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April 1st, 2010
Renesas Electronics Corporation

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H8/300H SLP Series

Power-On Reset Operation Using External Circuit

Introduction

An external reset circuit consisting of a resistor, a capacitor, and two diodes is connected to perform power-on resets.

Target Device

H8/38076

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1. Specifications

- A reset circuit (RC diode circuit) consisting of a resistor, a capacitor, and two diodes is connected to the H8/38076 to perform power-on resets. Figure 1 shows an example of connecting the external RC diode circuit.
- The P93 pin outputs 0 after reset is canceled.

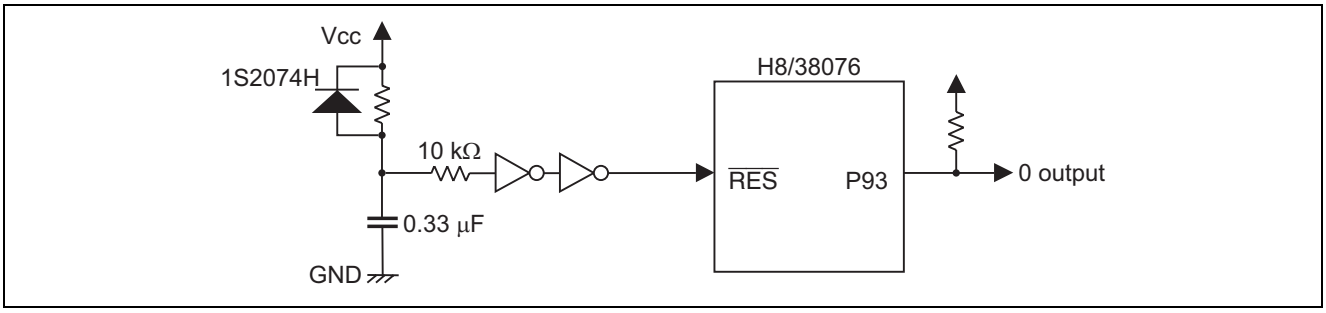


Figure 1 Connection of Microcomputer when External RC Diode Circuit Is Used

2. Description of Functions

2.1 Functions

1. This sample task connects an RC diode circuit to the H8/38076 to perform power-on resets. Figure 2 is a block diagram of the RC diode circuit and H8/38076. The block diagram of the H8/38076 is described below.

- 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.

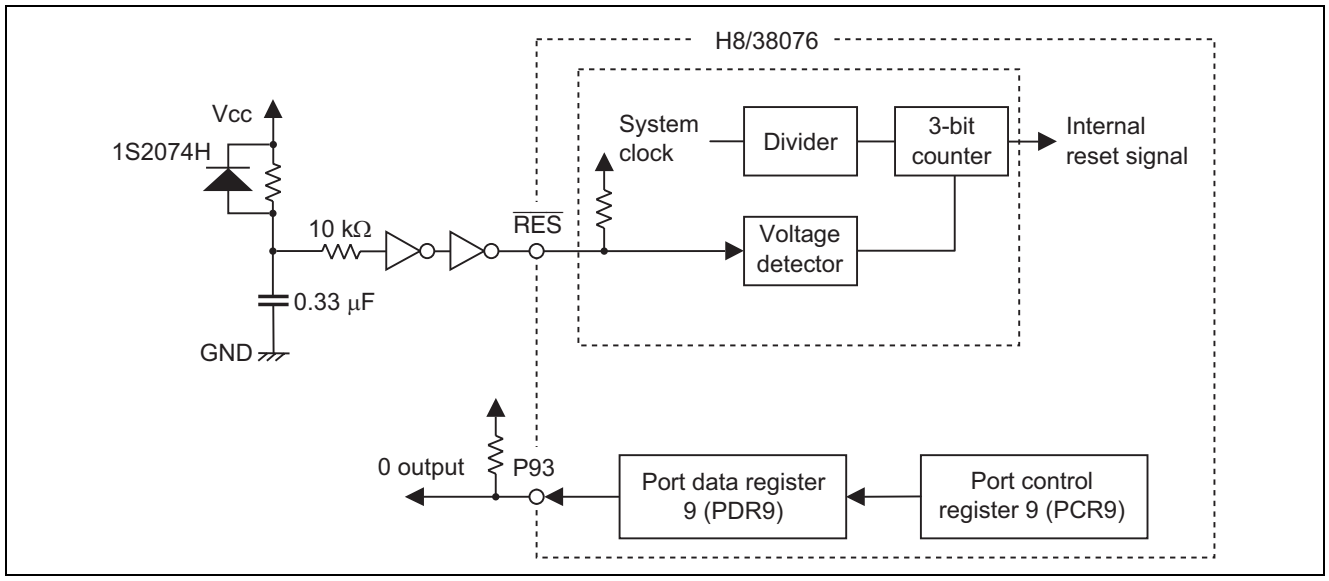


Figure 2 Block Diagram of RC Diode Circuit and H8/38076

3. Principles of Operation

Figure 3 shows a power-on reset using the RC diode circuit.

