	I_{OUT} = 4 mA, V_{DD} = 3.5 V
Input leakage current	Iin	–10	0	10	nA	
Output leakage current	I_{LK}	—	—	30	nA	V_{OUT} = V_{DD} = 5.0 V
Delay time	td	140	200	260	ms	R_{OSC} = 1 MΩ

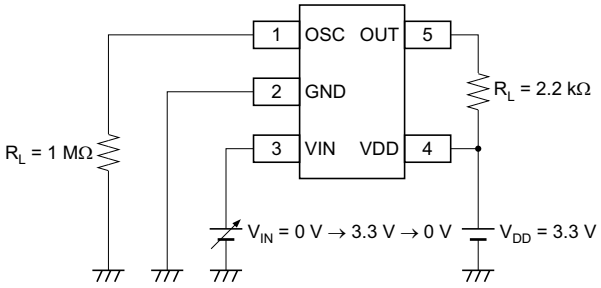
Test Circuit

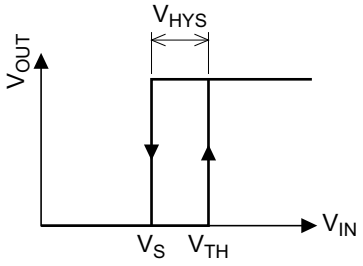
Threshold Operating Voltage V_{OUL}





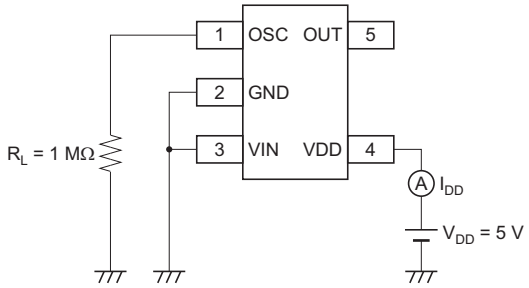
Detecting Voltage & Hysteresis V_S & V_{HYS}



