



## Contents

|                                           |           |
|-------------------------------------------|-----------|
| <b>1. Pin Information .....</b>           | <b>4</b>  |
| 1.1 Pin Assignments .....                 | 4         |
| 1.2 Pin Descriptions.....                 | 4         |
| <b>2. Specifications .....</b>            | <b>5</b>  |
| 2.1 Absolute Maximum Ratings .....        | 5         |
| 2.2 Recommended Operating Conditions..... | 6         |
| 2.3 Thermal Information.....              | 7         |
| 2.4 Electrical Specifications.....        | 8         |
| <b>3. Control Mode .....</b>              | <b>10</b> |
| <b>4. Typical Performance Graphs.....</b> | <b>10</b> |
| <b>5. Application Information .....</b>   | <b>14</b> |
| 5.1 Default Start-up .....                | 14        |
| 5.2 Logic Control .....                   | 14        |
| 5.3 Power Supplies.....                   | 14        |
| 5.4 Control Pin Interface.....            | 14        |
| <b>6. Evaluation Board .....</b>          | <b>15</b> |
| 6.1 Board Images .....                    | 15        |
| 6.2 Setup and Configuration.....          | 16        |
| 6.2.1. External Supply Setup.....         | 16        |
| 6.2.2. Logic Control Setup.....           | 16        |
| 6.2.3. Turn On Procedure.....             | 16        |
| 6.2.4. Turn Off Procedure.....            | 16        |
| 6.3 Application Circuit.....              | 17        |
| 6.4 Bill of Materials .....               | 17        |
| <b>7. Package Outline Drawings.....</b>   | <b>18</b> |
| <b>8. Ordering Information.....</b>       | <b>18</b> |
| <b>9. Revision History .....</b>          | <b>18</b> |

## Figures

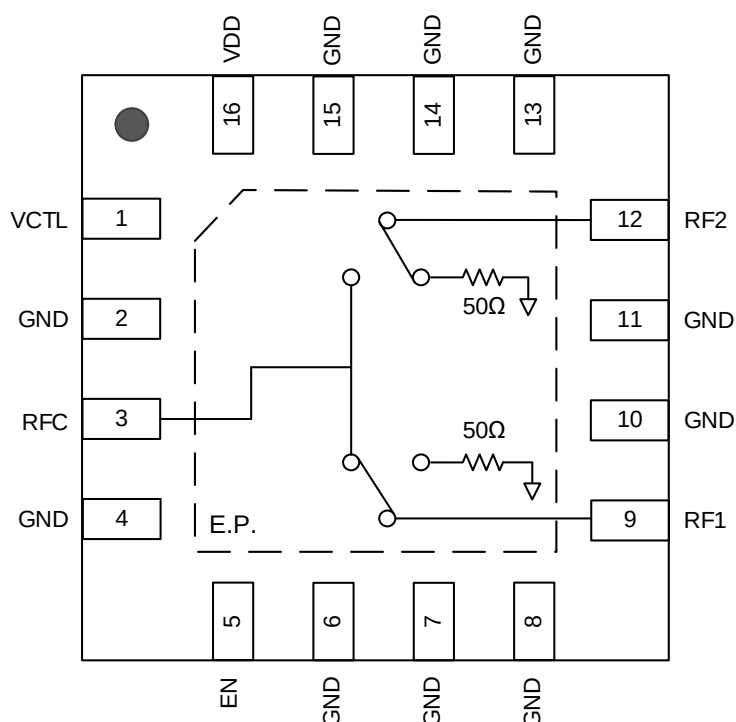
|                                                               |    |
|---------------------------------------------------------------|----|
| Figure 1. Block Diagram .....                                 | 1  |
| Figure 2. Maximum RF Input Operating Power vs. Frequency..... | 7  |
| Figure 3. RF1 - RFC Insertion Loss.....                       | 11 |
| Figure 4. RF2 - RFC Insertion Loss.....                       | 11 |
| Figure 5. RF1 Return Loss .....                               | 11 |
| Figure 6. RF2 Return Loss .....                               | 11 |
| Figure 7. RFC Return Loss.....                                | 11 |
| Figure 8. RF1 to RF2 Isolation .....                          | 11 |
| Figure 9. RF1 to RFC Isolation.....                           | 12 |
| Figure 10. RF2 to RFC Isolation .....                         | 12 |
| Figure 11. Input IP3.....                                     | 12 |
| Figure 12. P0.1dB Compression (50MHz).....                    | 12 |
| Figure 13. P0.1dB Compression (2GHz).....                     | 12 |
| Figure 14. P0.1dB Compression (3GHz).....                     | 12 |
| Figure 15. P0.1dB Compression (4GHz).....                     | 13 |
| Figure 16. T <sub>ON</sub> Switching Time .....               | 13 |
| Figure 17. T <sub>OFF</sub> Switching Time .....              | 13 |
| Figure 18. Typical Application Circuit .....                  | 14 |
| Figure 19. Evaluation Board – Top View .....                  | 15 |
| Figure 20. Evaluation Board – Bottom View .....               | 15 |

