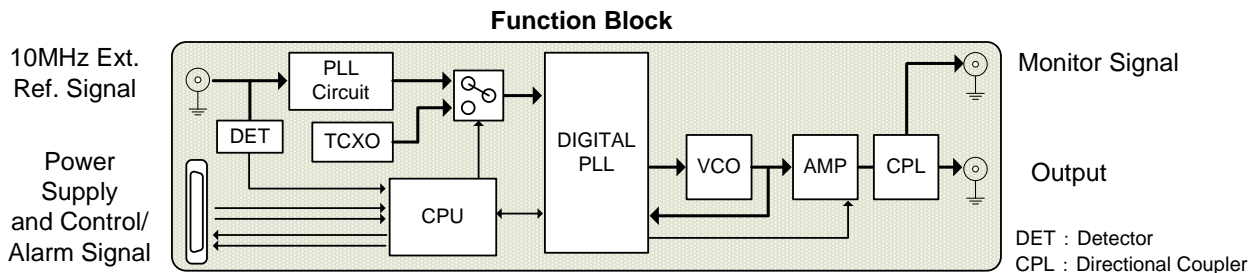


### Features

- \* Best Suited for Local Oscillator of Microwave Equipment with Low Phase Noise and Low Spurious Emission
- \* Programmable Channel Selection by Rotary Switch or Serial Control Signal
- \* Built-in PLL Circuit for Synchronizing to External Reference Signal (TCXO is Active in Case of No External Reference Signal.)



