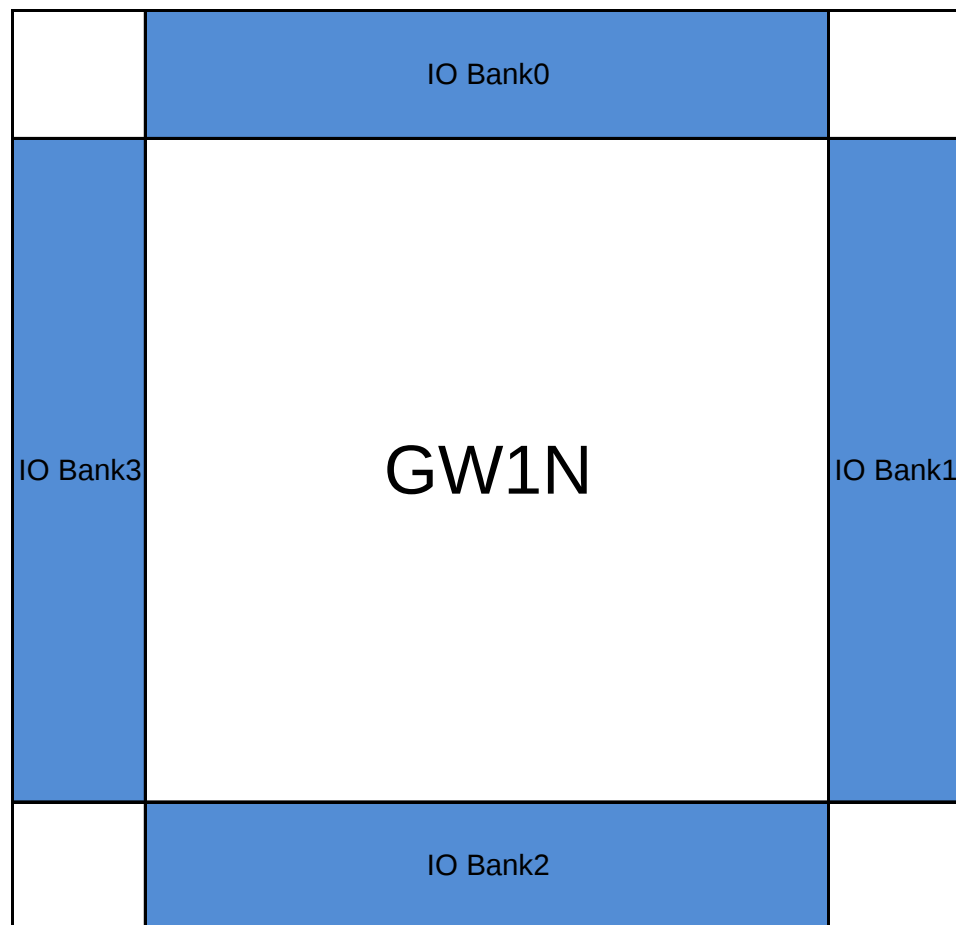


| Date       | Version | Description                                                                                                                          |
|------------|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| 2018/6/7   | 1.04E   | Initial version published.                                                                                                           |
| 2018/12/12 | 1.05E   | MBGA160 and PBGA204 deleted;<br>Power requirements added.                                                                            |
| 2019/3/12  | 1.06E   | Recommended Operating Conditions for UV VCC modified.                                                                                |
| 2019/9/18  | 1.07E   | Packages of LQ100X-LV and LQ100X-UV added.                                                                                           |
| 2019/12/23 | 1.08E   | Pin 89 of LQ100X (LV) changed from NC to VCC.                                                                                        |
| 2020/1/2   | 1.09E   | The package name of LQ100X-LV and LQ100X-UV modified;<br>Pin 89 of LQ100X (LV) changed from VCC to VCC12OUT.                         |
| 2020/2/24  | 1.1E    | Pin 89 of LQ100X (LV) changed from VCC12OUT to NC;<br>Pin 89 of LQ100X (LV) changed from NC to VCC12OUT, and a note of Pin 89 added. |