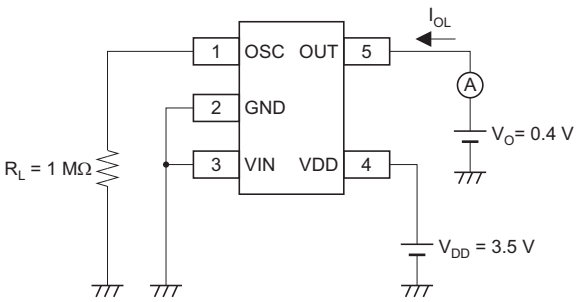


V_S: Detection voltage
V_{TH}: Release voltage

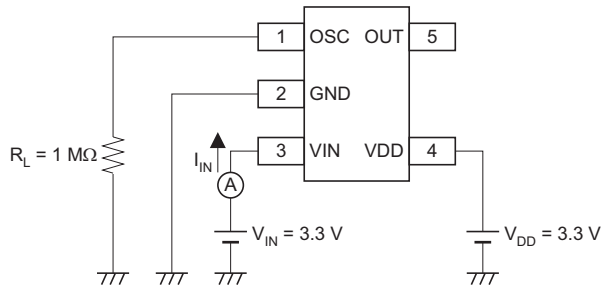
Circuit Current I_{DD}



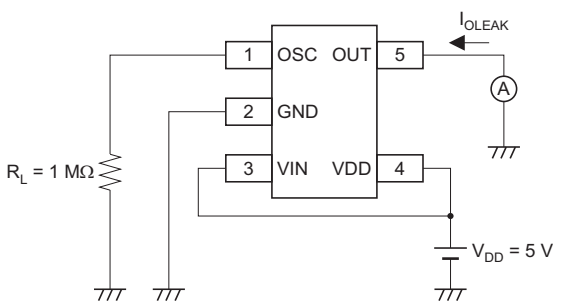
Output Low Voltage V_O



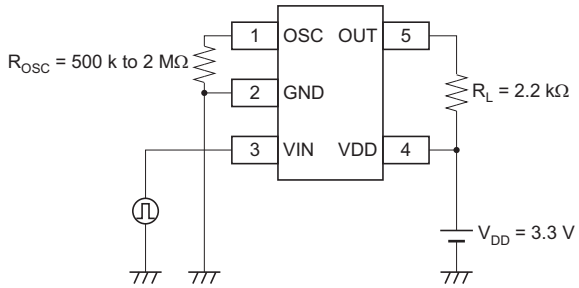
Input Leakage Current Iin

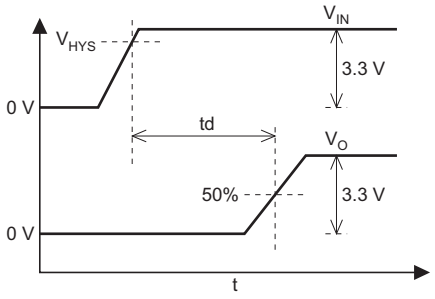


Output Leakage Current I_{LK}



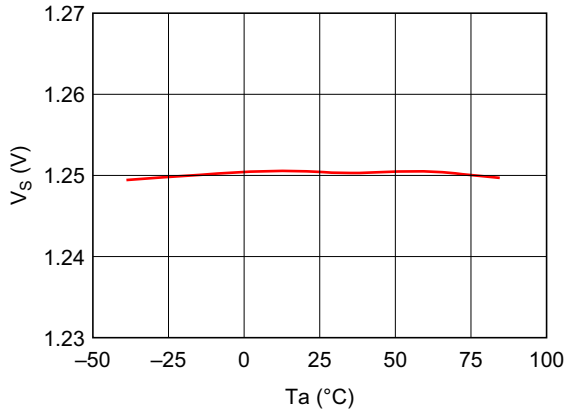
Delay Time td



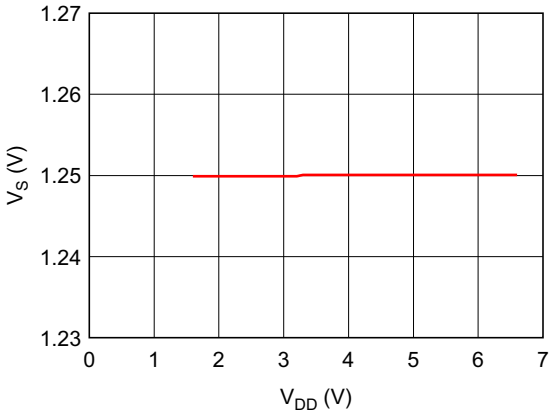


Characteristic Curves

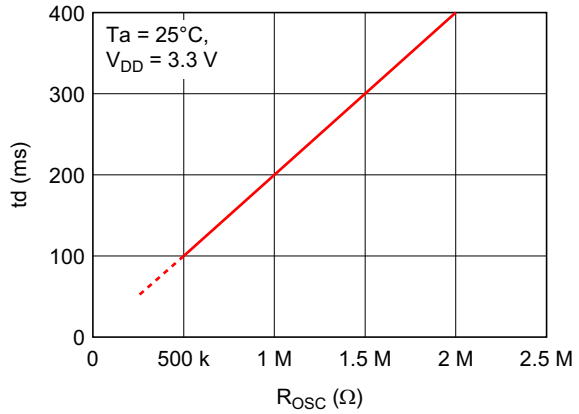
Detection Voltage vs. Ambient Temperature