RoHS Compliant  
Directive 2011/65/EU



### Specifications

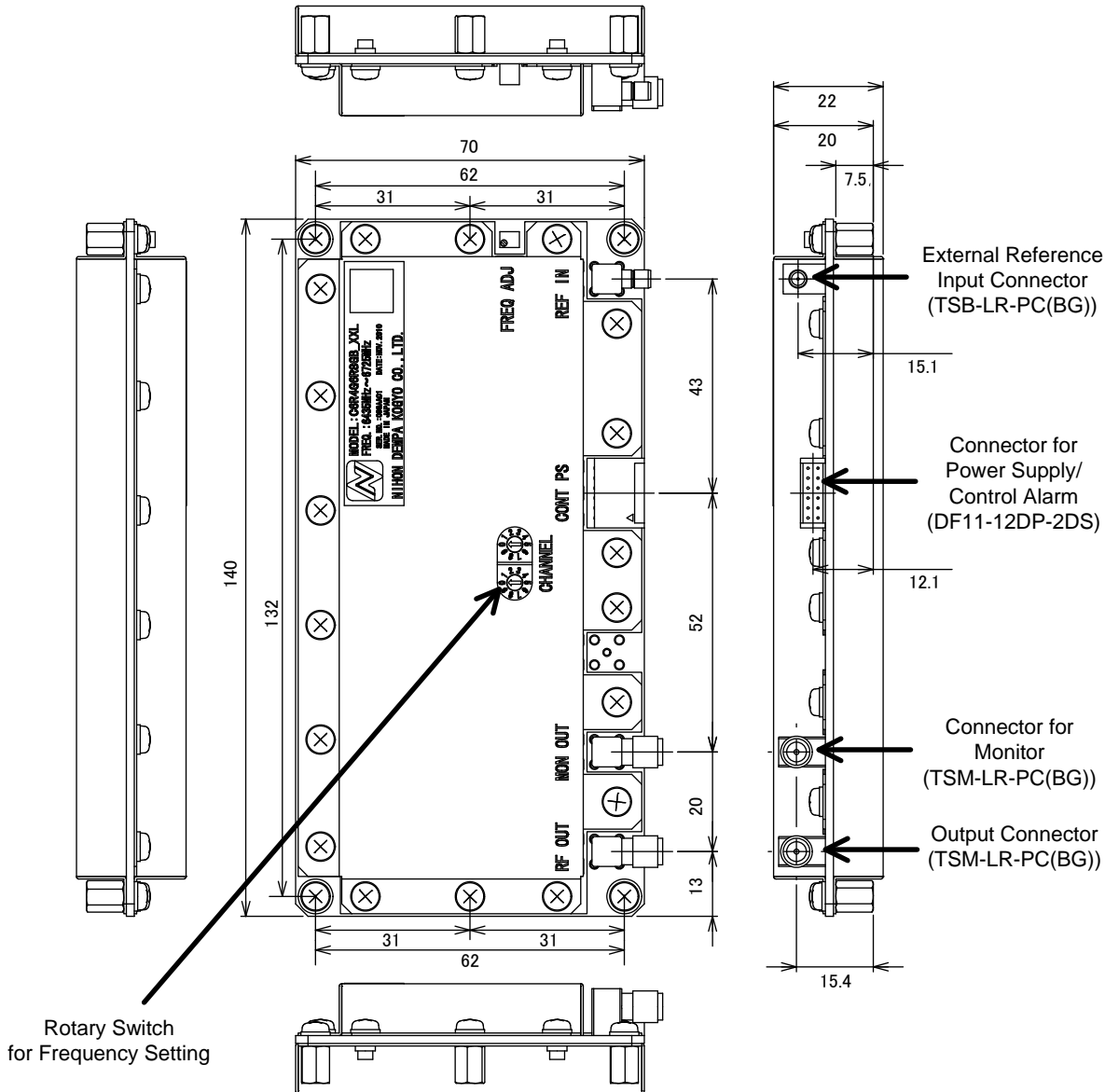
|  |   |
|--|---|
| <b>Frequency Range:</b>                    | <b>6570.50MHz to 6589.75MHz</b>   |
| <b>Frequency Resolution:</b>               | <b>125kHz</b>   |
| <b>Frequency Setting:</b>                  | <b>Rotary Switch or Serial Control Signal</b>   |
| <b>Frequency Stability:</b>                | <b>Depends on External Reference Signal<br/>Within +/- 5ppm / 10 years<br/>(Internal TCXO Stability) ※1</b>   |
| <b>External Reference Frequency Range:</b> | <b>10MHz +/- 100Hz</b>  |
| <b>External Reference Signal Level:</b>    | <b>0dBm -10dB / +3dB</b>  |
| <b>Phase Noise:</b>                        | <b>&lt; -47dBc (Integrated 1kHz to 2MHz)</b>  |
| <b>Output Level:</b>                       | <b>+11dBm +/- 2dB</b>   |
| <b>Monitor Output Level:</b>               | <b>-9dBm +/- 2dB</b>  |
| <b>Lock-up Time:</b>                       | <b>&lt; 500m sec ※2</b>   |
| <b>Spurious (Harmonics):</b>               | <b>&lt; -50dBc</b>  |
| <b>Spurious (Non-harmonics):</b>           | <b>&lt; -75dBc ※3<br/>&lt; -65dBc ※4</b>  |
| <b>Interface:</b>                          | <b>Output: SMA-F Connector<br/>Monitor Signal Output: SMA-F Connector<br/>External Reference Input: SMB-R Connector<br/>Power Suppl/Control Alarm Connector: DF11-12DP-2DS (manufactured by Hirose Electric Co.,LTd.)</b> |
| <b>Power Supply Voltage:</b>               | <b>Vcc = DC+10V +/- 0.5V (Current Consumption &lt; 0.6A)</b>  |
| <b>Operating Temperature:</b>              | <b>0°C to +55°C</b>   |
| <b>Dimensions:</b>                         | <b>Length(140mm) x Width(70mm) x Height(22mm)</b>   |

- ※1 Aging Stability (Temp. Stability from 25°C is less than +/-1 ppm )
- ※2 Frequency Setting by Serial Control
- ※3 In the frequency range +/-125kHz to +/-10MHz from output frequency
- ※4 In the frequency range 10MHz to 18GHz (excluded within +/- 10MHz from output frequency)

- Specifications described in this brochure are subject to change without notice for improvement.
- The above specifications are standard for this NDK product. Custom-made specifications such as frequency and other specifications are also available.