| Pins Name                                              | Direction                | Description                                                                                                                                                             |
|--------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User I/O Pins                                          |                          |                                                                                                                                                                         |
| IO [End][Row/Column Number][A/B]                       | I/O                      | [End] indicates the pin location, including L(left) R(right) B(bottom), and T(top)                                                                                      |
|                                                        |                          | [Row/Column Number] indicates the pin Row/Column number.                                                                                                                |
|                                                        |                          | If [End] is T(top) or B(bottom), the pin indicates the Column number of the corresponding CFU.                                                                          |
|                                                        |                          | If [End] is L(left) or R(right), the pin indicates the Row number of the corresponding CFU.                                                                             |
| [A/B] indicaties differential signal pair information. |                          |                                                                                                                                                                         |
| Multi-Function Pins                                    |                          |                                                                                                                                                                         |
| IO [End][Row/Column Number][A/B]/MMM                   |                          | /MMM represents one or more of the other functions in addition to being general purpose user I/O. When not used for the specical functions, these pins can be user I/O. |
| RECONFIG_N                                             | I, Internal Weak Pull Up | Start new GowinCONFIG mode when low pulse                                                                                                                               |
| READY                                                  | I/O                      | When high, device can be programmed and configured                                                                                                                      |
|                                                        |                          | When low, device cannot be programmed and configured                                                                                                                    |
| DONE                                                   | I/O                      | High indicates successful completion of programming and configuration                                                                                                   |
|                                                        |                          | Low indicates unfinished or failure of programming and configuration                                                                                                    |
| FASTRD_N/D3                                            | I/O                      | In MSPI mode, FASTRD_N is used as Flash access speed port. Low indicates high-speed Flash access mode; high indicates regular Flash access mode.                        |
|                                                        |                          | Data port D3 in CPU mode                                                                                                                                                |
| MCLK/D4                                                | I/O                      | Clock output MCLK in MSPI mode                                                                                                                                          |
|                                                        |                          | Data port D4 in CPU mode                                                                                                                                                |
| MCS_N/D5                                               | I/O                      | Enable signal MCS_N in MSPI mode, active-low                                                                                                                            |
|                                                        |                          | Data port D5 in CPU mode                                                                                                                                                |
| MO/D6                                                  | I/O                      | MOSI in MSPI mode:Master data output/Slave data input                                                                                                                   |
|                                                        |                          | Data port D6 in CPU mode                                                                                                                                                |
| MI/D7                                                  | I/O                      | MISO in MSPI mode:Master data input/Slave data output                                                                                                                   |
|                                                        |                          | Data port D7 in CPU mode                                                                                                                                                |
| SSPI_CS_N/D0                                           | I/O                      | Enable signal SSPI_CS_N in SSPI mode,active-low                                                                                                                         |
|                                                        |                          | Data port D0 in CPU mode                                                                                                                                                |
| SO/D1                                                  | I/O                      | MISO in SSPI mode:Master data input/Slave data output                                                                                                                   |
|                                                        |                          | Data port D1 in CPU mode                                                                                                                                                |
| SI/D2                                                  | I/O                      | MOSI in SSPI mode:Master data output/Slave data input                                                                                                                   |
|                                                        |                          | Data port D2 in CPU mode                                                                                                                                                |
| TMS                                                    | I                        | Serial mode input in JTAG mode                                                                                                                                          |
| TCK                                                    | I                        | Serial clock input in JTAG mode                                                                                                                                         |
| TDI                                                    | I                        | Serial data input in JTAG mode                                                                                                                                          |

| Pins Name           | Direction                | Description                                                                                                                   |
|---------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| TDO                 | O                        | Serial data output in JTAG mode                                                                                               |
| JTAGSEL_N           | I, Internal Weak Pull Up | JTAG mode selection, active-low                                                                                               |
| SCLK                | I                        | Clock input in SSPI, SERIAL, and CPU modes                                                                                    |
| DIN                 | I, Internal Weak Pull Up | Data input in SERIAL mode                                                                                                     |
| DOUT                | O                        | Data output in SERIAL mode                                                                                                    |
| CLKHOLD_N           | I, Internal Weak Pull Up | High, SCLK will be connected internally in SSPI mode or CPU mode<br>Low, SCLK will be disconnected from SSPI mode or CPU mode |
| WE_N                | I                        | Select data input/output of D[7:0] in CPU mode                                                                                |
| GCLKT_[x]           | I                        | Pins for Global clock input, T(True), [x]:global clock number.                                                                |
| GCLKC_[x]           |                          | Pins for Global clock input, C(Comp), [x]: global clock number.                                                               |
| LPLL_T_fb/RPLL_T_fb | I                        | L/R PLL feedback input pins, T(True)                                                                                          |
| LPLL_C_fb/RPLL_C_fb | I                        | L/R PLL feedback input pins, C(Comp)                                                                                          |
| LPLL_T_in/RPLL_T_in | I                        | L/R PLL clock input pins, T(True)                                                                                             |
| LPLL_C_in/RPLL_C_in | I                        | L/R PLL clock input pins, C(Comp)                                                                                             |
| MODE2               | I, Internal Weak Pull Up | GowinCONFIG modes selection pin                                                                                               |
| MODE1               | I, Internal Weak Pull Up | GowinCONFIG modes selection pin                                                                                               |
| MODE0               | I, Internal Weak Pull Up | GowinCONFIG modes selection pin                                                                                               |
| Other Pins          |                          |                                                                                                                               |
| NC                  | NA                       | Reserved.                                                                                                                     |
| VSS                 | NA                       | Ground.                                                                                                                       |
| VCC                 | NA                       | Power supply pins for the core voltage.                                                                                       |
| VCCO#               | NA                       | Power supply pins for I/O voltage of I/O BANK#.                                                                               |

**Note !**

- 1.Each Bank has independent reference voltage (VREF);
- 2.Users can select to use IOB internal VREF(equals to  $0.5 \times V_{CCO}$ ) or external VREF input (use any IO pins as external VREF input).

