

# RENESAS TECHNICAL UPDATE

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|                    |                                      |              |                      |   |      |
|--------------------|--------------------------------------|--------------|----------------------|---|------|
| Product Category   | MPU/MCU                              | Document No. | TN-SH7-A847B/E       | Rev.  | 2.00 |
| Title              | SH7734 Pin Treatment When Not in Use |              | Information Category | Technical Notification  |      |
| Applicable Product | SH7734                               | Lot No.      | Reference Document   | SH7734<br>User's Manual: Hardware<br>Rev.1.00 (R01UH0233EJ0100) |      |
|                    |                                      | All lots     |                      |   |      |

Pin Treatment When Not in Use is additional information to SH7734 User's Manual.

Following gray highlighted part in the "Table: Pin Group" (DRACK 0 is changed to Pin Group A) are modified from TN-SH7-A847A/E, Rev.1.00.

## 1. "Treatment of Unused Pins"

Table: Treatment of Unused Pins

| Signal Name  |              |             | Treatment of Unused Pins [*1]   |
|--|--------------|-------------|---|
| PRESET#,EXTAL, MPMD,BSMODE   |              |             | Always used   |
| XTAL   |              |             | Open  |
| VCCQ-PLL   |              |             | Always used (Connect to a power-supply)   |
| VDD-PLL  |              |             | Always used (Connect to a power-supply)   |
| TEST1,TEST2  |              |             | Always used (Pull down or Input level of Vil)   |
| TRST#  |              |             | Fix this pin at Vil level (Pull down or Input level of Vil). Recommends that bit 0 of PUPCTL2 is set to "0" in order to reduce power consumption after fixing this pin. [*2]  |
| TCK,TMS,TDI,TDO,ASEBRK#/ACK  |              |             | Open [*2]   |
| NMI  |              |             | Fix this pin at Vih level (Pull up or Input level of Vih)   |
| DP0,DM0,DP1,DM1  |              |             | Follow "23.5.1 Example of DP and DM Connections" for treatment of these pins.   |
| OVC0/VBUS0, OVC1/VBUS1   |              |             | Fix these pins at Vil level (Pull down or Input level of Vil)   |
| USB_EXTAL  |              |             | Fix this pin at Vil level (Pull down or Input level of Vil)   |
| USB_XTAL   |              |             | Open  |
| REFRIN   |              |             | Follow "23.6.6 REFRIN Pin" for treatment of this pin.   |
| AV33   |              |             | Always used (Connect to a power-supply)   |
| AV12   |              |             | Always used (Connect to a power-supply)   |
| AG   |              |             | Always used (Connect to ground)   |
| RTC_X1   |              |             | Fix this pin at Vil level (Pull down or Input level of Vil)   |
| RTC_X2   |              |             | Open  |
| AN0,AN1,AN2,AN3,AN4,AN5,AN6,AN7  |              |             | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| AVCC, AVRef  |              |             | Always used (Connect to a power-supply)   |
| AVSS   |              |             | Always used (Connect to ground)   |
| SCL0,SCL1,SDA1   |              |             | Fix these pins at Vih level (Pull up or Input level of Vih)   |
| SDA0   | In boot mode | 0,1,2,3,4,5 | Fix this pin at Vih level (Pull up or Input level of Vih)   |
|  |              | 6           | Always used   |
| MBKPRST#, SDBUP  |              |             | Fix these pins at VDD-DDR level (Pull up or Input level of VDD-DDR)   |
| MZQ,MRESET#,MDM0,MDM1,MODT,MCK0,MCK0#,MCKE,MCS#,MWE#,MRAS#,MCAS#,MA0-MA13,MBA0-MBA2,MDQ0-MDQ15,MDQS0,MDQS0#,MDQS1,MDQS1# |              |             | Open  |
| VDD-DDR  |              |             | Always used (Connect to a power-supply)   |
| MVREFDQ  |              |             | Always used (Input level of VDD-DDR/2)  |
| MVREFA   |              |             | Always used (Connect to ground)   |
| A5,A6,A7,A8,A9,A10,A11,A12,A13,A14,A15,A16,A17,A18,A19 (Multiplexed with mode signals)                                   |              |             | During PRESET#='L' : Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)<br>During PRESET#='H' : Fix these pins at Vih or Vil level (Pull up, Pull down), or Open<br>Pull-up or Pull-down is recommended since these pins will be output pins during PRESET#='H'. |
| PRESETOUT#,A0,A1,A2,A3,A4,A20,A21,A22,A23,BS#,CS0#,RD#,CLKOUT,CS1#/A26,WE0#,WE1#,PENCO                                   |              |             | Open  |
| D0,D1,D2,D3,D4,D5  | In boot mode | 0,1,2,4,5   | Always used   |
|  |              | 3,6         | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| D6,D7  | In boot mode | 0,1,2,3,4   | Always used   |
|  |              | 5,6         | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| D8,D9  | In boot mode | 1,2,4,5     | Always used   |
|  |              | 0,3,6       | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| D10,D11  | In boot mode | 1,2,3       | Always used   |
|  |              | 0,4,5,6     | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| D12,D13,D14  | In boot mode | 1,2         | Always used   |
|  |              | 0,3,4,5,6   | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |
| D15  | In boot mode | 1           | Always used   |
|  |              | 0,2,3,4,5,6 | Fix this pin at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)   |