### Dimensions

Unit : mm  
Tolerance : +/- 0.4 mm

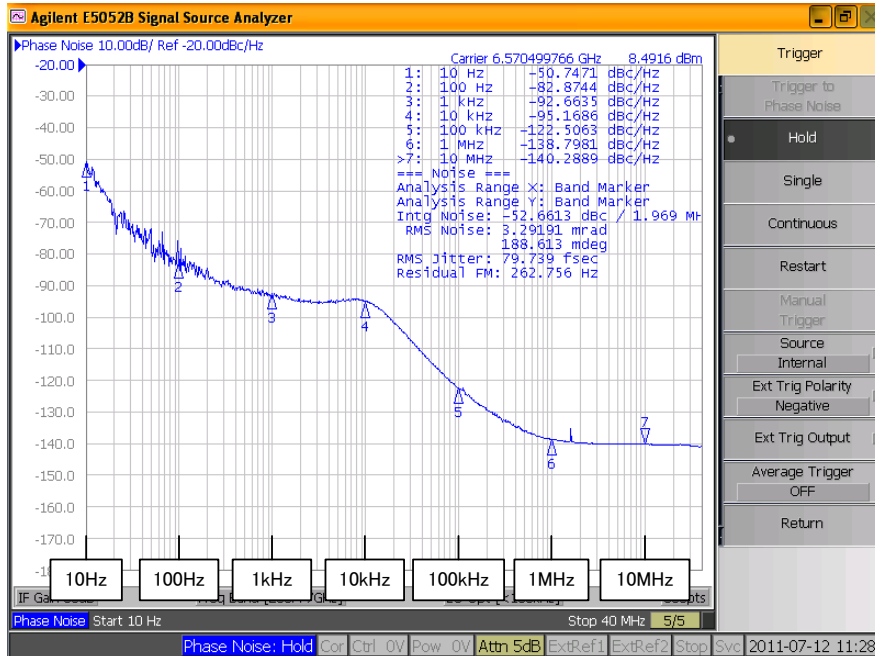


### Pin Assignment (DF11-12DP-2DS)

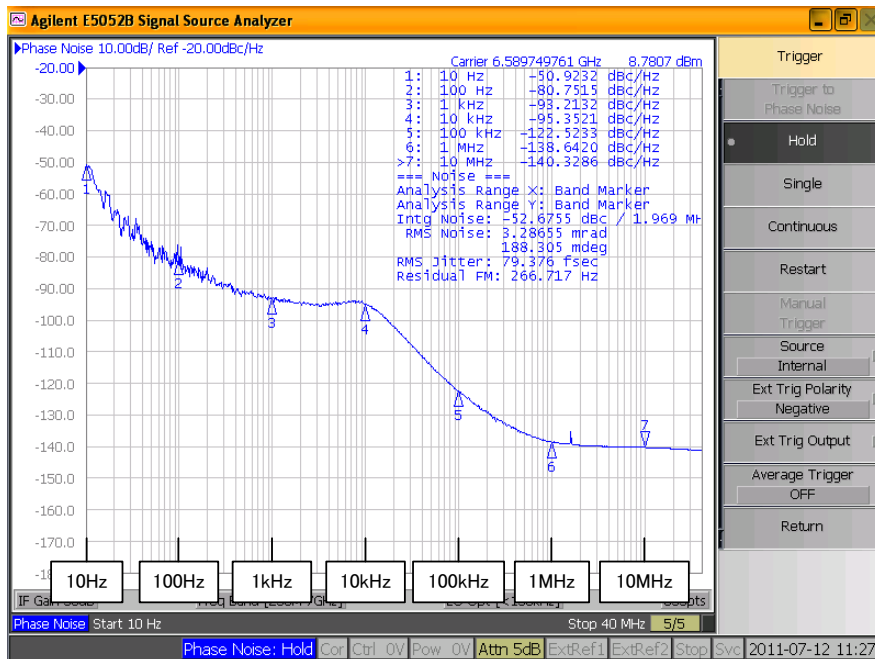
|    |                            |        |     |                     |        |
|----|----------------------------|--------|-----|---------------------|--------|
| #1 | GND                        |        | #7  | TX                  | Output |
| #2 | NC                         |        | #8  | PLL Lock Detection  | Output |
| #3 | GND                        |        | #9  | GND                 |        |
| #4 | Ext. Ref. Signal Detection | Output | #10 | RX                  | Input  |
| #5 | NC                         |        | #11 | Power Supply DC+10V | Input  |
| #6 | NC                         |        | #12 | GND                 |        |

Remarks) Don't connect to NC pin.