Note!

[1]Package for LV version.

[2]Package for UV version. An external capacitor on pin 89 is required, and 100uF is recommended.

| Pin Name       | Function | BANK | Configuration Function | Differential Pair | CS30 | QN32 | QN48 | LQ100 | LQ100X <sup>1</sup> | LQ100X <sup>2</sup> | LQ144 |
|----------------|----------|------|------------------------|-------------------|------|------|------|-------|---------------------|---------------------|-------|
| IOB10A/GCLKT_5 | I/O      | 2    | GCLKT_5                | True_of IOB10B    |      |      | 17   | 39    | 12                  | 12                  | 56    |
| IOB10B/GCLKC_5 | I/O      | 2    | GCLKC_5                | Comp_of IOB10A    |      |      | 18   | 40    | 13                  | 13                  | 57    |
| IOB11A/GCLKT_4 | I/O      | 2    | GCLKT_4                | True_of IOB11B    | D3   | 4    | 19   | 41    | 14                  | 14                  | 58    |
| IOB11B/GCLKC_4 | I/O      | 2    | GCLKC_4                | Comp_of IOB11A    | E3   | 5    | 20   | 42    | 15                  | 15                  | 59    |
| IOB12A         | I/O      | 2    |                        | True_of IOB12B    |      |      |      |       |                     |                     | 60    |
| IOB12B         | I/O      | 2    |                        | Comp_of IOB12A    |      |      |      | 43    |                     |                     | 61    |
| IOB13A         | I/O      | 2    |                        | True_of IOB13B    |      |      |      |       |                     |                     | 62    |
| IOB13B         | I/O      | 2    |                        | Comp_of IOB13A    |      |      |      |       |                     |                     | 63    |
| IOB14A         | I/O      | 2    |                        | True_of IOB14B    |      |      | 21   | 44    | 16                  | 16                  | 64    |
| IOB14B         | I/O      | 2    |                        | Comp_of IOB14A    |      |      | 22   | 45    | 17                  | 17                  | 65    |
| IOB15A         | I/O      | 2    |                        | True_of IOB15B    |      |      |      |       |                     |                     | 66    |
| IOB15B         | I/O      | 2    |                        | Comp_of IOB15A    |      |      |      |       |                     |                     | 67    |
| IOB16A         | I/O      | 2    |                        | True_of IOB16B    |      | 6    | 23   | 46    | 18                  | 18                  | 68    |
| IOB16B         | I/O      | 2    |                        | Comp_of IOB16A    |      |      | 24   | 47    | 19                  | 19                  | 69    |
| IOB17A         | I/O      | 2    |                        | True_of IOB17B    |      |      |      | 48    | 20                  | 20                  | 70    |
| IOB17B         | I/O      | 2    |                        | Comp_of IOB17A    |      |      |      | 49    | 21                  | 21                  | 71    |
| IOB18A         | I/O      | 2    |                        | True_of IOB18B    |      |      |      |       |                     |                     |       |
| IOB18B         | I/O      | 2    |                        | Comp_of IOB18A    |      |      |      |       |                     |                     |       |
| IOB19A         | I/O      | 2    |                        | True_of IOB19B    |      |      |      | 50    | 24                  | 24                  | 72    |
| IOB19B         | I/O      | 2    |                        | Comp_of IOB19A    |      |      |      |       | 25                  | 25                  | 75    |
| IOB2A          | I/O      | 2    |                        | True_of IOB2B     |      |      |      | 27    | 1                   | 1                   | 38    |
| IOB2B          | I/O      |      |                        | Comp_of IOB2A     |      |      |      | 28    | 2                   | 2                   | 39    |
| IOB3A          | I/O      | 2    |                        | True_of IOB3B     |      |      | 13   | 29    | 3                   | 3                   | 40    |
| IOB3B          | I/O      | 2    |                        | Comp_of IOB3A     |      |      | 14   | 30    | 4                   | 4                   | 41    |
| IOB4A          | I/O      | 2    |                        | True_of IOB4B     |      |      |      |       |                     |                     | 42    |
| IOB4B          | I/O      | 2    |                        | Comp_of IOB4A     |      |      |      |       |                     |                     | 43    |
| IOB5A          | I/O      | 2    |                        | True_of IOB5B     |      |      |      | 31    |                     |                     | 44    |
| IOB5B          | I/O      | 2    |                        | Comp_of IOB5A     |      |      |      | 32    |                     |                     | 45    |
| IOB6A          | I/O      | 2    |                        | True_of IOB6B     |      |      |      |       | 7                   | 7                   | 46    |
| IOB6B          | I/O      | 2    |                        | Comp_of IOB6A     |      |      | 15   | 33    | 8                   | 8                   | 47    |
| IOB7A          | I/O      | 2    |                        | True_of IOB7B     |      |      | 16   | 34    |                     |                     | 48    |
| IOB7B          | I/O      | 2    |                        | Comp_of IOB7A     |      |      |      |       |                     |                     | 49    |
| IOB8A          | I/O      | 2    |                        | True_of IOB8B     |      |      |      | 35    | 9                   | 9                   | 50    |
| IOB8B          | I/O      | 2    |                        | Comp_of IOB8A     |      |      |      | 36    | 10                  | 10                  | 51    |
| IOB9A          | I/O      | 2    |                        | True_of IOB9B     |      |      |      |       |                     |                     | 52    |

