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Renesas Electronics Corporation

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H8/300H SLP Series

Power-On Reset Operation Using Internal Circuit

Introduction

The internal reset circuit of the H8/38076 performs power-on resets.

Target Device

H8/38076

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1. Specifications

- The internal reset circuit of the H8/38076 performs power-on resets. Figure 1 shows an example of connecting the microcomputer for a power-on reset with the internal circuit.
- The P93 pin outputs 0 after reset is canceled.

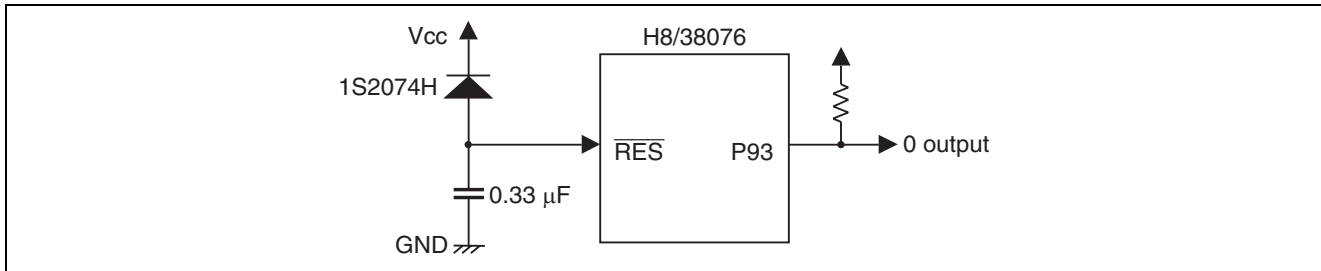


Figure 1 Connection of Microcomputer when Internal Power-On Reset Circuit Is Used

2. Description of Functions

2.1 Functions

- This sample task uses the internal reset circuit of the H8/38076 to perform a power-on reset. Figure 2 is a block diagram of the internal power-on reset circuit. The block diagram of the internal power-on reset circuit is described below.
 - System clock (ϕ)
10-MHz reference clock for operating the CPU and peripheral functions
 - Prescaler S (PSS)
13-bit counter to which ϕ is input. This counter is incremented for each cycle.
 - Port data register 9 (PDR9)
To confirm reset cancellation, P93 of port 9 is set to 0.
 - Port control register 9 (PCR9)
The P93 pin of port 9 is set as an output pin.

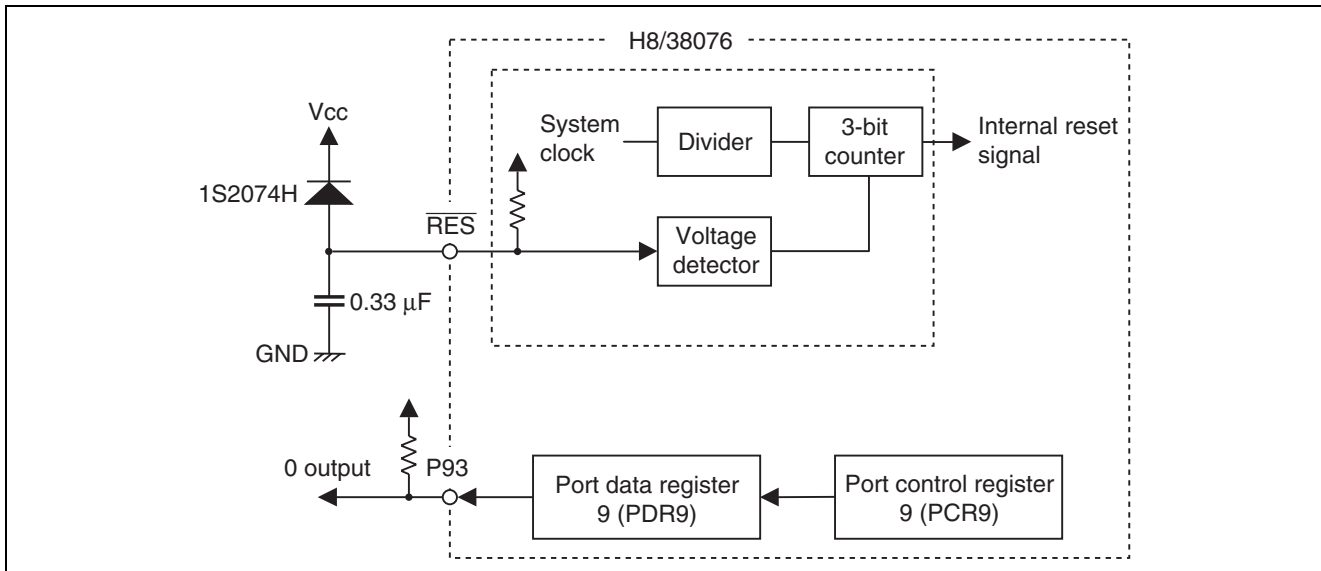


Figure 2 Block Diagram of Internal Power-On Reset Circuit

3. Principles of Operation

Figure 3 shows power-on reset using this sample circuit.

