NEC

Customer Notification

μPD78F0714™

Motor ASSP

Preliminary Operating Precautions

Target Devices
μPD78F0714 DS1.3

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(A) Table of Operating Precautions

No.	Outline	Control Code[Note]	D78F0714			
			DS1.0	DS1.1		
1	10-bit TMW Timer (Technical Limitation)		✗	✓	✓	
2	Real Time Output Port RTP1 (Technical Limitation)		✗	✓	✓	
3	Serial Interface CSI10 No master mode possible (Technical Limitation)		✗	✓	✓	
4	UART 00 (Technical Limitation)		✗	✓	✓	
5	Port 1.4 and 1.5 (Technical Limitation)		✗	✓	✓	
6	Input Port 2 (Technical Limitation)		✗	✓	✓	
7	10-bit AD Converter (Technical Limitation)		✗	✓	✓	
8	10-bit AD Converter (Technical Limitation)		-	✗	✓	
9	External Interrupt INTP1 (Technical Limitation)		#	✗	✓	

✓ : Not applicable
✗ : Applicable
- : Specification is not supported
: Not tested

Note: The control code is the **fifth character** from the left of the 9 digit serial number (version that have not been upgraded).

(B) Description of Operating Precautions

No. 1	10-bit TMW Timer (Technical Limitation)

Detail1
The Output TW0TO1 of the TMW timer is not inverted to its pair signal TW0TO0.
These two outputs are identical and there is no dead time inserted.

Workaround:

Connect the TW0TO1 output to an external Inverter to get the inverted signal to TW0TO0 and use an AND Gate (Figure 1.0) to insert the dead time between the signals. The dead time definition can be realized either with the compare registers CM4 or CM5 of the TMW timer. The generated interrupt caused by either CM4 or CM5 can be used to toggle the port pin e.g. P32, that is connected to the AND Gate (Figure1.0).

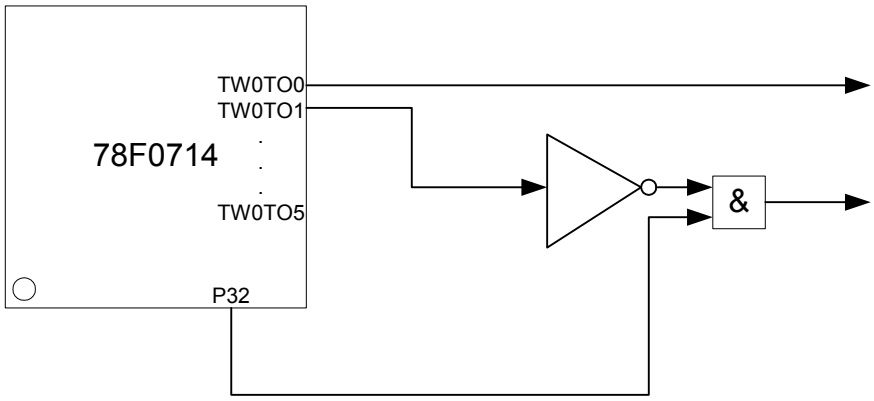

Figure 1.0: Proposed Workaround circuit

CAUTION: Please be aware that the above proposed Workaround will maybe not fulfill all application requirements.

Detail2
The software control of the TMW timer output doesn't work while timer is running.
The responsible register for this function (SFR: TW0OC) can not be rewritten while timer TMW is running.

Workaround:

Stop the TMW Timer beforehand and set than the desired output of the TMW Timer to HiZ state. Start the Timer again.

Detail3
The Real Time Output Port RTP1 have to be initialized to get the output signal of the TMW Timer.

No. 2	Real Time Output Port RTP1 (Technical Limitation)
	Details The actual configuration of the RTP1 port doesn't allow generating the required pattern signals for controlling a BLDC motor. Workaround: The TMW Output software control function of the TMW Timer can be used to generate the required pattern signals for the BLDC control. Please refer to No.1, *Detail2* of the TMW Timer.

No. 3	Serial Interface CSI10 (Technical Limitation)
	Details The SCK10 pin can not be used. Therefore the master mode of this serial interface is not given.

No. 4	UART 00 (Technical Limitation)
	Details Serial Interface UART00 can not be used.

No. 5	Port 1.4 and 1.5 (Technical Limitation)
	Details Port 14 and 15 can not be used.

No. 6	Input Port 2 (Technical Limitation)
	Details The entire Port 2 can not be used.

No. 7	10-bit AD Converter (Technical Limitation)
	Details The entire 10-bit AD Converter can not be used.

No. 8	10-bit AD Converter (Technical Limitation)
	Details The Timer trigger mode can not be used. The compare register CM4 and CM5 of the inverter timer TMW can not be used to generate especially the timer trigger signal for the ADC. Workaround: The CM4 register of the TMW timer can be used to generate the signal for the external trigger of the ADC.

No. 9	External Interrupt INTP1 (Technical Limitation)
	Details The INTP1 can not be used as an external interrupt source.

(C) Valid Specification

Item	Date published	Document No.	Document Title
1	March 2004	U16928EJ1V0UD00	Preliminary User's Manual 78K0/Motor
1	May 2004	U16928EJ1V0UD00	Preliminary User's Manual 78K0/Motor
1	November 2004		User's Manual 78K0/Motor

(D) Revision History

Item	Date published	Document No.	Comment
1	March 24, 2004	TPS-LE-OP-0714-1	1st release
1	May 21, 2004	TPS-LE-OP-0714-2	1st release
1	December 3, 2004	TPS-LE-OP-0714-3	1st release