Note!

[1]Package for LV version.

[2]Package for UV version. An external capacitor on pin 89 is required, and 100uF is recommended.

| Pin Name         | Function | BANK | Configuration Function | Differential Pair | CS30 | QN32 | QN48 | LQ100 | LQ100X <sup>1</sup> | LQ100X <sup>2</sup> | LQ144 |
|------------------|----------|------|------------------------|-------------------|------|------|------|-------|---------------------|---------------------|-------|
| IOB9B            | I/O      | 2    |                        | Comp_of IOB9A     |      |      |      |       |                     |                     | 54    |
| IOL10A           | I/O      | 3    |                        | True_of IOL10B    | E4   | 32   |      | 22    | 99                  | 99                  | 32    |
| IOL10B           | I/O      | 3    |                        | Comp_of IOL10A    | D4   | 1    |      | 23    | 98                  | 98                  | 34    |
| IOL2A/JTAGSEL_N  | I/O      | 3    | JTAGSEL_N              | True_of IOL2B     |      |      |      | 3     | 77                  | 77                  | 4     |
| IOL2B            | I/O      | 3    |                        | Comp_of IOL2A     |      |      |      | 5     | 76                  | 76                  | 6     |
| IOL3A            | I/O      | 3    |                        | True_of IOL3B     |      |      |      |       | 82                  | 82                  | 7     |
| IOL3B            | I/O      | 3    |                        | Comp_of IOL3A     |      |      |      |       | 81                  | 81                  | 8     |
| IOL4A            | I/O      | 3    |                        | True_of IOL4B     |      |      |      |       | 84                  | 84                  | 9     |
| IOL4B            | I/O      | 3    |                        | Comp_of IOL4A     |      |      |      |       | 83                  | 83                  | 10    |
| IOL5A/GCLKT_7    | I/O      | 3    | GCLKT_7                | True_of IOL5B     | C6   |      |      | 6     | 86                  | 86                  | 11    |
| IOL5B/GCLKC_7    | I/O      | 3    | GCLKC_7                | Comp_of IOL5A     | C5   |      |      | 7     | 85                  | 85                  | 12    |
| IOL6A/TMS        | I/O      | 3    | TMS                    | True_of IOL6B     | C4   | 24   | 3    | 8     | 90                  | 90                  | 13    |
| IOL6B/TCK        | I/O      | 3    | TCK                    | Comp_of IOL6A     | A5   | 25   | 4    | 9     | 91                  | 91                  | 14    |
| IOL6C/SCLK       | I/O      | 3    | SCLK                   | True_of IOL6D     | C3   | 26   | 5    | 10    | 78                  | 78                  | 15    |
| IOL6D/TDI        | I/O      | 3    | TDI                    | Comp_of IOL6C     | B5   | 27   | 6    | 11    | 94                  | 94                  | 16    |
| IOL6E/TDO        | I/O      | 3    | TDO                    | True_of IOL6F     | B6   | 28   | 7    | 12    | 95                  | 95                  | 18    |
| IOL6F/RECONFIG_N | I/O      | 3    | RECONFIG_N             | Comp_of IOL6E     |      |      | 8    | 14    |                     |                     | 20    |
| IOL6G/DONE       | I/O      | 3    | DONE                   | True_of IOL6H     |      |      | 9    | 15    |                     |                     | 21    |
| IOL6H/READY      | I/O      | 3    | READY                  | Comp_of IOL6G     |      |      |      | 16    |                     |                     | 22    |
| IOL6I            | I/O      | 3    |                        | True_of IOL6J     |      |      |      |       |                     |                     | 23    |
| IOL6J            | I/O      | 3    |                        | Comp_of IOL6I     |      |      |      |       |                     |                     | 24    |
| IOL7A/GCLKT_6    | I/O      | 3    | GCLKT_6                | True_of IOL7B     | D6   | 29   | 10   | 17    | 88                  | 88                  | 25    |
| IOL7B/GCLKC_6    | I/O      | 3    | GCLKC_6                | Comp_of IOL7A     | D5   | 30   | 11   | 18    | 87                  | 87                  | 26    |
| IOL8A            | I/O      | 3    |                        | True_of IOL8B     |      |      |      | 19    | 97                  | 97                  | 27    |
| IOL8B            | I/O      | 3    |                        | Comp_of IOL8A     |      |      |      | 20    | 96                  | 96                  | 28    |
| IOL9A            | I/O      | 3    |                        | True_of IOL9B     |      |      |      |       |                     |                     | 29    |
| IOL9B            | I/O      | 3    |                        | Comp_of IOL9A     |      |      |      |       |                     |                     | 30    |
| IOR10A           | I/O      | 1    |                        | True_of IOR10B    |      |      |      | 55    | 27                  | 27                  | 78    |
| IOR10B           | I/O      | 1    |                        | Comp_of IOR10A    |      |      |      | 53    | 28                  | 28                  | 76    |
| IOR2A            | I/O      | 1    |                        | True_of IOR2B     | A3   | 17   |      | 73    | 48                  | 48                  | 106   |
| IOR2B            | I/O      | 1    |                        | Comp_of IOR2A     | B3   | 16   |      | 72    | 49                  | 49                  | 104   |
| IOR3A            | I/O      | 1    |                        | True_of IOR3B     |      |      |      |       | 45                  | 45                  | 102   |
| IOR3B            | I/O      | 1    |                        | Comp_of IOR3A     |      |      |      |       | 47                  | 47                  | 101   |
| IOR4A/RPLL_T_fb  | I/O      | 1    | RPLL_T_fb              | True_of IOR4B     | A4   | 15   |      |       | 42                  | 42                  | 100   |
| IOR4B/RPLL_C_fb  | I/O      | 1    | RPLL_C_fb              | Comp_of IOR4A     |      |      |      |       | 43                  | 43                  | 99    |