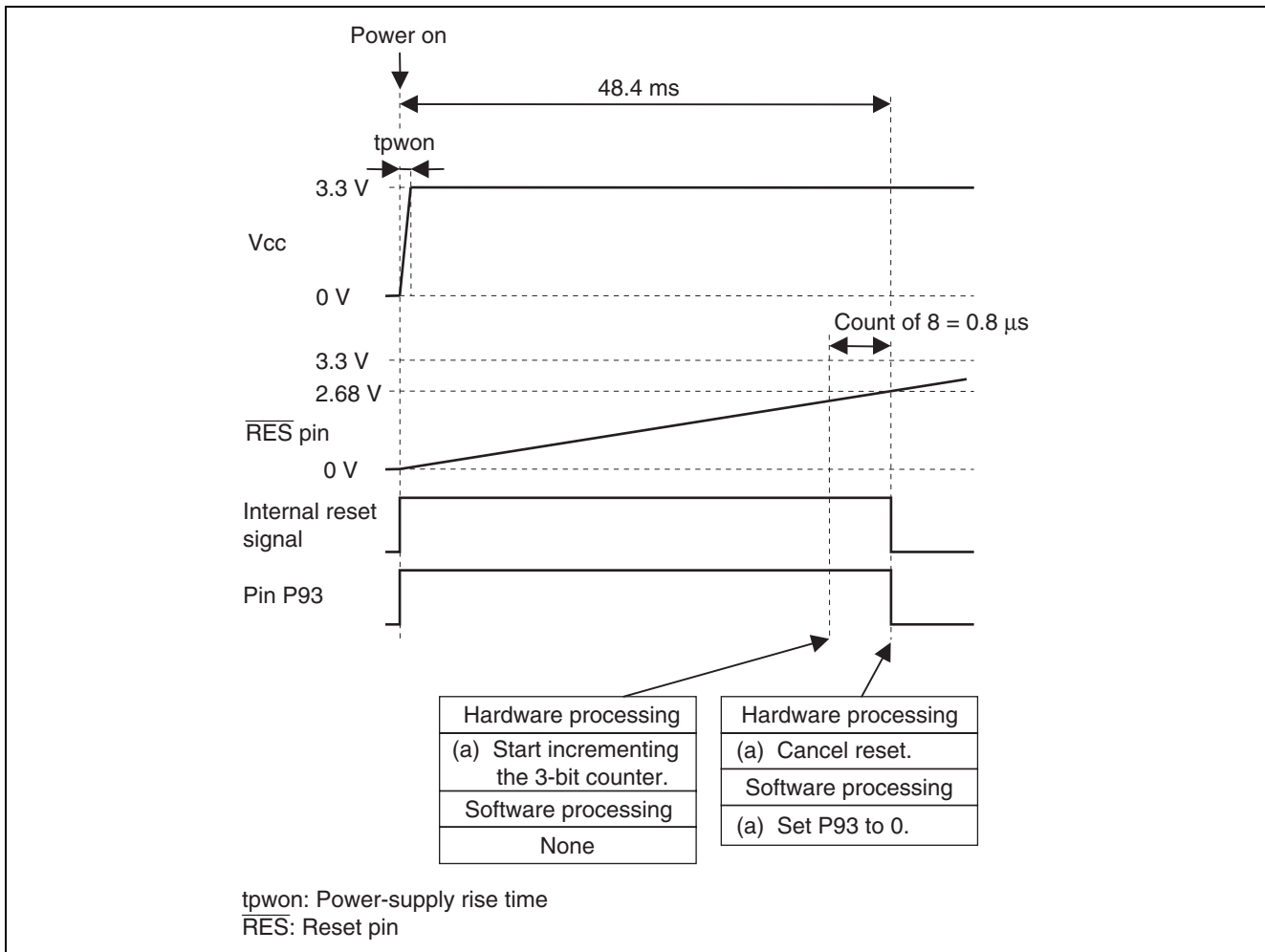


Figure 3 Principles of Operation

4. Description of Software

4.1 Module

Table 1 is a list of the module used for this sample task.

