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Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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April 1st, 2010
Renesas Electronics Corporation

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RENESAS TECHNICAL UPDATE

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Renesas Technology Corp.

Product Category	MPU&MCU		Document No.	TN-H8*-A362A/E	Rev.	1.00
Title	Item addition and error correction of current dissipation.		Information Category	Technical Notification		
Applicable Product	H8/38024R Group, H8/38024S Group, H8/38004 Group, H8/38002S Group, H8/3827S Group, H8/3847S Group		Lot No.	Reference Document	Hardware Manual (Details are text reference)	
			All			

Some items of IWATCH, ISUB and ISUBSP of the hardware manual DC characteristics of the H8/38024R group, the H8/38024S group, the H8/38004 group, H8/38002S group and the H8/3827S group are added and some errors are corrected.

Please refer to the following for details of the specific changes for each device.

1, Hardware Manual (REJ09B0042-0700) 16.4.2 DC Characteristics Table 16.8 (H8/38024R group)

Before the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I_{SUB}	Vcc	-	20	40	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_W/2$)	*3 *4
	I_{SUBSP}	Vcc	-	4.8	16	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_W/2$)	*3 *4
Watch mode current dissipation	I_{watch}	Vcc	-	2.0	-	μA	Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	*3 *4 Reference Value
			-	2.0	6.0	μA	Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	*3 *4

After the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I_{SUB}	Vcc	-	20	40	μA	Vcc=2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_W/2$)	*3 *4
			-	17	40	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_W/2$)	*3 *4
	I_{SUBSP}	Vcc	-	4.8	16	μA	Vcc=2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_W/2$)	*3 *4
			-	5.4	16	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator	*3 *4

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Watch mode current dissipation	I _{watch}	Vcc	-	2.0	-	μA	Vcc=2.7V, Ta=25°C 32kHz External Clock LCD not used	*3 *4 Reference Value
			-	2.6	-	μA	Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	
			-	2.0	6.0	μA	Vcc=2.7V, 32kHz External Clock LCD not used	*3 *4
			-	2.6	6.0	μA	Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	

2, Hardware Manual (REJ09B0042-0700) 16.6.2 DC Characteristics Table 16.15 (H8/38024S group)

Before the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I _{SUB}	Vcc	-	6.2	-	μA	Vcc=1.8V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	*1 *2 Reference Value
			-	10	40	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	*1 *2
			-	4.6	16	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	*1 *2
Watch mode current dissipation	I _{watch}	Vcc	-	2.0	-	μA	Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	*1 *2 Reference Value
			-	2.0	6.0	μA	Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	*1 *2

After the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I _{SUB}	Vcc	-	6.2	-	μA	Vcc=1.8V, LCD on 32kHz External Clock (θ _{SUB} =θ _W /2)	*1 *2 Reference Value
			-	5.7	-	μA	Vcc=1.8V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	
			-	10	40	μA	Vcc=2.7V, LCD on 32kHz External Clock (θ _{SUB} =θ _W /2)	*1 *2
			-	11	40	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I _{SUBSP}	Vcc	-	4.6	16	μA	Vcc=2.7V, LCD on 32kHz External Clock (θ _{SUB} =θ _W /2)	*1 *2
			-	5.1	16	μA	Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	
Watch mode current dissipation	I _{watch}	Vcc	-	2.0	-	μA	Vcc=2.7V, Ta=25°C External Clock Oscillator LCD not used	*1 *2 Reference Value
			-	2.3	-	μA	Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	
			-	2.0	6.0	μA	Vcc=2.7V, 32kHz External Clock LCD not used	*1 *2
			-	2.3	6.0	μA	Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	

3, Hardware Manual (REJ09B0024-0600) 17.4.2 DC Characteristics Table 17.8 (H8/38004 group, H8/38002S group)

Before the changes

Item	Symbol	Applicable Pins	Test Condition	Values			Unit	Notes
				Min	Typ	Max		
Subactive mode current dissipation	I _{SUB}	Vcc	Vcc=1.8V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	-	6.2	-	μA	*1 *3 *4 Reference Value
			Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	-	10	40		*1 *3 *4 *2 *3 *4
Subsleep mode current dissipation	I _{SUBSP}	Vcc	Vcc=2.7V, LCD on 32kHz Crystal Oscillator (θ _{SUB} =θ _W /2)	-	4.6	16	μA	*3 *4
Watch mode current dissipation	I _{watch}	Vcc	Vcc=1.8V, Ta=25°C 32kHz Crystal Oscillator LCD not used	-	1.2	-	μA	*1 *3 *4 Reference Value
			Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	-	2.0	-		*3 *4 Reference Value
			Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	-	2.0	6.0		*3 *4