### Phase Noise ( $T=+25^{\circ}\text{C}$ )

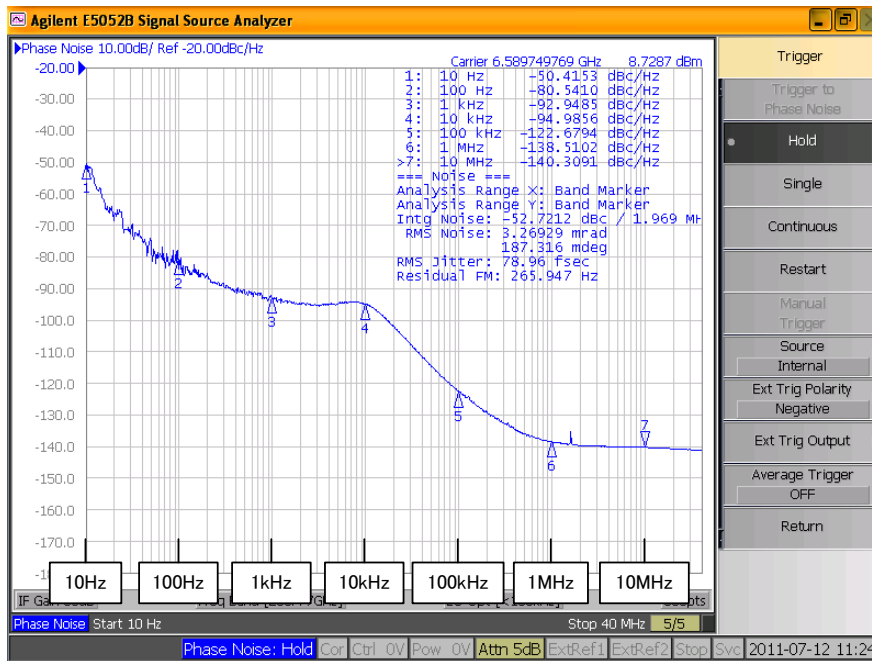


**Output Frequency : 6570.50MHz**



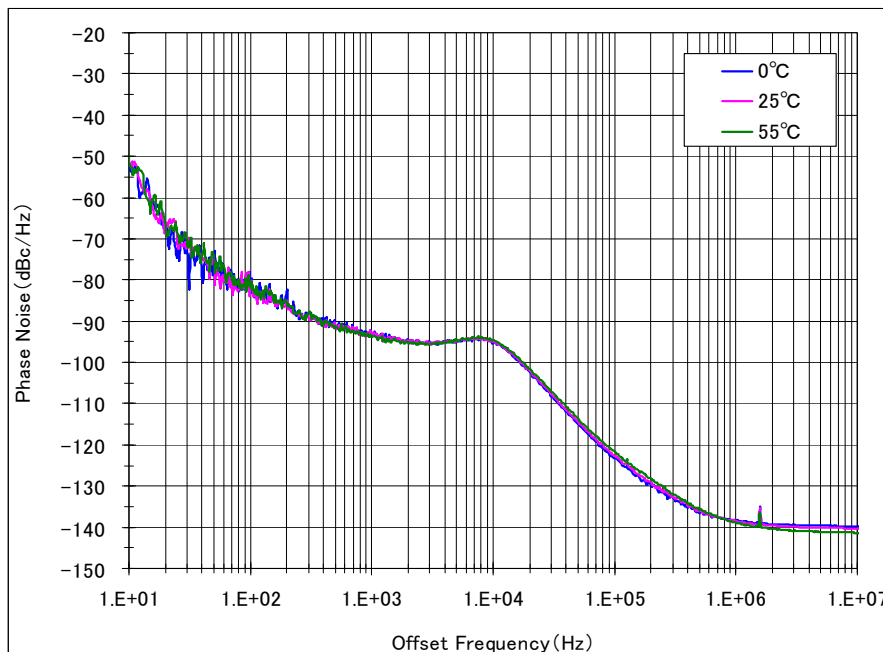
**Output Frequency : 6580.125MHz**

### Phase Noise ( $T=+25^{\circ}\text{C}$ )



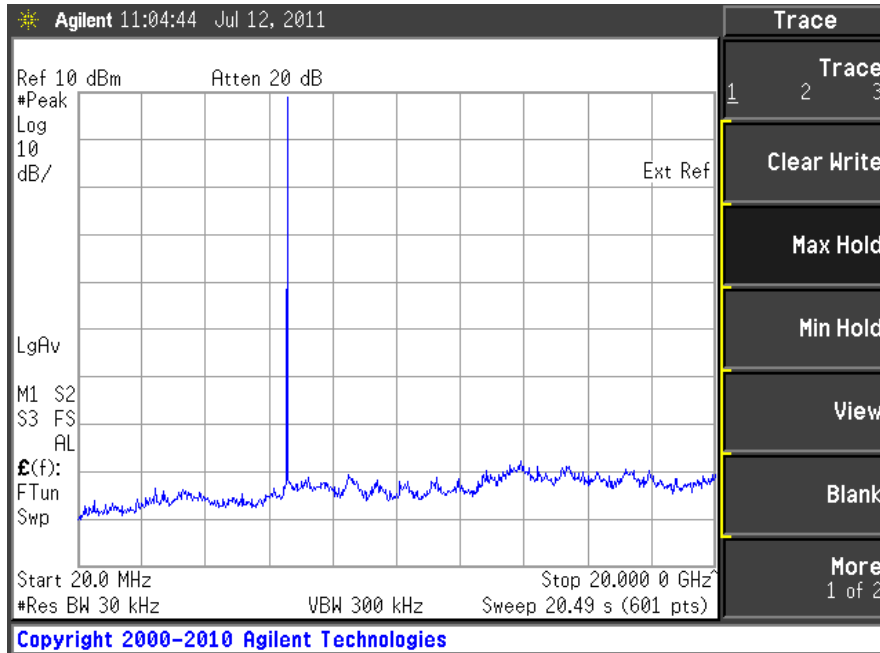
Output Frequency : 6589.750MHz

### Phase Noise

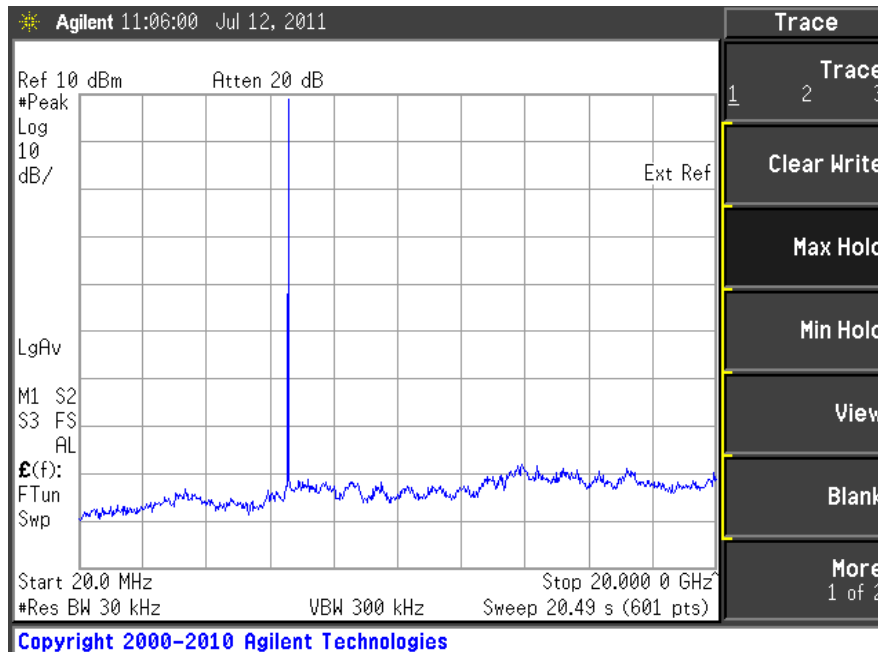


Output Frequency : 6589.750MHz

**Spurious (T=+25°C)**

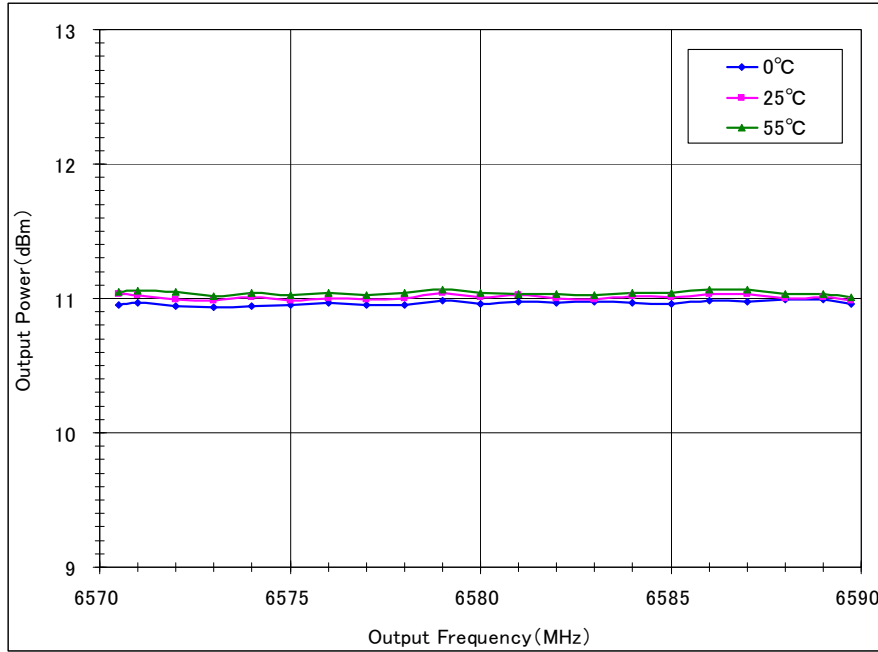


**Output Frequency : 6570.500MHz**



**Output Frequency : 6589.750MHz**

### Output Power



**Channel Number of Rotary Switch VS. Output Frequency**

| Channel No. | Output Freq.(MHz) | Channel No. | Output Freq.(MHz) | Channel No. | Output Freq.(MHz) | Channel No. | Output Freq.(MHz) | Channel No. | Output Freq.(MHz)                |
|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|-------------|----------------------------------|
| 00          | 6,570.500         | 34          | 6,577.000         | 68          | 6,583.500         | 9C          |                   | D0          |                                  |
| 01          | 6,570.625         | 35          | 6,577.125         | 69          | 6,583.625         | 9D          |                   | D1          |                                  |
| 02          | 6,570.750         | 36          | 6,577.250         | 6A          | 6,583.750         | 9E          |                   | D2          |                                  |
| 03          | 6,570.875         | 37          | 6,577.375         | 6B          | 6,583.875         | 9F          |                   | D3          |                                  |
| 04          | 6,571.000         | 38          | 6,577.500         | 6C          | 6,584.000         | A0          |                   | D4          |                                  |
| 05          | 6,571.125         | 39          | 6,577.625         | 6D          | 6,584.125         | A1          |                   | D5          |                                  |
| 06          | 6,571.250         | 3A          | 6,577.750         | 6E          | 6,584.250         | A2          |                   | D6          |                                  |
| 07          | 6,571.375         | 3B          | 6,577.875         | 6F          | 6,584.375         | A3          |                   | D7          |                                  |
| 08          | 6,571.500         | 3C          | 6,578.000         | 70          | 6,584.500         | A4          |                   | D8          |                                  |