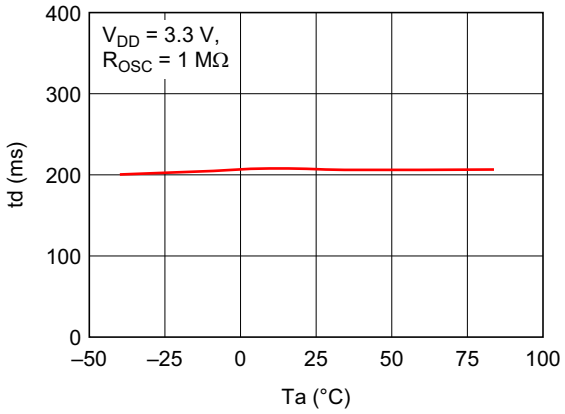
Detection Voltage vs. Supply Voltage



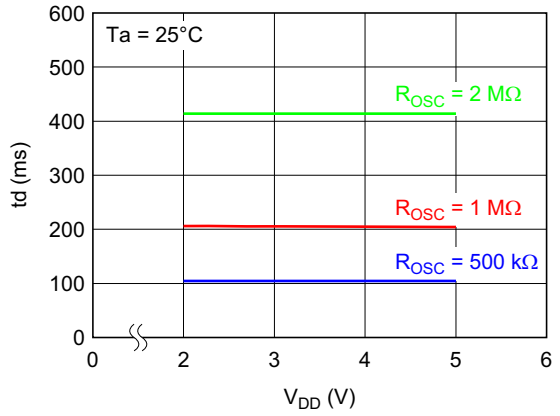
Delay Time vs. Resistance



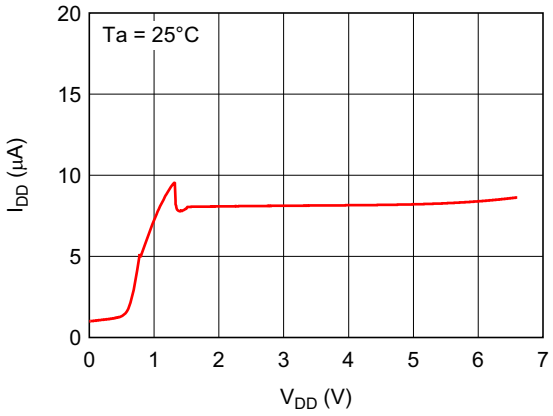
Delay Time vs. Ambient Temperature

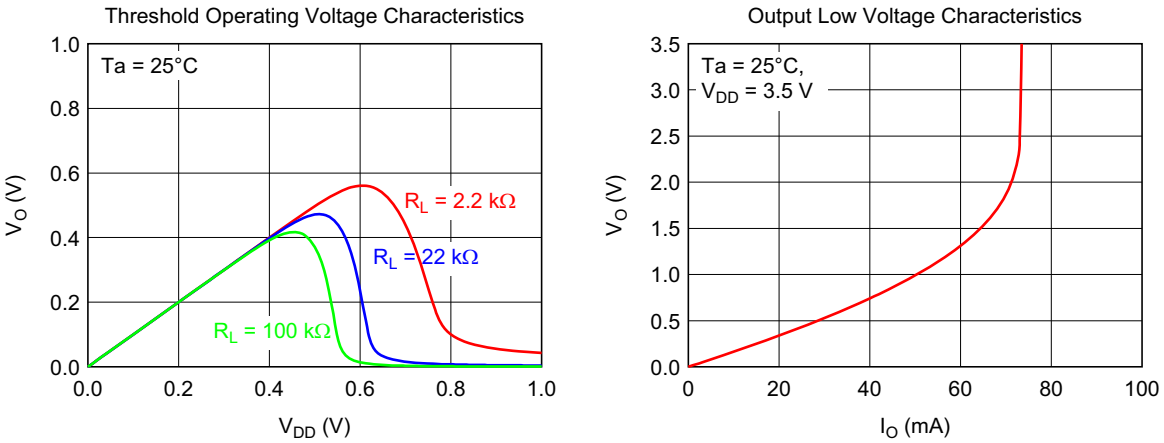


Delay Time vs. Supply Voltage

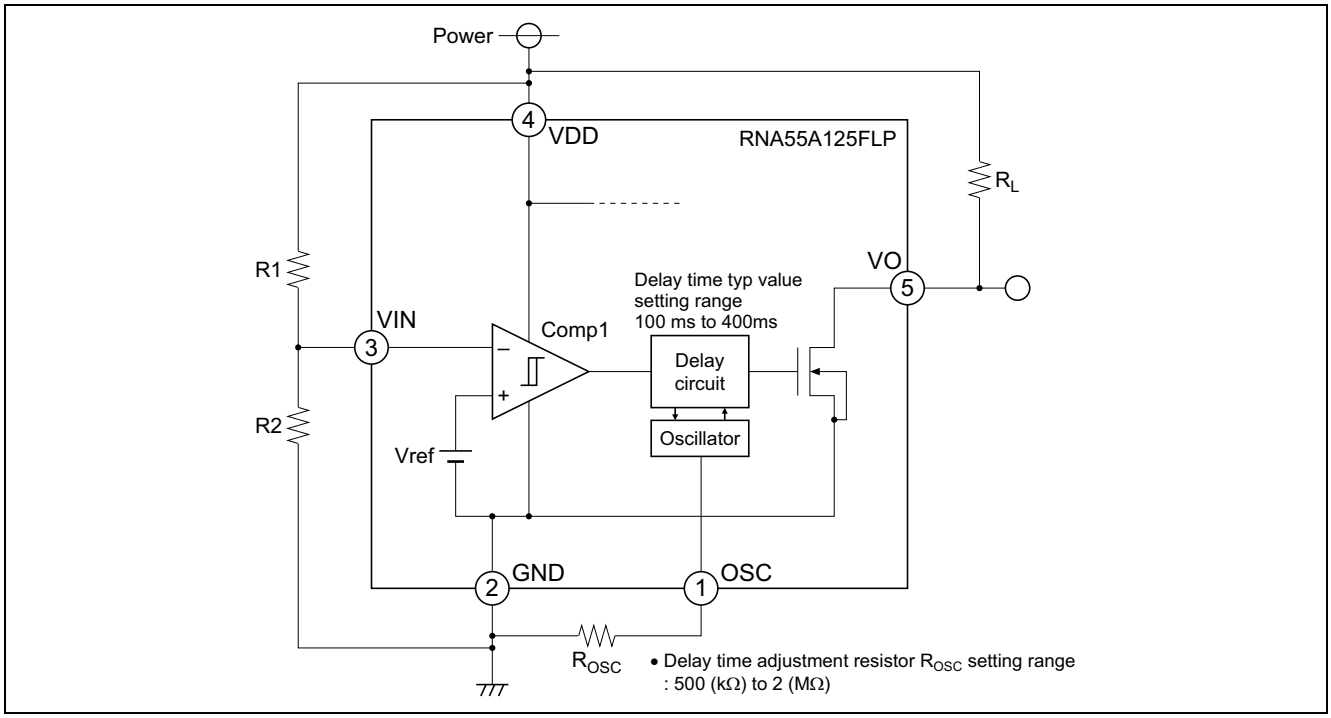


Circuit Current vs. Supply Voltage