## Tables

|                                           |    |
|-------------------------------------------|----|
| Table 1. Pin Descriptions.....            | 4  |
| Table 2. Switch Control Truth Table ..... | 10 |
| Table 3. Bill of Materials (BOM).....     | 17 |

# 1. Pin Information

## 1.1 Pin Assignments



## 1.2 Pin Descriptions

Table 1. Pin Descriptions

| Pin Number                        | Pin Name | Description                                                                                                                                                                                                                                                                    |
|-----------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                 | VCTL     | Controls the selected path when EN is low. It is disabled when EN is logic high (see Table 2).                                                                                                                                                                                 |
| 2, 4, 6, 7, 8, 10, 11, 13, 14, 15 | GND      | Ground. Also, internally connected to the ground paddle. Ground this pin as close to the device as possible.                                                                                                                                                                   |
| 3                                 | RFC      | RF Common Port. Matched to 50Ω when one of the two RF ports is selected. If this pin is not 0V DC then an external coupling capacitor must be used.                                                                                                                            |
| 5                                 | EN       | EN as a logic low allows VCTL to control the selected switch path. With EN set to logic high puts the part in all paths off state and disables the control of VCTL (Table 2).                                                                                                  |
| 9                                 | RF1      | RF1 Port. Matched to 50Ω. If this pin is not 0V DC, then an external coupling capacitor must be used.                                                                                                                                                                          |
| 12                                | RF2      | RF2 Port. Matched to 50Ω. If this pin is not 0V DC, then an external coupling capacitor must be used.                                                                                                                                                                          |
| 16                                | VDD      | Power Supply. Bypass to GND with capacitors shown in the Typical Application Circuit as close as possible to pin.                                                                                                                                                              |
|                                   | EP       | Exposed Pad. Internally connected to GND. Solder this exposed pad to a PCB pad that uses multiple ground vias to provide heat transfer out of the device and into the PCB ground planes. These multiple ground vias are also required to achieve the specified RF performance. |

## 2. Specifications

### 2.1 Absolute Maximum Ratings

The absolute maximum ratings are stress ratings only. Stresses greater than those listed below can cause permanent damage to the device. Functional operation of the F2934 at absolute maximum ratings is not implied. Exposure to absolute maximum rating conditions may affect device reliability.

| Parameter                           |                                              | Symbol                 | Minimum | Maximum           | Unit |
|-------------------------------------|----------------------------------------------|------------------------|---------|-------------------|------|
| VDD to GND                          |                                              | V <sub>DD</sub>        | -0.3    | +5.5              | V    |
| VCTL, EN to GND                     |                                              | V <sub>logic</sub>     | -0.3    | 3.6               | V    |
| RF1, RF2, RFC to GND                |                                              | V <sub>RF</sub>        | -0.3    | +0.3              | V    |
| RF Input Power <sup>[1]</sup>       | RF1 or RF2 as an input<br>(Connected to RFC) | P <sub>RF12</sub>      | -       | 36 <sup>[2]</sup> | dBm  |
|                                     | RFC as an input<br>(Connected to RF1 or RF2) | P <sub>RF12</sub>      | -       | 36                |      |
|                                     | RFC as an input<br>(All off state)           | P <sub>RF12_OFF</sub>  | -       | 30                |      |
|                                     | RF1 or RF2 as input<br>(Terminated states)   | P <sub>RF12_TERM</sub> | -       | 30 <sup>[2]</sup> |      |
|                                     | RF1 and RF2 as inputs<br>(All off state)     | P <sub>RF12_OFF</sub>  | -       | 30 <sup>[2]</sup> |      |
| Maximum Junction Temperature        |                                              | T <sub>Jmax</sub>      |         | +125              | °C   |
| Storage Temperature Range           |                                              | T <sub>ST</sub>        | -65     | +150              | °C   |
| Lead Temperature (soldering, 10s)   |                                              | T <sub>LEAD</sub>      | -       | +260              | °C   |
| ESD Voltage – HBM (Per JESD22-A114) |                                              | V <sub>ESDHBM</sub>    | -       | 1000              | V    |
| ESD Voltage – CDM (Per JESD22-C101) |                                              | V <sub>ESDCDM</sub>    | -       | 500               | V    |