| 09          | 6,571.625         | 3D          | 6,578.125         | 71          | 6,584.625         | A5          |                   | D9          |                                  |
| 0A          | 6,571.750         | 3E          | 6,578.250         | 72          | 6,584.750         | A6          |                   | DA          |                                  |
| 0B          | 6,571.875         | 3F          | 6,578.375         | 73          | 6,584.875         | A7          |                   | DB          |                                  |
| 0C          | 6,572.000         | 40          | 6,578.500         | 74          | 6,585.000         | A8          |                   | DC          |                                  |
| 0D          | 6,572.125         | 41          | 6,578.625         | 75          | 6,585.125         | A9          |                   | DD          |                                  |
| 0E          | 6,572.250         | 42          | 6,578.750         | 76          | 6,585.250         | AA          |                   | DE          |                                  |
| 0F          | 6,572.375         | 43          | 6,578.875         | 77          | 6,585.375         | AB          |                   | DF          |                                  |
| 10          | 6,572.500         | 44          | 6,579.000         | 78          | 6,585.500         | AC          |                   | E0          |                                  |
| 11          | 6,572.625         | 45          | 6,579.125         | 79          | 6,585.625         | AD          |                   | E1          |                                  |
| 12          | 6,572.750         | 46          | 6,579.250         | 7A          | 6,585.750         | AE          |                   | E2          |                                  |
| 13          | 6,572.875         | 47          | 6,579.375         | 7B          | 6,585.875         | AF          |                   | E3          |                                  |
| 14          | 6,573.000         | 48          | 6,579.500         | 7C          | 6,586.000         | B0          |                   | E4          |                                  |
| 15          | 6,573.125         | 49          | 6,579.625         | 7D          | 6,586.125         | B1          |                   | E5          |                                  |
| 16          | 6,573.250         | 4A          | 6,579.750         | 7E          | 6,586.250         | B2          |                   | E6          |                                  |
| 17          | 6,573.375         | 4B          | 6,579.875         | 7F          | 6,586.375         | B3          |                   | E7          | 6570.500                         |