Note!

[1]Package for LV version.

[2]Package for UV version. An external capacitor on pin 89 is required, and 100uF is recommended.

| Pin Name                | Function | BANK | Configuration Function | Differential Pair | CS30 | QN32 | QN48 | LQ100 | LQ100X <sup>1</sup> | LQ100X <sup>2</sup> | LQ144 |
|-------------------------|----------|------|------------------------|-------------------|------|------|------|-------|---------------------|---------------------|-------|
| IOR5A/GCLKT_2/RPLL_T_in | I/O      | 1    | GCLKT_2/RPLL_T_in      | True_of_IOR5B     | B1   | 14   | 35   | 70    | 40                  | 40                  | 98    |
| IOR5B/GCLKC_2/RPLL_C_in | I/O      | 1    | GCLKC_2/RPLL_C_in      | Comp_of_IOR5A     | B2   | 13   |      | 69    | 41                  | 41                  | 97    |
| IOR6A/MI/D7             | I/O      | 1    | MI/D7                  | True_of_IOR6B     |      |      | 34   | 68    | 38                  | 38                  | 96    |
| IOR6B/MO/D6             | I/O      | 1    | MO/D6                  | Comp_of_IOR6A     |      |      | 33   | 67    | 39                  | 39                  | 95    |
| IOR6C/MCS_N/D5          | I/O      | 1    | MCS_N/D5               | True_of_IOR6D     |      |      | 32   | 66    | 36                  | 36                  | 94    |
| IOR6D/MCLK/D4           | I/O      | 1    | MCLK/D4                | Comp_of_IOR6C     |      |      | 31   | 65    | 37                  | 37                  | 93    |
| IOR6E/FASTRD_N/D3       | I/O      | 1    | FASTRD_N/D3            | True_of_IOR6F     |      |      |      | 64    |                     |                     | 92    |
| IOR6F/SI/D2             | I/O      | 1    | SI/D2                  | Comp_of_IOR6E     | E2   | 12   | 30   | 62    |                     |                     | 90    |
| IOR6G/SO/D1             | I/O      | 1    | SO/D1                  | True_of_IOR6H     | D1   | 11   | 29   | 61    |                     |                     | 88    |
| IOR6H/SSPI_CS_N/D0      | I/O      | 1    | SSPI_CS_N/D0           | Comp_of_IOR6G     | D2   | 10   | 28   | 60    |                     |                     | 87    |
| IOR6I/DIN/CLKHOLD_N     | I/O      | 1    | DIN/CLKHOLD_N          | True_of_IOR6J     |      |      |      | 59    |                     |                     | 86    |
| IOR6J/DOOUT/WE_N        | I/O      | 1    | DOOUT/WE_N             | Comp_of_IOR6I     |      |      |      | 58    |                     |                     | 85    |
| IOR7A/GCLKT_3           | I/O      | 1    | GCLKT_3                | True_of_IOR7B     | C1   | 9    | 27   | 57    | 34                  | 34                  | 84    |
| IOR7B/GCLKC_3           | I/O      | 1    | GCLKC_3                | Comp_of_IOR7A     | C2   | 8    |      | 56    | 35                  | 35                  | 83    |
| IOR8A                   | I/O      | 1    |                        | True_of_IOR8B     |      |      |      |       | 31                  | 31                  | 82    |
| IOR8B                   | I/O      | 1    |                        | Comp_of_IOR8A     |      |      |      |       | 32                  | 32                  | 81    |
| IOR9A                   | I/O      | 1    |                        | True_of_IOR9B     |      |      |      |       | 29                  | 29                  | 80    |