1. VDD = 2.7V to 5.25V, 250MHz ≤ FRF ≤ 6000MHz, T<sub>c</sub> = 105°C, Z<sub>S</sub> = Z<sub>L</sub> = 50Ω.
2. Each port.

## 2.2 Recommended Operating Conditions

| Parameter                                                      | Symbol     | Conditions                                                                    |                             | Minimum | Typical | Maximum | Unit     |
|----------------------------------------------------------------|------------|-------------------------------------------------------------------------------|-----------------------------|---------|---------|---------|----------|
| Supply Voltage                                                 | $V_{DD}$   | -                                                                             |                             | 2.7     | -       | 5.25    | V        |
| Operating Temperature Range                                    | $T_{CASE}$ | Exposed Paddle Temperature                                                    |                             | -40     | -       | +105    | °C       |
| RF Frequency Range                                             | $F_{RF}$   | -                                                                             |                             | 50      | -       | 6000    | MHz      |
| RF Continuous Input CW Power (Non-Switched)                    | $P_{RF}$   | RFC connected to RF1 or RF2 <sup>[2]</sup>                                    | $T_C = 85^{\circ}\text{C}$  | -       | -       | 34      | dBm      |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 34      |          |
|                                                                |            | RF1/ RF2 Input, Terminated State <sup>[3][4]</sup>                            | $T_C = 85^{\circ}\text{C}$  | -       | -       | 27      |          |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 27      |          |
|                                                                |            | RFC Input, All off State                                                      | $T_C = 85^{\circ}\text{C}$  | -       | -       | 27      |          |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 27      |          |
| RF Continuous Input Power (RF Hot Switching CW) <sup>[1]</sup> | $P_{RFSW}$ | RFC Input, switching between RF1 and RF2.                                     | $T_C = 85^{\circ}\text{C}$  | -       | -       | 30      | dBm      |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 30      |          |
|                                                                |            | RFC Input, switching into or out of, All off State.                           | $T_C = 85^{\circ}\text{C}$  | -       | -       | 27      |          |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 27      |          |
|                                                                |            | RF1 or RF2 as input, switched between RFC and Term.                           | $T_C = 85^{\circ}\text{C}$  | -       | -       | 27      |          |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 27      |          |
|                                                                |            | RF1 and RF2 as inputs, switching into or out of All off State. <sup>[4]</sup> | $T_C = 85^{\circ}\text{C}$  | -       | -       | 27      |          |
|                                                                |            |                                                                               | $T_C = 105^{\circ}\text{C}$ | -       | -       | 27      |          |
| RF1/2 Port Impedance                                           | $Z_{RFx}$  | -                                                                             |                             | -       | 50      | -       | $\Omega$ |
| RFC Port Impedance                                             | $Z_{RFC}$  | -                                                                             |                             | -       | 50      | -       | $\Omega$ |

1. Levels based on:  $V_{DD} = 3.1\text{V to } 5.25\text{V}$ ,  $250\text{MHz} \leq F_{RF} \leq 6000\text{MHz}$ ,  $Z_S = Z_L = 50\Omega$ . See Figure 2 for power handling derating vs. RF frequency.
2. Input could be RFC, RF1, or RF2 (applied to only one input).
3. Any RF1 / RF2 termination state. Power level specified is for each port.
4. Power level specified is for each port.