Threshold Operating Voltage Characteristics
Ta = 25°C
R_L = 2.2 kΩ
R_L = 22 kΩ
R_L = 100 kΩ
V_O (V)
V_{DD} (V)
0.0
0.2
0.4
0.6
0.8
1.0
Output Low Voltage Characteristics
Ta = 25°C,
V_{DD} = 3.5 V
V_O (V)
I_O (mA)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
20
40
60
80
100

Block Diagram



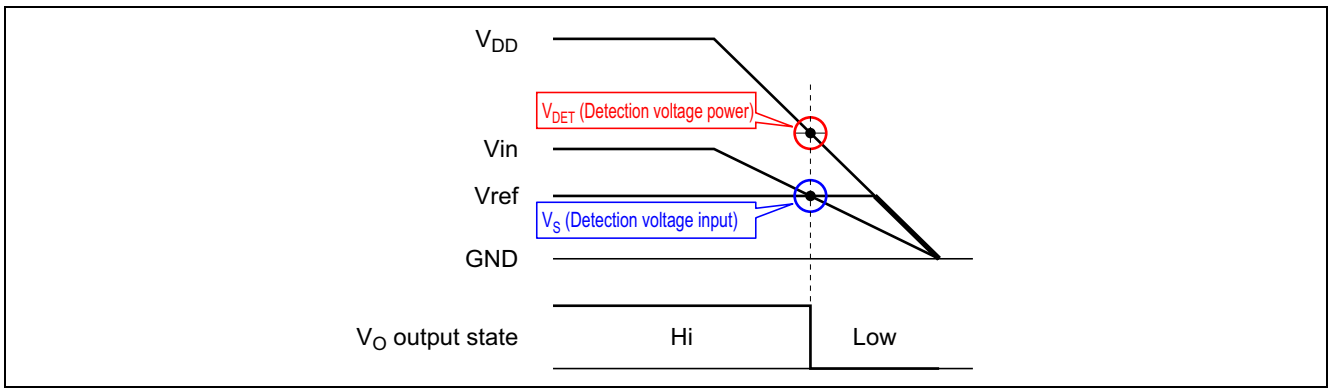
Detection Voltage Power Setting Information