Table 1 Module

Module Name	Label Name	Function
Main routine	main	Outputs 0 from the P93 pin.

4.2 Arguments

No arguments are used for this sample task.

4.3 Internal Registers

The internal registers used for this sample task are described below.

- PDR9 Port data register 9 Address: H'FFDC

Bit	Bit Name	Setting	R/W	Function
3	P93	0	R/W	Port data register 93 P93 = 0: Causes the P93 pin to produce low-level output. P93 = 1: Causes the P93 pin to produce high-level output.

- PCR9 Port control register 9 Address: H'FFEC

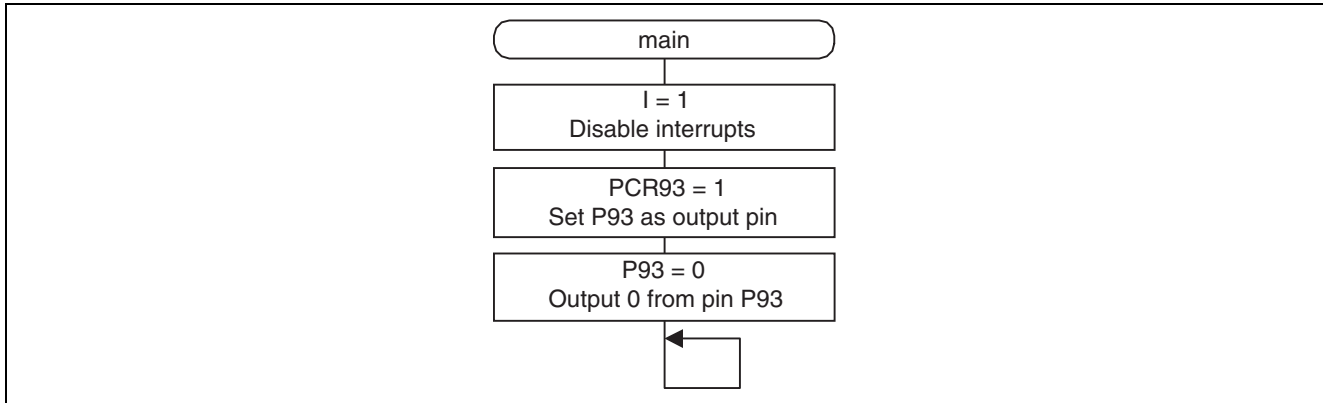
Bit	Bit Name	Setting	R/W	Function
3	PCR93	1	R/W	Port control register 93 PCR93 = 0: Sets the P93 pin as a P93 input pin. PCR93 = 1: Sets the P93 pin as a P93 output pin.

4.4 RAM Usage

This sample task does not cover RAM usage.

5. Flowchart

5.1 Main Routine



5.2 Link Address Specification

Section Name	Address
CV1	H'00000000
P	H'00001000

6. Program Listing

```

/*****/
/*
/* H8/300H Super Low Power Series -H8/38076-
/* Application Note
/*
/* 'Power on reset check program'
/*
/* Function
/* : Power on reset circuit
/*
/* External Clock : 10MHz
/* Internal Clock : 10MHz
/* Sub Clock      : 32.768kHz
/*
/*****/

#include    <machine.h>

/*****/
/* Symbol Definition
/*****/
struct BIT {
    unsigned char    b7:1;        /* bit7 */
    unsigned char    b6:1;        /* bit6 */
    unsigned char    b5:1;        /* bit5 */
    unsigned char    b4:1;        /* bit4 */
    unsigned char    b3:1;        /* bit3 */
    unsigned char    b2:1;        /* bit2 */
    unsigned char    b1:1;        /* bit1 */
    unsigned char    b0:1;        /* bit0 */
};

#define PDR9_BIT    (*(volatile struct BIT *)0xFFDC)    /* Port Data
Register 9 */
#define P93        PDR9_BIT.b3                        /* Port Data
Register 9 bit3 */
#define PCR9_BIT    (*(volatile struct BIT *)0xFFEC)    /* Port Control
Register 9 */
#define PCR93        PCR9_BIT.b3                      /* Port Control
Register 9 bit3 */

/*****/
/* Function define
/*****/
void main ( void );

/*****/
/* Vector Address
/*****/
#pragma section    V1                                /* VECTOR SECTOIN
SET */
void (*const VEC_TBL1[])(void) = {

```

```
    main
};

#pragma entry main(sp=0xFF80)
#pragma section                      /* P
*/
/*****/
/* Main Program                      */
/*****/
void main ( void )
{
    PCR93 = 1;
    P93 = 0;
    while(1);
}
```

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Sep.16.04	—	First edition issued

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