| IOR9B                   | I/O      | 1    |                        | Comp_of_IOR9A     |      |      |      |       | 30                  | 30                  | 79    |
| IOT10A                  | I/O      | 0    |                        | True_of_IOT10B    |      | 22   | 43   | 91    | 61                  | 61                  | 130   |
| IOT10B                  | I/O      | 0    |                        | Comp_of_IOT10A    |      | 21   | 42   | 90    |                     |                     | 129   |
| IOT11A                  | I/O      | 0    |                        | True_of_IOT11B    |      | 20   |      | 89    | 60                  | 60                  | 128   |
| IOT11B                  | I/O      | 0    |                        | Comp_of_IOT11A    |      |      |      |       | 59                  | 59                  | 126   |
| IOT12A                  | I/O      | 0    |                        | True_of_IOT12B    |      |      |      | 86    | 58                  | 58                  | 124   |
| IOT12B                  | I/O      | 0    |                        | Comp_of_IOT12A    |      |      |      | 85    | 57                  | 57                  | 123   |
| IOT13A                  | I/O      | 0    |                        | True_of_IOT13B    |      |      |      |       |                     |                     | 122   |
| IOT13B                  | I/O      | 0    |                        | Comp_of_IOT13A    |      |      |      |       |                     |                     | 121   |
| IOT14A                  | I/O      | 0    |                        | True_of_IOT14B    |      |      | 41   | 84    | 54                  | 54                  | 120   |
| IOT14B                  | I/O      | 0    |                        | Comp_of_IOT14A    |      |      | 40   | 83    | 53                  | 53                  | 119   |
| IOT15A                  | I/O      | 0    |                        | True_of_IOT15B    |      |      |      | 82    |                     |                     | 118   |
| IOT15B                  | I/O      | 0    |                        | Comp_of_IOT15A    |      |      |      | 81    |                     |                     | 117   |
| IOT16A                  | I/O      | 0    |                        | True_of_IOT16B    |      |      |      | 80    | 52                  | 52                  | 116   |
| IOT16B                  | I/O      | 0    |                        | Comp_of_IOT16A    |      |      |      | 79    | 51                  | 51                  | 115   |
| IOT17A                  | I/O      | 0    |                        | True_of_IOT17B    |      |      | 39   | 78    |                     |                     | 114   |
| IOT17B                  | I/O      | 0    |                        | Comp_of_IOT17A    |      |      | 38   | 77    |                     |                     | 113   |
| IOT2A                   | I/O      | 0    |                        | True_of_IOT2B     |      |      |      |       |                     |                     | 3     |

Note!

[1]Package for LV version.

[2]Package for UV version. An external capacitor on pin 89 is required, and 100uF is recommended.