[Way of thinking]

Detection voltage input is V_S
Detection voltage power is V_{DET}

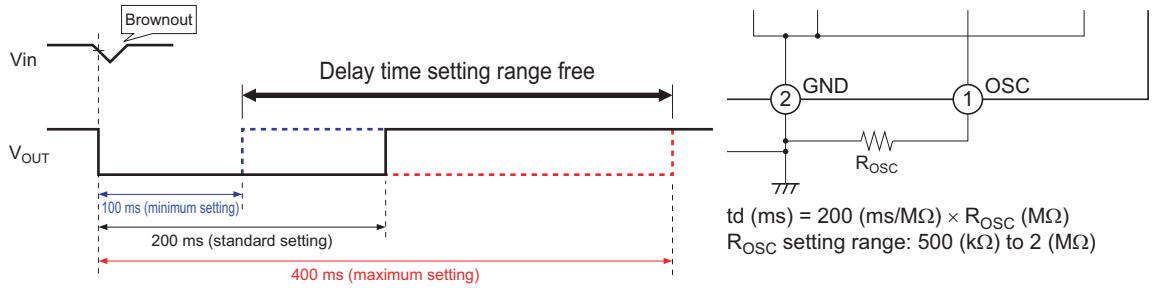
$$V_{DET} = V_S \times (R1 + R2) / R2$$

can write. In addition, V_S = 1.25 V it is (typ).



Delay Time Setting Information

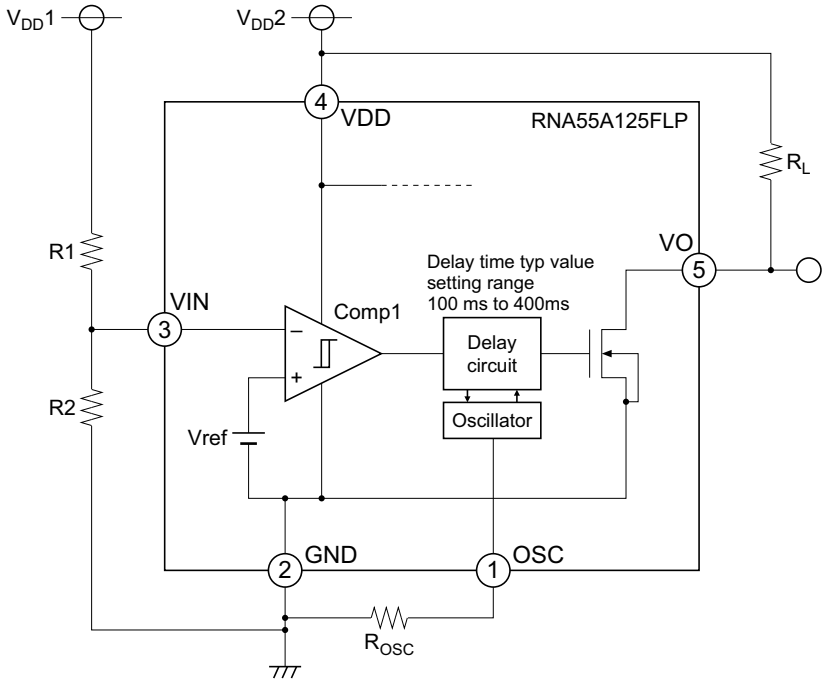
Delay circuit of product, using a counter and oscillator scheme, within setting range, it can be set freely using (R_{OSC}) features an external resistor.



Note: External resistor R_{OSC} for delay time, please make sure mounting.
(Terminal is prohibited OPEN OSC, VDD short, short for GND.)