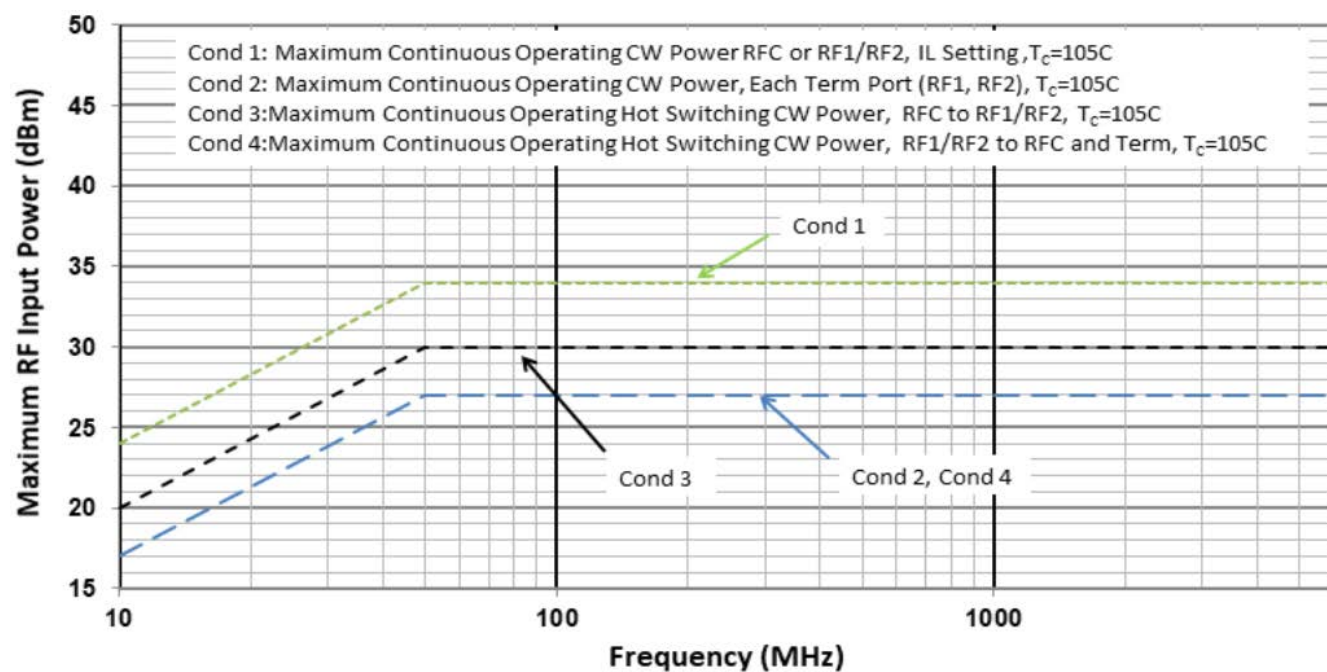


Figure 2. Maximum RF Input Operating Power vs. Frequency

## 2.3 Thermal Information

| Symbol        | Parameter                                                              | Value | Units         |
|---------------|------------------------------------------------------------------------|-------|---------------|
| $\Theta_{JA}$ | Theta JA. Junction to ambient.                                         | 46.3  | $^{\circ}C/W$ |
| $\Theta_{JC}$ | Theta JC. Junction to case. The case is defined as the exposed paddle. | 1.5   | $^{\circ}C/W$ |
| MSL           | Moisture Sensitivity Rating (Per J-STD-020)                            | MSL1  | -             |

## 2.4 Electrical Specifications

Typical Application Circuit,  $V_{DD} = 5.0V$ ,  $T_C = +25^\circ C$ ,  $F_{RF} = 2000MHz$ , Driven Port = RF1, RF2, input power = 10dBm,  $Z_S = Z_L = 50\Omega$ , PCB board trace and connector losses are de-embedded unless otherwise noted.