| 18          | 6,573.500         | 4C          | 6,580.000         | 80          | 6,586.500         | B4          |                   | E8          |                                  |
| 19          | 6,573.625         | 4D          | 6,580.125         | 81          | 6,586.625         | B5          | 6570.500          | E9          |                                  |
| 1A          | 6,573.750         | 4E          | 6,580.250         | 82          | 6,586.750         | B6          |                   | EA          |                                  |
| 1B          | 6,573.875         | 4F          | 6,580.375         | 83          | 6,586.875         | B7          |                   | EB          |                                  |
| 1C          | 6,574.000         | 50          | 6,580.500         | 84          | 6,587.000         | B8          |                   | EC          |                                  |
| 1D          | 6,574.125         | 51          | 6,580.625         | 85          | 6,587.125         | B9          |                   | ED          |                                  |
| 1E          | 6,574.250         | 52          | 6,580.750         | 86          | 6,587.250         | BA          |                   | EE          |                                  |
| 1F          | 6,574.375         | 53          | 6,580.875         | 87          | 6,587.375         | BB          |                   | EF          |                                  |
| 20          | 6,574.500         | 54          | 6,581.000         | 88          | 6,587.500         | BC          |                   | F0          |                                  |
| 21          | 6,574.625         | 55          | 6,581.125         | 89          | 6,587.625         | BD          |                   | F1          |                                  |
| 22          | 6,574.750         | 56          | 6,581.250         | 8A          | 6,587.750         | BE          |                   | F2          |                                  |
| 23          | 6,574.875         | 57          | 6,581.375         | 8B          | 6,587.875         | BF          |                   | F3          |                                  |
| 24          | 6,575.000         | 58          | 6,581.500         | 8C          | 6,588.000         | C0          |                   | F4          |                                  |
| 25          | 6,575.125         | 59          | 6,581.625         | 8D          | 6,588.125         | C1          |                   | F5          |                                  |