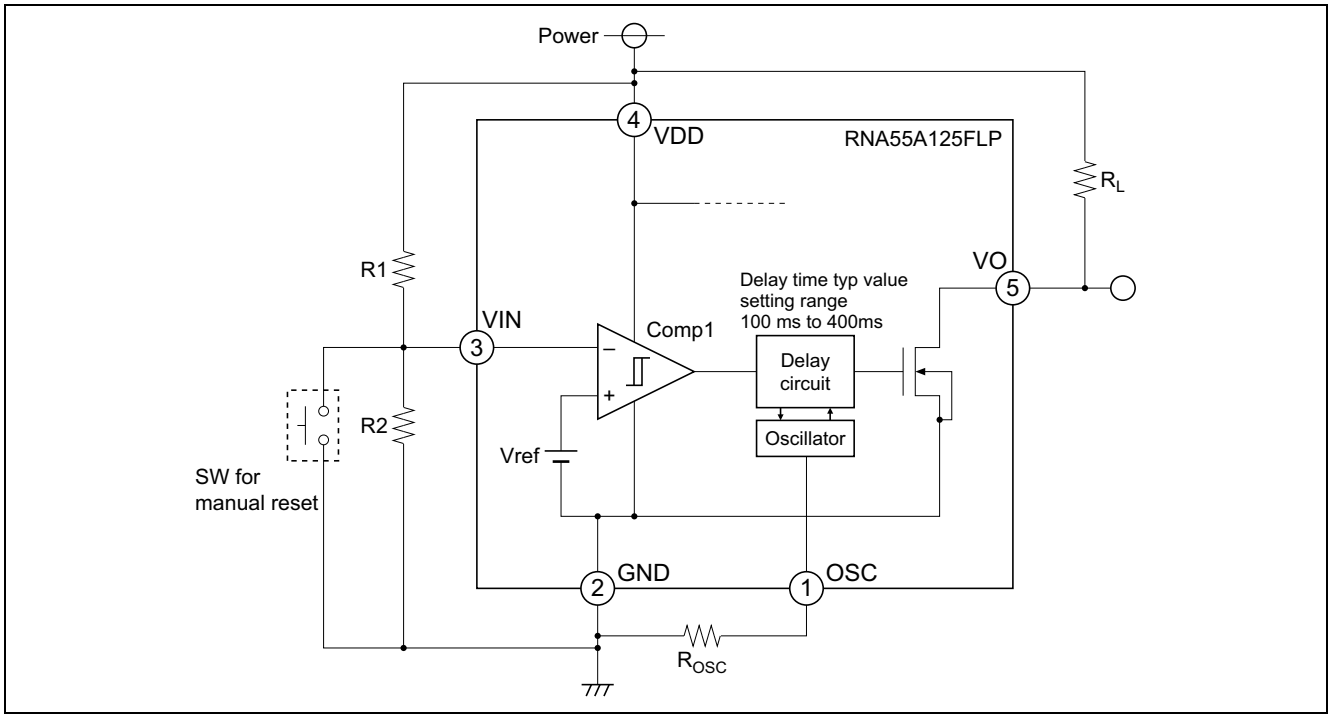
Input Terminal Setting

Vin is, it is assumed that the input divided voltage of V_{DD} is basically.
It is also possible to use two independent power supply as shown in the figure below.



Use a Manual Reset

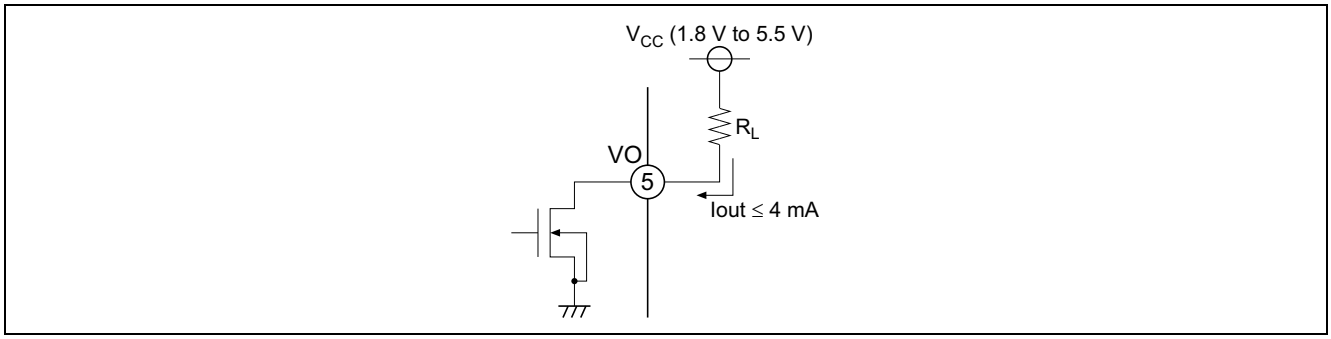
Provided that short-circuit path between Vin to GND terminals as shown below, you form manual reset circuit is possible.
(There is a manual reset by applying a voltage of less than Vref (1.25 V) to terminal Vin.)