| Pin Name    | Function | BANK | Configuration Function | Differential Pair | CS30 | QN32 | QN48 | LQ100 | LQ100X <sup>1</sup> | LQ100X <sup>2</sup> | LQ144 |
|-------------|----------|------|------------------------|-------------------|------|------|------|-------|---------------------|---------------------|-------|
| IOT2B/MODE0 | I/O      | 0    | MODE0                  | Comp_of_IOT2A     | B4   | 23   | 48   | 100   |                     |                     | 144   |
| IOT3A/MODE2 | I/O      | 0    | MODE2                  | True_of_IOT3B     |      |      |      |       |                     |                     |       |
| IOT3B/MODE1 | I/O      | 0    | MODE1                  | Comp_of_IOT3A     |      |      | 47   |       |                     |                     | 143   |
| IOT4A       | I/O      | 0    |                        | True_of_IOT4B     |      |      |      | 99    | 75                  | 75                  | 142   |
| IOT4B       | I/O      | 0    |                        | Comp_of_IOT4A     |      |      |      | 98    | 74                  | 74                  | 141   |
| IOT5A       | I/O      | 0    |                        | True_of_IOT5B     |      |      |      | 97    | 71                  | 71                  | 140   |
| IOT5B       | I/O      | 0    |                        | Comp_of_IOT5A     |      |      | 46   | 96    | 70                  | 70                  | 139   |
| IOT6A       | I/O      | 0    |                        | True_of_IOT6B     |      |      |      |       | 69                  | 69                  | 138   |
| IOT6B       | I/O      | 0    |                        | Comp_of_IOT6A     |      |      |      |       | 68                  | 68                  | 137   |
| IOT7A       | I/O      | 0    |                        | True_of_IOT7B     |      |      | 45   | 95    | 67                  | 67                  | 136   |
| IOT7B       | I/O      | 0    |                        | Comp_of_IOT7A     |      |      | 44   | 94    | 66                  | 66                  | 135   |
| IOT8A       | I/O      | 0    |                        | True_of_IOT8B     |      |      |      |       | 65                  | 65                  | 134   |
| IOT8B       | I/O      | 0    |                        | Comp_of_IOT8A     |      |      |      |       | 64                  | 64                  | 133   |
| IOT9A       | I/O      | 0    |                        | True_of_IOT9B     |      |      |      | 93    | 63                  | 63                  | 132   |
| IOT9B       | I/O      | 0    |                        | Comp_of_IOT9A     |      |      |      | 92    | 62                  | 62                  | 131   |
| NC          | N/A      | N/A  |                        |                   |      |      |      |       | 5                   | 5                   | 112   |
| NC          | N/A      | N/A  |                        |                   |      |      |      |       | 89                  |                     |       |
| NC          | N/A      | N/A  |                        |                   |      |      |      |       |                     | 50                  |       |
| NC          | N/A      | N/A  |                        |                   |      |      |      |       |                     |                     | 110   |
| NC          | N/A      | N/A  |                        |                   |      |      |      |       |                     |                     | 111   |
| VCC         | Power    | N/A  |                        |                   |      |      |      |       | 50                  |                     |       |
| VCC         | Power    | N/A  |                        |                   |      |      |      |       | 100                 | 100                 |       |
| VCC12OUT    | Power    | N/A  |                        |                   |      |      |      |       |                     | 89                  |       |
| VCC         | Power    | N/A  |                        |                   |      |      |      | 1     |                     |                     | 1     |
| VCC         | Power    | N/A  |                        |                   |      | 2    | 12   | 25    |                     |                     | 36    |
| VCC         | Power    | N/A  |                        |                   |      |      |      | 51    |                     |                     | 73    |
| VCC         | Power    | N/A  |                        |                   | E6   | 18   | 37   | 75    |                     |                     | 108   |
| VCCO0       | Power    | N/A  |                        |                   |      |      |      |       | 55                  | 55                  |       |
| VCCO0       | Power    | N/A  |                        |                   |      |      |      |       | 73                  | 73                  |       |
| VCCO0       | Power    | N/A  |                        |                   |      | 19   |      | 76    |                     |                     | 109   |
| VCCO0       | Power    | N/A  |                        |                   |      |      |      | 88    |                     |                     | 127   |
| VCCO0/VCCO3 | Power    | N/A  |                        |                   | A6   |      | 1    |       |                     |                     |       |
| VCCO1       | Power    | N/A  |                        |                   |      |      |      |       | 26                  | 26                  |       |
| VCCO1       | Power    | N/A  |                        |                   |      |      |      |       | 46                  | 46                  |       |
| VCCO1       | Power    | N/A  |                        |                   |      |      |      | 54    |                     |                     | 77    |

Note!

[1]Package for LV version.

[2]Package for UV version. An external capacitor on pin 89 is required, and 100uF is recommended.

