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# **RENESAS TECHNICAL NEWS**

No.M16C-105-0309

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#### M30201 group and M302N1/M302N2 group

### Precautions for using "One Shot Timer Mode" of timer A and timer X

Corrections and supplementary explanation of document ✓ Notes Knowbow	Classification
Others	Corrections and supplementary explanation of document √ Notes Knowhow Others

#### 1. Notes

If setting '0' to the timer register in case timer A or timer X is used in the one shot timer mode, there are the following cautions about timer operation.

If the timer register is set to '0', the counter does not work and timer interrupt request is not generated either. Furthermore, if "pulse output" is selected, the output level from the timer output pin does not change.

The object pages of datasheets and user's manual (\*) is shown the following pages. \* The page number of following is matched the latest issues.

Document Name	Printed No./PDF REV.	Date of Issue
M30201 group datasheet	REV.E	2001.4
M30201 group user's manual	REV.C	2001.6
M302N1/M302N2 group datasheet	REV.B.0	2002.1

In addition, the contents of this technical news will be reflected to these datasheets and user's manual at the next update time.

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M30201 grou	n data	sheet	Page49	Figure 1.39	Figure 1.39. Timer A-related registers (2)			
M30201 grou	n user	's manual	Page 50	Figure 1.39 Timer A-related registers (2)				
M30201 grou	n liser	's manual	Page 177	Figure 2.2.3	Timer A_related reg	nietore	$\frac{2}{(2)}$	
M30201 9100	2N2 a	s manual roun datasheet	Page 50		5 Timer A-related reg	nietor	$\frac{(2)}{(2)}$	
101302111/1030	znz y		1 age 39			gister	5(2)	
Fimer A0 registe	er (Note	1, 2)	symbol	address	when reset			
b15) (t	b8)		TA0	0387 <sub>16</sub> ,038	6 <sub>16</sub> Indetermina	ate		
)7 b	0 b7	b0						
	i		Function		values that can be set	R	W	
	   	<ul> <li>Timer Mode Counts an interna</li> </ul>	I count source		000016 to FFFF16	0	0	
		<ul> <li>Event counter mo Counts pulses fro</li> </ul>	ode m an external source or	timer overflow	000016 to FFFF16	0	0	
		One-shot timer m Counts a one sho	iode t width		000016 to FFFF16 (Note 3)	×	0	
		Pulse width module     Functions as a 16	ulation mode (16-bit PW b-bit pulse width modulat	M) or	000016 to FFFF16	×	0	
		Pulse width mode Timer low-order a prescaler and higl pulse width modu	l) 3-bit Is as an 8-bit	0016 to FF16 (High-order addresses) 0016 to FF16 (Low-order addresses)	×	0		
1	Note 1: V	Vriting to this registe	r, use the MOV instructi	on.				
1	Note 2: F	Read and write data	in 16-bit units.					
1	Note 3: 1	theTA0 register is s	et to '000016', the count	er does not work an	d timer A0 interrupt reques	<u>st is not</u>		

generated either. Furthermore, if "pulse output (TA0out pin is a pulse output pin)" is selected, the output level from the TA0out pin does not change.

Document Name	Page	Object
M30201 group datasheet	Page 65	Figure 1.58. Timer X-related registers (2)
M30201 group user's manual	Page 66	Figure 1.58. Timer X-related registers (2)
M30201 group user's manual	Page 222	Figure 2.4.2. Timer X-related registers (1)
M302N1/M302N2 group datasheet	Page 75	Figure 1.16.3. Timer X-related registers (2)

limer Xi	register	(Note 1, 2	2)	symbol	addres	s	when res	et	
(b15)	(b8	5)		TX0	0389 <sub>16</sub> ,03	88 <sub>16</sub>	Indetermi	nate	
b7	b0	b7	b0	TX1	038B <sub>16</sub> ,03	8A <sub>16</sub>	Indetermi	nate	
				TX2	038D <sub>16</sub> ,03	8C <sub>16</sub>	Indetermi	nate	
				Function		values that	can be set	R	W
			Timer Mode     Counts an intern	al count source		000016 to	D FFFF16	0	0
			<ul> <li>Event counter m Counts pulses from</li> </ul>	iode om an external source or	timer overflow	000016 to	D FFFF16	0	0
			<ul> <li>One-shot timer r Counts a one sho</li> </ul>	node ot width		000016 to (Not	o FFFF <sub>16</sub> te 3)	×	0
			<ul> <li>Pulse period / pu Measures a pulse</li> </ul>	ulse width measurement e period or width	mode			0	×
			<ul> <li>Pulse width mod Functions as a 1</li> </ul>	lulation mode (16-bit PW 6-bit pulse width modula	M) tor	000016 to	D FFFF16	×	0
			Pulse width mod Timer low-order a prescaler and hig pulse width mode	Iulation mode (8-bit PWN address functions as an gh-order address functior ulator	1) 8-bit ns as an 8-bit	0016 tơ (High- addre 0016 tơ (Low- addre	o FF16 -order esses) o FF16 -order esses)	×	0
		Note	1: Read and write	data in 16-bit units.					
		Note	2: Writing to this re	egister, use the MOV in	struction.				
		Note	3: If theTXi register	is set to '000016', the cou	unter does not work a	and timer Xi i	nterrupt requ	est is no	<u>t</u>
			generated either.	Furthermore, if "pulse of	utput (TXiINOUT pin is	a pulse outp	<u>ut pin)" is sel</u>	ected, th	<u>e</u>
			output level from	the TXINOUT pin does no	ot change.				

Document Name	Page	Object
M30201 group user's manual	Page 195	Figure 2.2.21. Set-up procedure of one-shot mode
	Page 197	Figure 2.2.23. Set-up procedure of one-shot mode, externa
		trigger selected
		1
		•
Setting one-shot timer's time		$\langle \rangle$
(b15) (b8)		
b7 b0 b7 b0		
	] Timer A	A0 register IAddress 038716, 0386161 TA0
	]	
	(E)	
	<u>(Previe</u>	ous change) Can be set to 000116 to FFFF16
	(After	change) Can be set to 000016 to FFFF16 (Note 1)
Note 1. If theTA0 re	gister is set to '	'000016', the counter does not work and timer A0 interrupt
request is no	t generated eith	her Furthermore the output level from the TADOUT pin does
	<u>r generatea en</u>	
\ <u>not cnange.</u>		)
$\mathbf{i}$		

Document Name	Page	Object			
M30201 group user's manual Page 235 Figure 2.4.15. Set-up procedure of one-shot mode					
Setting one-shot timer's time (b15) (b8) b7 b0 b7 b <u>Note 1. If theTXi reg</u> request is no does not char	00 Timer X Timer X <u>Can be</u> ister is set to for the generated einge.	20 register [Address 0389 <sub>16</sub> , 0388 <sub>16</sub> ] TX0 21 register [Address 038B <sub>16</sub> , 038A <sub>16</sub> ] TX1 22 register [Address 038D <sub>16</sub> , 038C <sub>16</sub> ] TX2 25 set to 0000 <sub>16</sub> to FFFF <sub>16</sub> (Note 1) 0000 <sub>16</sub> ', the counter does not work and timer Xi interrupt ther. Furthermore, the output level from the TXiINOUT pin			
		1			