Output Load

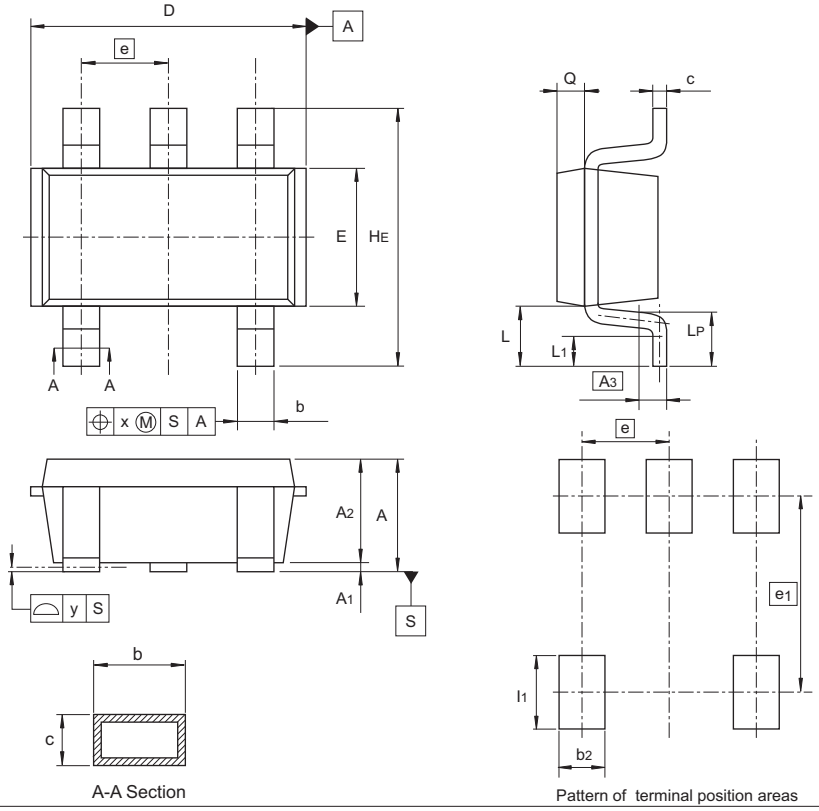
Since open-drain type, the output terminal without depending on the power supply voltage although you can set the output voltage level H, please observe the following notes.

- Should be in the range (1.8 V ~ 5.5 V) value of the supply voltage within the recommended range.
  In addition, the absolute maximum ratings over 6.5 V, so that I do not even for a moment is applied note.
- For the R_L output pull-up resistor, the output current of the L level (Iout output inflow current) is set as a guideline wish below 4 mA.
  Do not exceed the absolute maximum rating (6 mA) even for a moment also to set.



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MPAK-5	SC-74A	PLSP0005ZB-A	MPAK-5 / MPAK-5V	0.015g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	1.0	–	1.4
A_1	0	–	0.1
A_2	1.0	1.1	1.3
$\boxed{A_3}$	–	0.25	–
b	0.35	0.4	0.5
c	0.11	0.16	0.26
D	2.8	2.95	3.1
E	1.5	1.6	1.8
$\boxed{e}$	–	0.95	–
H_E	2.5	2.8	3.0
L	0.3	–	0.7
L_1	0.1	–	0.5
L_P	0.2	–	0.6
x	–	–	0.05
y	–	–	0.05
b_2	–	–	0.55
$\boxed{e_1}$	–	2.15	–
l_1	–	–	0.85
Q	–	0.3	–

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