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## 60G Antenna Spec.

### 1.4 BGT60TR13C Pin Definition and Function

The following Figure 3 shows the bottom view of BGT60TR13C laminate package with the pin and antenna number assignment.

The function of each pin is described in Table 1 (See also Table 3 and Table 4).

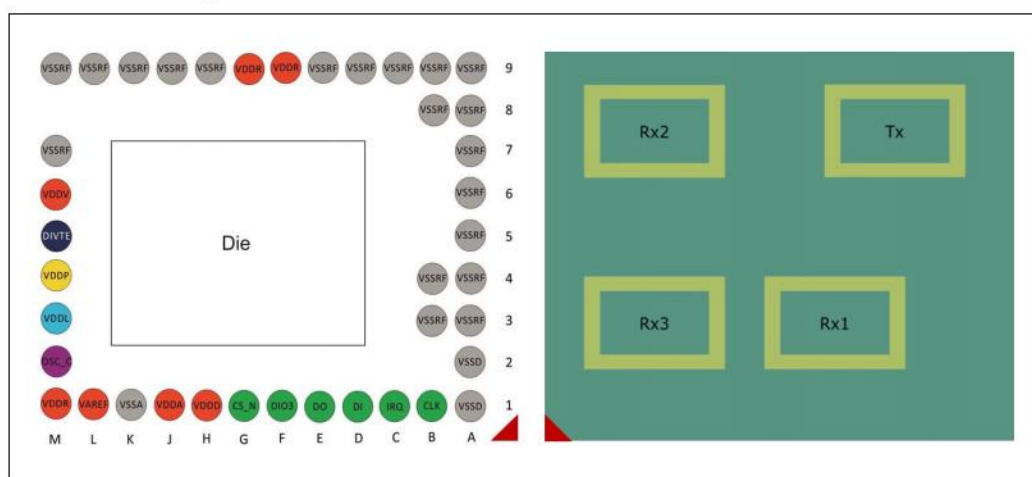


Figure 3 BGT60TR13C pin and antenna numbers assignment: bottom view left, top view right

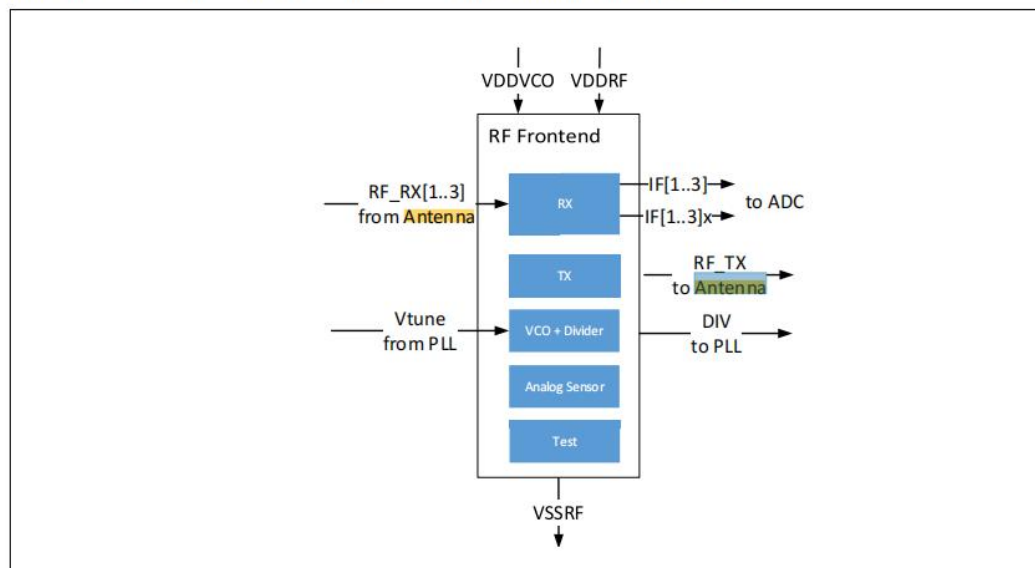
Table 1 Ball and Antenna Definition

| Ball   | Function |
|--------|----------|
| A1, A2 | VSSD     |
| B1     | CLK      |
| C1     | IRQ      |
| D1     | DI       |
| E1     | DO       |
| F1     | DIO3     |
| G1     | CS_N     |

**Table 1      Ball and Antenna Definition**

| Ball                                                                           | Function     |
|--------------------------------------------------------------------------------|--------------|
| H1                                                                             | VDDD         |
| J1                                                                             | VDDA         |
| K1                                                                             | VSSA         |
| L1                                                                             | VAREF        |
| M1, F9, G9                                                                     | VDDRF        |
| M2                                                                             | OSC_CLK      |
| M3                                                                             | VDDL         |
| M4                                                                             | VDDPLL       |
| M5                                                                             | DIV_TEST     |
| M6                                                                             | VDDVCO       |
| M7, M9, L9, K9, J9, H9, E9, D9, C9, B9, B8, A9, A8, A7, A6, A5, B4, A4, B3, A3 | VSSRF        |
| Antenna                                                                        | Function     |
| Tx1                                                                            | Transmitter  |
| Rx1                                                                            | Receiver ch1 |
| Rx2                                                                            | Receiver ch2 |
| Rx3                                                                            | Receiver ch3 |

In the RF frontend, all features to enable the radar functionality are implemented.



**Figure 63      Simplified block diagram of BGT60TR13C transceiver frontend**

12.1 Built-in Antenna Specifications

Table 71 Antennas In Package Specifications

| Spec         | Unit | Value |     |      | Condition                                                             |
|--------------|------|-------|-----|------|-----------------------------------------------------------------------|
| Parameter    |      | Min   | Typ | Max  |                                                                       |
| RX_BW, TX_BW | GHz  | 58.0  |     | 63.2 | Antenna bandwidth                                                     |
| GTX          | dBi  | 2.0   | 3.5 | 5.0  | Antenna gain of a single TX antenna                                   |
| GRX          | dBi  | 2.0   | 3.5 | 5.0  | Antenna gain of a single RX antenna                                   |
| HPBW_RX_E    | Deg  | 50    | 65  | 80   | Half-power beam width of a single RX antenna in the E-plane direction |

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| Spec      | Unit        | Value |     |     | Condition                                                              |
|-----------|-------------|-------|-----|-----|------------------------------------------------------------------------|
| Parameter |             | Min   | Typ | Max |                                                                        |
| HPBW_RX_H | Deg         | 20    | 35  | 50  | Half-power beam width of a single RX antenna in the H-plane direction. |
| HPBW_TX_E | Deg         | 50    | 65  | 80  | Half-power beam width of a single TX antenna in the E-plane direction  |
| HPBW_TX_H | Deg         | 25    | 40  | 55  | Half-power beam width of a single TX antenna in the H-plane direction  |
| D_Rx_RX   | $\lambda_0$ |       | 0.5 |     | Distance between RX antennas at 60 GHz                                 |