

RENESAS TECHNICAL UPDATE

1753, Shimonumabe, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8668 Japan
Renesas Electronics Corporation

Product Category	MPU/MCU		Document No.	TN-SH7-A782A/E	Rev.	1.00
Title	Correction of the Electrical Characteristics in the SH7146 Group Hardware Manual		Information Category	Technical Notification		
Applicable Product	SH7146 Group	Lot No.	Reference Document	SH7146 Group Hardware Manual Rev. 3.00 (REJ09B0229-0300)		
		All lots				

We would like to inform you of correction to the SH7146 Group hardware manual. Please take the following into consideration when using these products.

The description of the Section 24 Electrical Characteristics in the SH7146 Group hardware manual has been revised as follows.

1. Schmitt trigger input voltage

[Before]

Item		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Schmitt trigger input voltage	IRQ3 to IRQ0, POE8 to POE0,	V_{T+}	$V_{CC}-0.5$	—	—	V	
	TCLKA to TCLKD, TIOC0A to TIOC0D, TIOC1A, TIOC1B, TIOC2A, TIOC2B, TIOC3A to TIOC3D, TIOC4A to TIOC4D,	V_{T-}	—	—	1.0	V	
	TIC5U, TIC5V, TIC5W, TIOC3BS, TIOC3DS, TIOC4AS to TIOC4DS, TIC5US, TIC5VS, TIC5WS, SCK0 to SCK2, RXD0 to RXD2	$V_{T+}-V_{T-}$	0.4	—	—	V	

[After]

Item		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Schmitt trigger input voltage	IRQ3 to IRQ0,	V_{T+}	$V_{CC}-0.5$	—	—	V	
	POE8 to POE0,	V_{T-}	—	—	1.0	V	
	TCLKA to TCLKD, TIOC0A to TIOC0D, TIOC1A, TIOC1B, TIOC2A, TIOC2B, TIOC3A to TIOC3D, TIOC4A to TIOC4D, TIC5U, TIC5V, TIC5W, TIOC3BS, TIOC3DS, TIOC4AS to TIOC4DS, TIC5US, TIC5VS, TIC5WS, SCK0 to SCK2, RXD0 to RXD2, TRST	$V_{T+}-V_{T-}$	0.4	—	—	V	

 2. Output high-level voltage (V_{OH}) and Output low-level voltage (V_{OL})

[Before]

Item		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Output high-level voltage	All output pins	V_{OH}	$V_{CC}-0.5$	—	—	V	$I_{OH} = -200 \mu A$
			$V_{CC}-1.0$	—	—	V	$I_{OH} = -1 \text{ mA}$
	PE9, PE11 to PE21		$V_{CC}-1.0$	—	—	V	$I_{OH} = -5 \text{ mA}$
Output low-level voltage	All output pins	V_{OL}	—	—	0.4	V	$I_{OL} = 1.6 \text{ mA}$
	PE9, PE11 to PE21		—	—	1.4	V	$I_{OL} = 15 \text{ mA}$

[After]

Item		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Output high-level voltage	All output pins	V_{OH}	$V_{CC}-0.5$	—	—	V	$I_{OH} = -200 \mu A$
			$V_{CC}-1.0$	—	—	V	$I_{OH} = -1 \text{ mA}$
	TIOC3B, TIOC3D, TIOC4A - TIOC4D, TIOC3BS, TIOC3DS, TIOC4AS - TIOC4DS		$V_{CC}-1.0$	—	—	V	$I_{OH} = -5 \text{ mA}$
	PE9, PE11 to PE21		$V_{CC}-2.0$	—	—	V	$I_{OH} = -5 \text{ mA}$
Output high-level voltage	All output pins	V_{OL}	—	—	0.4	V	$I_{OL} = 1.6 \text{ mA}$
	TIOC3B, TIOC3D, TIOC4A - TIOC4D, TIOC3BS, TIOC3DS, TIOC4AS - TIOC4DS		—	—	1.4	V	$I_{OL} = 15 \text{ mA}$
	PE9, PE11 to PE21		—	—	2.5	V	$I_{OL} = 15 \text{ mA}$