| 26          | 6,575.250         | 5A          | 6,581.750         | 8E          | 6,588.250         | C2          |                   | F6          |                                  |
| 27          | 6,575.375         | 5B          | 6,581.875         | 8F          | 6,588.375         | C3          |                   | F7          |                                  |
| 28          | 6,575.500         | 5C          | 6,582.000         | 90          | 6,588.500         | C4          |                   | F8          |                                  |
| 29          | 6,575.625         | 5D          | 6,582.125         | 91          | 6,588.625         | C5          |                   | F9          |                                  |
| 2A          | 6,575.750         | 5E          | 6,582.250         | 92          | 6,588.750         | C6          |                   | FA          |                                  |
| 2B          | 6,575.875         | 5F          | 6,582.375         | 93          | 6,588.875         | C7          |                   | FB          |                                  |
| 2C          | 6,576.000         | 60          | 6,582.500         | 94          | 6,589.000         | C8          |                   | FC          |                                  |
| 2D          | 6,576.125         | 61          | 6,582.625         | 95          | 6,589.125         | C9          |                   | FD          |                                  |
| 2E          | 6,576.250         | 62          | 6,582.750         | 96          | 6,589.250         | CA          |                   | FE          |                                  |
| 2F          | 6,576.375         | 63          | 6,582.875         | 97          | 6,589.375         | CB          |                   |             |                                  |
| 30          | 6,576.500         | 64          | 6,583.000         | 98          | 6,589.500         | CC          |                   |             |                                  |
| 31          | 6,576.625         | 65          | 6,583.125         | 99          | 6,589.625         | CD          |                   | FF          | "FF" Enables Serial Control Mode |
| 32          | 6,576.750         | 66          | 6,583.250         | 9A          | 6,589.750         | CE          |                   |             |                                  |
| 33          | 6,576.875         | 67          | 6,583.375         | 9B          | 6,570.500         | CF          |                   |             |                                  |