After the changes

Item	Symbol	Applicable Pins	Test Condition	Values			Unit	Notes		
				Min	Typ	Max				
Subactive mode current dissipation	I _{SUB}	V _{CC}	V _{CC} =1.8V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W}/2$)	-	6.2	-	μA	*1 *3 *4 Reference Value		
			V _{CC} =1.8V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W}/2$)	-	5.4	-				
			V _{CC} =2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W}/2$)	-	10	40	μA	*1 *3 *4		
			V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W}/2$)	-	11	40				
			V _{CC} =2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W}/2$)	-	28	50	μA	*2 *3 *4		
			V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W}/2$)	-	25	50				
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			Subsleep mode current dissipation	I _{SUBSP}	V _{CC}	V _{CC} =2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W}/2$)	-	4.6	16	μA
V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W}/2$)	-	5.1				16				
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Watch mode current dissipation	I _{WATCH}	V _{CC}	V _{CC} =1.8V, Ta=25°C 32kHz External Clock LCD not used	-	1.2	-	μA	*1 *3 *4 Reference Value		
			V _{CC} =1.8V, Ta=25°C 32kHz Crystal Oscillator LCD not used	-	0.6	-				
			V _{CC} =2.7V, Ta=25°C 32kHz External Clock LCD not used	-	2.0	-	μA	*3 *4 Reference Value		
			V _{CC} =2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	-	2.9	-				
			V _{CC} =2.7V, 32kHz External Clock LCD not used	-	2.0	6.0	μA	*3 *4		
			V _{CC} =2.7V, 32kHz Crystal Oscillator LCD not used	-	2.9	6.0				
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4, Hardware Manual (REJ09B0144-0600) 15.6.2 DC Characteristics Table 15.16 (H8/3827S group)

5, Hardware Manual (REJ09B0145-0600) 15.6.2 DC Characteristics Table 15.18 (H8/3847S group)

Before the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I _{SUB}	V _{CC}	-	8	*3	μA	V _{CC} =1.8V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W/2}$)	*1 *2
			-	14	*3			
Subsleep mode current dissipation	I _{SUBSP}	V _{CC}	-	5.0	12	μA	V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W/2}$)	*1 *2
Watch mode current dissipation	I _{watch}	V _{CC}	-	1.4	*3	μA	V _{CC} =1.8V, Ta=25°C 32kHz Crystal Oscillator LCD not used	*1 *2
			-	2.2	*3		V _{CC} =2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	
			-	2.8	6.0		V _{CC} =2.7V, 32kHz Crystal Oscillator LCD not used	

After the changes

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Subactive mode current dissipation	I _{SUB}	V _{CC}	-	8	*3	μA	V _{CC} =1.8V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W/2}$)	*1 *2
			-	6	*3		V _{CC} =1.8V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W/2}$)	
			-	14	*3		V _{CC} =2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W/2}$)	
			-	11	*3		V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W/2}$)	
Subsleep mode current dissipation	I _{SUBSP}	V _{CC}	-	5.0	12	μA	V _{CC} =2.7V, LCD on 32kHz External Clock ($\theta_{SUB}=\theta_{W/2}$)	*1 *2
			-	4.3	12		V _{CC} =2.7V, LCD on 32kHz Crystal Oscillator ($\theta_{SUB}=\theta_{W/2}$)	

Item	Symbol	Applicable Pins	Values			Unit	Test Condition	Notes
			Min	Typ	Max			
Watch mode current dissipation	I _{watch}	Vcc	-	1.4	*3	μA	Vcc=1.8V, Ta=25°C 32kHz External Clock LCD not used	*1 *2
			-	0.5	*3		Vcc=1.8V, Ta=25°C 32kHz Crystal Oscillator LCD not used	
			-	2.2	*3		Vcc=2.7V, Ta=25°C 32kHz External Clock LCD not used	
			-	2.4	*3		Vcc=2.7V, Ta=25°C 32kHz Crystal Oscillator LCD not used	
			-	2.2	6.0		Vcc=2.7V, 32kHz External Clock LCD not used	
			-	2.4	6.0		Vcc=2.7V, 32kHz Crystal Oscillator LCD not used	