| Parameter                          | Symbol           | Test Conditions      | Min               | Typ | Max                       | Unit    |
|------------------------------------|------------------|----------------------|-------------------|-----|---------------------------|---------|
| Logic Input High Threshold         | $V_{IH}$         | -                    | <b>1.1</b>        | -   | <b>3.6</b>                | V       |
| Logic Input Low Threshold          | $V_{IL}$         | -                    | -0.3              | -   | <b>0.6</b>                | V       |
| Logic Current                      | $I_{IH}, I_{IL}$ | For each control pin | <b>-1</b>         | -   | <b>+1</b>                 | $\mu A$ |
| DC Current                         | $I_{DD}$         | $V_{DD} = 3.3 V$     | -                 | 205 | <b>400</b> <sup>[1]</sup> | $\mu A$ |
|                                    |                  | $V_{DD} = 5.0 V$     | -                 | 250 | <b>450</b>                |         |
| Insertion Loss<br>RFC to RF1 / RF2 | $I_L$            | 50MHz                | -                 | 0.7 | -                         | dB      |
|                                    |                  | 1GHz                 | -                 | 0.8 | -                         |         |
|                                    |                  | 2GHz                 | -                 | 0.8 | 1                         |         |
|                                    |                  | 3GHz                 | -                 | 0.9 | -                         |         |
|                                    |                  | 4GHz                 | -                 | 0.9 | -                         |         |
|                                    |                  | 6GHz                 | -                 | 1.1 | -                         |         |
| Isolation<br>RFC to RF1 / RF2      | ISOCS            | 50MHz                | 74 <sup>[2]</sup> | 79  | -                         | dB      |
|                                    |                  | 1GHz                 | 71                | 74  | -                         |         |
|                                    |                  | 2GHz                 | 69                | 73  | -                         |         |
|                                    |                  | 3GHz                 | 65                | 70  | -                         |         |
|                                    |                  | 4GHz                 | 60                | 66  | -                         |         |
|                                    |                  | 6GHz                 | 50                | 53  | -                         |         |
| Isolation<br>RF1 to RF2            | ISOX             | 50MHz                | -                 | 86  | -                         | dB      |
|                                    |                  | 1GHz                 | -                 | 62  | -                         |         |
|                                    |                  | 2GHz                 | -                 | 57  | -                         |         |
|                                    |                  | 3GHz                 | -                 | 53  | -                         |         |
|                                    |                  | 4GHz                 | -                 | 50  | -                         |         |
|                                    |                  | 6GHz                 | -                 | 46  | -                         |         |



| Parameter                          | Symbol               | Test Conditions                                                       |        | Min | Typ  | Max | Unit |
|------------------------------------|----------------------|-----------------------------------------------------------------------|--------|-----|------|-----|------|
| Return Loss<br>RFC, RF1, RF2       | RF <sub>RL</sub>     | 50MHz                                                                 |        | -   | 25   | -   | dB   |
|                                    |                      | 1GHz                                                                  |        | -   | 28   | -   |      |
|                                    |                      | 2GHz                                                                  |        | -   | 26   | -   |      |
|                                    |                      | 3GHz                                                                  |        | -   | 22   | -   |      |
|                                    |                      | 4GHz                                                                  |        | -   | 18   | -   |      |
|                                    |                      | 6GHz                                                                  |        | -   | 21   | -   |      |
| Return Loss<br>RF1, RF2 terminated | RFT <sub>RL</sub>    | 50MHz                                                                 |        | -   | 25   | -   | dB   |
|                                    |                      | 1GHz                                                                  |        | -   | 26   | -   |      |
|                                    |                      | 2GHz                                                                  |        | -   | 28   | -   |      |
|                                    |                      | 3GHz                                                                  |        | -   | 22   | -   |      |
|                                    |                      | 4GHz                                                                  |        | -   | 18   | -   |      |
|                                    |                      | 6GHz                                                                  |        | -   | 19   | -   |      |
| Input 1dB Compression              | ICP <sub>1dB</sub>   | 50MHz                                                                 |        | -   | 33   | -   | dBm  |
|                                    |                      | 1GHz                                                                  |        | -   | 35   | -   |      |
|                                    |                      | 2GHz                                                                  |        | -   | 36   | -   |      |
|                                    |                      | 3GHz                                                                  |        | -   | 36   | -   |      |
|                                    |                      | 4GHz                                                                  |        | -   | 35   | -   |      |
| Input 0.1dB Compression [3]        | ICP <sub>0.1dB</sub> | V <sub>DD</sub> = 5.0 V                                               | 50MHz  | -   | 34   | -   | dBm  |
|                                    |                      |                                                                       | 2GHz   | -   | 33.5 | -   |      |
|                                    |                      |                                                                       | 3GHz   | -   | 33.5 | -   |      |
|                                    |                      |                                                                       | 4GHz   | -   | 33.5 | -   |      |
|                                    |                      | V <sub>DD</sub> = 3.1 V                                               | 50MHz  | -   | 33.5 | -   |      |
|                                    |                      |                                                                       | 2GHz   | -   | 34   | -   |      |
|                                    |                      |                                                                       | 3GHz   | -   | 34   | -   |      |
|                                    |                      |                                                                       | 4GHz   | -   | 33   | -   |      |
| Input IP3                          | IIP3                 | RF Input = RF1 or RF2<br>P <sub>IN</sub> = +15 dBm/tone<br>Δ F = 1MHz | 50MHz  | -   | 62   | -   | dBm  |
|                                    |                      |                                                                       | 1GHz   | -   | 61   | -   |      |
|                                    |                      |                                                                       | 2GHz   | -   | 62   | -   |      |
|                                    |                      |                                                                       | 2.5GHz | -   | 62.5 | -   |      |
|                                    |                      |                                                                       | 4GHz   | -   | 61.5 | -   |      |