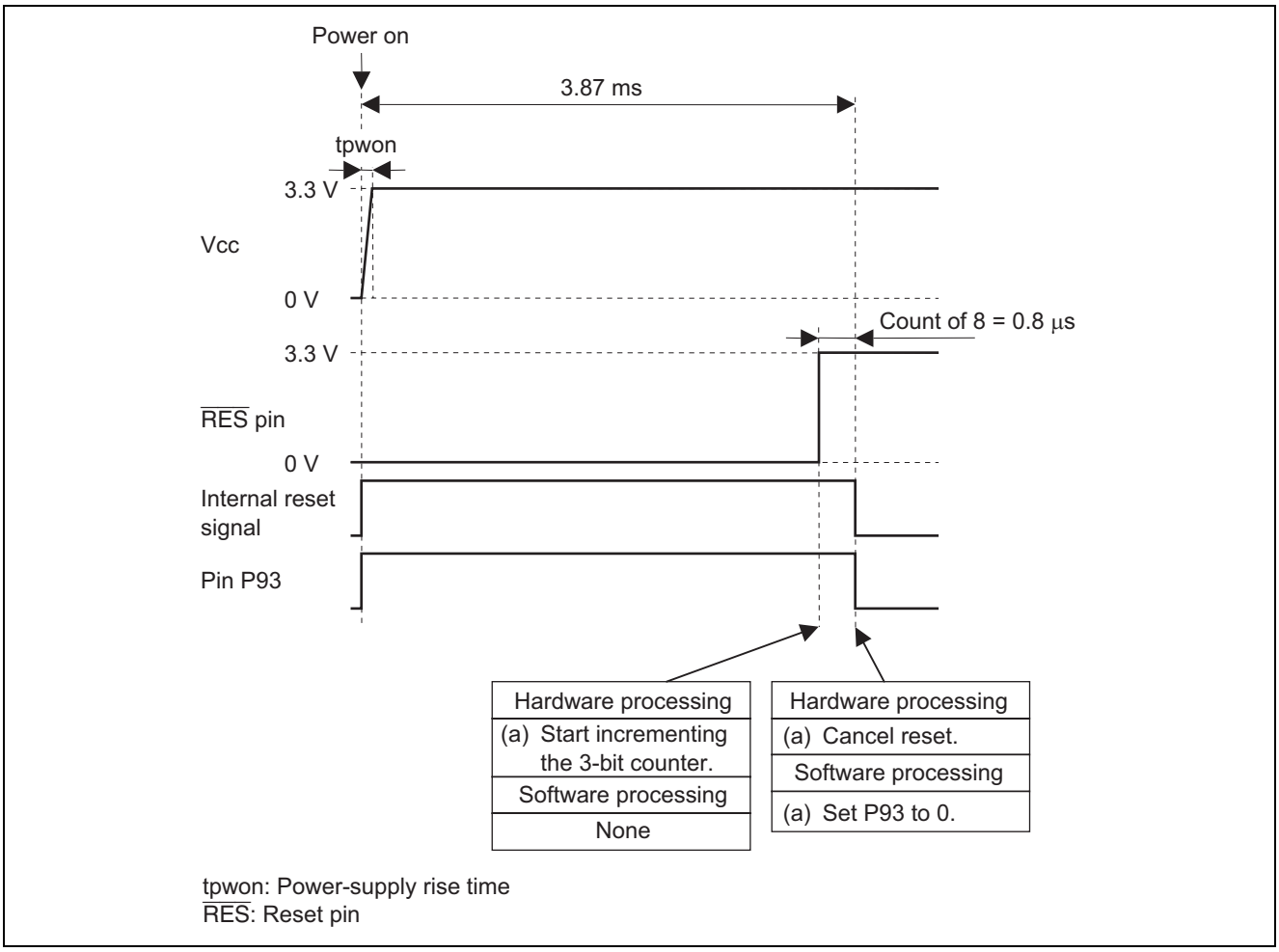


Figure 3 Principles of Operation

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

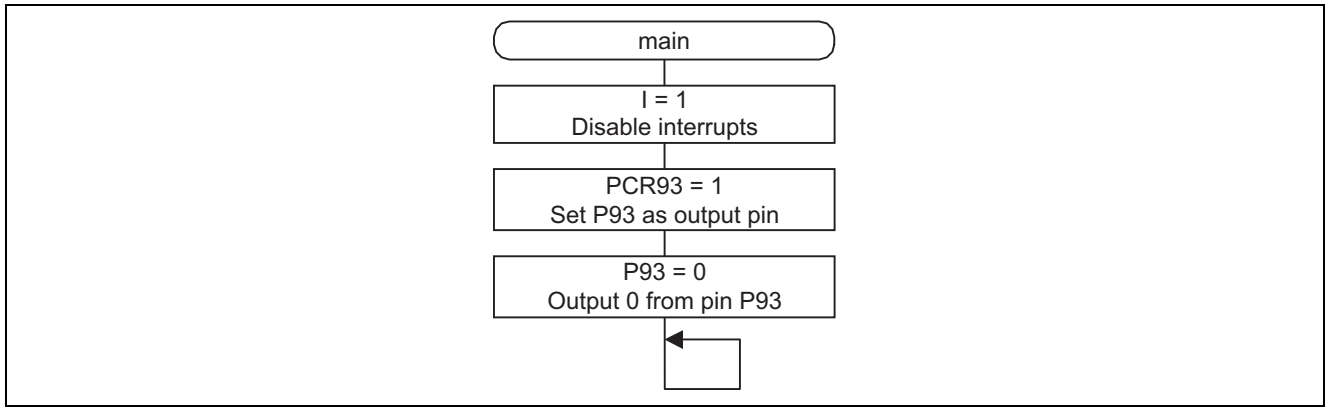
Bit	Bit Name	Setting	R/W	Function
3	PCR93	1	R/W	Port control register 93 PCR93 = 0: Sets the P93 pin as a P93 input pin. PCR93 = 1: Sets the P93 pin as a P93 output pin.

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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