|   |              |                  |  |
|---|--------------|------------------|--|
| DU0_DR0,DU0_DR1,DU0_DR2,DU0_DR3,DU0_DR4,DU0_DR5,DU0_DR6,DU0_DR7,DU0_DG0,DU0_DG1,DU0_DG2,DU0_DG3,DU0_DG4,DU0_DG5,DU0_DG6,DU0_DG7,DU0_DB0,DU0_DB1,DU0_DB2,DU0_DB3,DU0_DB4,DU0_DB5,DU0_DB6 | In boot mode | 0,1,2,3,4,5<br>6 | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih or Input level of Vil)<br>Always used |
| Pin Group A (Pull-up is enabled in default)   |              |                  | Open   |
| Pin Group B (Pull-up is disabled in default)  |              |                  | Fix these pins at Vih or Vil level (Pull up, Pull down, Input level of Vih, Input level of Vil)                  |
| VDD   |              |                  | Always used (Connect to a power-supply)  |
| VCCQ  |              |                  | Always used (Connect to a power-supply)  |
| VCC   |              |                  | Always used (VCC and VCCQ are separate, but should be at the same voltage on the board)                          |
| VSS   |              |                  | Always used (Connect to ground)  |

Notes: Supply the specified voltages for all of the power supplies.

\*1) Pin treatments are supposed in case of PFC default configuration after power on reset.

\*2) When using an emulator, follow the instruction from the emulator.

[Boot mode]

- 0:CS0 boot (8-bit)
- 1:CS0 boot (16-bit)
- 2:NAND Flash boot
- 3:Serial boot
- 4:MMC boot
- 5:eSD boot
- 6:HIF boot

Table: Pin Group

| Pin Group   | Signal Name   |
|-------------|---|
| Pin Group A | SDSELF,EX_CS0#,EX_CS1#,EX_CS2#,EX_CS5#,RD/WR#,EX_WAIT1,EX_WAIT2,DREQ0,DREQ1, DACK1,IRQ0_A,IRQ1_A,IRQ2_A,IRQ3_A,SCIF_CLK_A,SCK0_A,RX0_A,HCTS0#_A,HRTS0#_A, HSCK0_A,HRX0_A,HTX0_A,CTS0#_B,RTS0#_B,SCK1_B,RX1_B,TX1_B,CTS1#_B,RTS1#_B, SCK2_A,SD2_CLK_A,SD2_CMD_A,SD2_DAT0_A,SD2_DAT1_A,SD2_DAT2_A,SD2_DAT3_A,SD2_CD_A, SD2_WP_A,DU0_DOTCLKIN,DU0_DOTCLKOUT,DU0_EXHSYNC/DU0_HSYNC,DU0_EXVSYNC/DU0_VSYNC, DU0_EXODDF/DU0_ODDF,DU0_DISP,DU0_CDE,VI1_0_A,VI1_1_A,VI1_2_A,VI1_3_A,VI1_4_A,VI1_5_A,VI1_6_A, VI1_7_A,SSI_SCK0_A,SSI_WS0_A,SSI_SDATA0_A,SSI_SCK1_A,SSI_WS1_A,SSI_SDATA1_A,SSI_SCK23,SSI_WS23, SSI_SDATA2,SSI_SDATA3,AUDIO_CLKA_A,AUDIO_CLKOUT,PENC1,USB_OVC1,CAN_CLK_A,CAN1_RX_A, <b>DRACK0</b> |
| Pin Group B | A24,A25,EX_CS3#,EX_CS4#,DACK0,TX0_A,REF125CK,REF50CK,DU0_DB7,VI1_CLK_A,AUDIO_CLKB_A, AUDIO_CLKC,CAN0_TX_A,CAN0_RX_A,CAN1_TX_A,EX_WAIT0,USB_OVC0   |

- End of report -