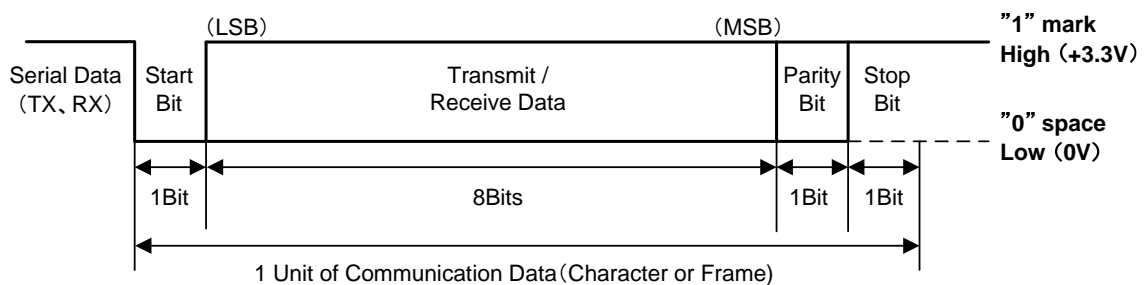
## Serial Signal Communication for Channel Selection

Only the Rotary Switch set to “FF” enables Serial Signal Communication for Channel Selection through Tx and Rx port.

### ① Specification of Serial Communication

|                 |            |
|-----------------|------------|
| Data Rate       | 38,400 bps |
| Data Bit Length | 8 bits     |
| Stop Bit        | 1 bit      |
| Parity Bit      | Odd        |
| Flow Control    | N/A        |
| Data Transfer   | LSB First  |

### ② Data Format



### ③ Electric Characteristics

| Item                                  | min. | typ. | max.  | Remarks   |
|---------------------------------------|------|------|-------|-----------|
| TX Output<br>High Level Voltage : Voh | 2.0V |      | 3.3V  | Ioh=800uA |
| TX Output<br>Low Level Voltage : Vol  | 0.0V |      | 0.8V  | Iol=6mA   |
| RX Input<br>High Level Voltage : Vih  | 2.0V |      | 3.3V  |           |
| RX Input<br>Low Level Voltage : Vil   | 0.0V |      | 0.6V  |           |
| RX Input<br>Input Current : Iih / Iil |      |      | ±50uA |           |