| Pin Name    | Function | BANK | Configuration Function | Differential Pair | CS30 | QN32 | QN48 | LQ100 | LQ100X <sup>1</sup> | LQ100X <sup>2</sup> | LQ144 |
|-------------|----------|------|------------------------|-------------------|------|------|------|-------|---------------------|---------------------|-------|
| VCCO1       | Power    | N/A  |                        |                   |      |      |      | 63    |                     |                     | 91    |
| VCCO1       | Power    | N/A  |                        |                   |      |      | 36   | 71    |                     |                     | 103   |
| VCCO1/VCCO2 | Power    | N/A  |                        |                   | A1   |      |      |       |                     |                     |       |
| VCCO1/VCCO2 | Power    | N/A  |                        |                   | E1   | 7    |      |       |                     |                     |       |
| VCCO2       | Power    | N/A  |                        |                   |      |      |      |       | 11                  | 11                  |       |
| VCCO2       | Power    | N/A  |                        |                   |      |      |      |       | 23                  | 23                  |       |
| VCCO2       | Power    | N/A  |                        |                   |      |      |      | 26    |                     |                     | 37    |
| VCCO2       | Power    | N/A  |                        |                   |      |      |      | 38    |                     |                     | 55    |
| VCCO2       | Power    | N/A  |                        |                   |      |      | 25   |       |                     |                     |       |
| VCCO3       | Power    | N/A  |                        |                   |      |      |      |       | 80                  | 80                  |       |
| VCCO3       | Power    | N/A  |                        |                   |      |      |      |       | 93                  | 93                  |       |
| VCCO3       | Power    | N/A  |                        |                   |      |      |      | 4     |                     |                     | 5     |
| VCCO3       | Power    | N/A  |                        |                   |      |      |      | 13    |                     |                     | 19    |
| VCCO3       | Power    | N/A  |                        |                   |      | 31   |      | 21    |                     |                     | 31    |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 22                  | 22                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 33                  | 33                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 44                  | 44                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 56                  | 56                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 6                   | 6                   |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 72                  | 72                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 79                  | 79                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       | 92                  | 92                  |       |
| VSS         | Ground   | N/A  |                        |                   |      |      | 2    | 2     |                     |                     | 2     |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       |                     |                     | 17    |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       |                     |                     | 33    |
| VSS         | Ground   | N/A  |                        |                   | E5   | 3    |      | 24    |                     |                     | 35    |
| VSS         | Ground   | N/A  |                        |                   |      |      |      | 37    |                     |                     | 53    |
| VSS         | Ground   | N/A  |                        |                   |      |      | 26   | 52    |                     |                     | 74    |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       |                     |                     | 89    |
| VSS         | Ground   | N/A  |                        |                   |      |      |      |       |                     |                     | 105   |
| VSS         | Ground   | N/A  |                        |                   | A2   |      |      | 74    |                     |                     | 107   |
| VSS         | Ground   | N/A  |                        |                   |      |      |      | 87    |                     |                     | 125   |

| Recommended Operating Conditions for GW1N-1 CS30        |                                                               |                |       |        |
|---------------------------------------------------------|---------------------------------------------------------------|----------------|-------|--------|
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    | LV: Core Power | 1.14V | 1.26V  |
|                                                         |                                                               | UV:Core Power  | 1.71V | 3.465V |
| VCCO0/VCCO3                                             | I/O Bank power, VCCO0 and VCCO3 are internal short-circuited. |                | 1.14V | 3.465V |
| VCCO1/VCCO2                                             | I/O Bank power, VCCO1 and VCCO2 are internal short-circuited. |                | 1.14V | 3.465V |
| Recommended Operating Conditions for GW1N-1 QN32        |                                                               |                |       |        |
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    | LV: Core Power | 1.14V | 1.26V  |
|                                                         |                                                               | UV:Core Power  | 1.71V | 3.465V |
| VCCO0, VCCO3                                            | I/O Bank power                                                |                | 1.14V | 3.465V |
| VCCO1/VCCO2                                             | I/O Bank power, VCCO1 and VCCO2 are internal short-circuited. |                | 1.14V | 3.465V |
| Recommended Operating Conditions for GW1N-1 QN48        |                                                               |                |       |        |
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    | LV: Core Power | 1.14V | 1.26V  |
|                                                         |                                                               | UV:Core Power  | 1.71V | 3.465V |
| VCCO0, VCCO1, VCCO2                                     | I/O Bank power                                                |                | 1.14V | 3.465V |
| Recommended Operating Conditions for GW1N-1 LQ100       |                                                               |                |       |        |
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    | LV: Core Power | 1.14V | 1.26V  |
|                                                         |                                                               | UV:Core Power  | 1.71V | 3.465V |
| VCCO0, VCCO1, VCCO2, VCCO3                              | I/O Bank power                                                |                | 1.14V | 3.465V |
| Recommended Operating Conditions for GW1N-1 LQ100X (LV) |                                                               |                |       |        |
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    |                | 1.14V | 1.26V  |
| VCCO0, VCCO1, VCCO2, VCCO3                              | I/O Bank power                                                |                | 1.14V | 3.465V |
| Recommended Operating Conditions for GW1N-1 LQ100X (UV) |                                                               |                |       |        |
| Name                                                    | Description                                                   |                | Min.  | Max.   |
| VCC                                                     | Core Power                                                    |                | 1.71V | 3.465V |
| VCCO0, VCCO1, VCCO2, VCCO3                              | I/O Bank power                                                |                | 1.14V | 3.465V |

| Recommended Operating Conditions for GW1N-1 LQ144 |                |                |       |        |
|---------------------------------------------------|----------------|----------------|-------|--------|
| Name                                              | Description    |                | Min.  | Max.   |
| VCC                                               | Core Power     | LV: Core Power | 1.14V | 1.26V  |
|                                                   |                | UV:Core Power  | 1.71V | 3.465V |
| VCCO0, VCCO1,<br>VCCO2, VCCO3                     | I/O Bank power |                | 1.14V | 3.465V |