| Parameter                             | Symbol              | Test Conditions                                                | Min | Typ  | Max | Unit |
|---------------------------------------|---------------------|----------------------------------------------------------------|-----|------|-----|------|
| Non-RF Driven Spurious <sup>[4]</sup> | Spur <sub>MAX</sub> | At any RF port when externally terminated to 50Ω (RBW = 100Hz) | -   | -114 | -   | dBm  |
| Switching Time <sup>[5]</sup>         | T <sub>SW</sub>     | 50% control to 90% RF                                          | -   | 325  | -   | ns   |
|                                       |                     | 50% control to 10% RF                                          | -   | 255  | -   |      |
| Maximum Switching Rate <sup>[6]</sup> |                     | -                                                              | -   | 25   | -   | kHz  |

1. Items in minimum/maximum columns in ***bold italics*** are confirmed by Test.
2. Items in minimum/maximum columns that are not bold/italics are confirmed by Design Characterization.
3. The input 0.1dB compression point is a linearity figure of merit. For the maximum operating power levels, see Recommended Operating Conditions.
4. Spurious due to on-chip negative voltage generator. Typical generator fundamental frequency is 5.2MHz.
5. F<sub>RF</sub> = 2GHz.
6. Minimum time required between switching of states = 1 / Maximum Switching Rate.

### 3. Control Mode

Table 2. Switch Control Truth Table

| VCTL | EN | RFC to RF1 | RFC to RF2 |
|------|----|------------|------------|
| 0    | 0  | OFF        | ON         |
| 1    | 0  | ON         | OFF        |
| 0    | 1  | OFF        | OFF        |
| 1    | 1  | OFF        | OFF        |

### 4. Typical Performance Graphs

Unless otherwise noted for the typical performance graphs on the following pages, the following conditions apply:

- V<sub>DD</sub> = 5V
- T<sub>C</sub> = +25°C (T<sub>C</sub> = Temperature of Exposed Paddle)
- F<sub>RF</sub> = 2000MHz
- Z<sub>S</sub> = Z<sub>L</sub> = 50Ω
- P<sub>IN</sub> = 0 dBm for all small signal tests.
- P<sub>IN</sub> = +15 dBm/tone applied to RF1 or RF2 port for two tone linearity tests.
- Two-tone frequency spacing = 1MHz.
- RF1 or RF2 is the driven RF port and RFC is the output port.
- All unused RF ports terminated into 50Ω.
- For Insertion Loss and Isolation plots, RF trace and connector losses are de-embedded.
- Plots for Isolation and Insertion Loss over temperature and voltage are for a typical path. For performance of a specific path, refer to the online S-Parameter file.

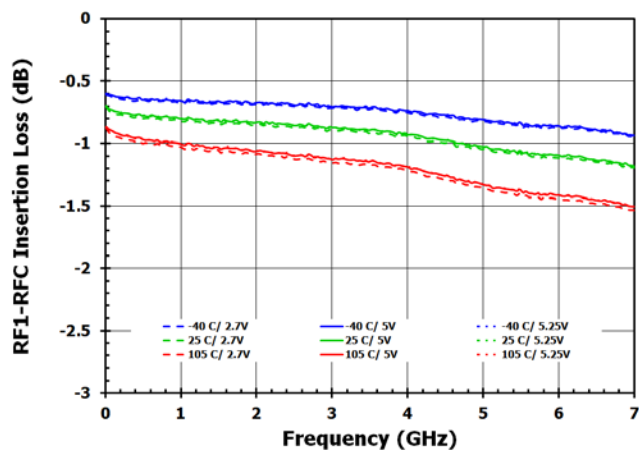


Figure 3. RF1 - RFC Insertion Loss

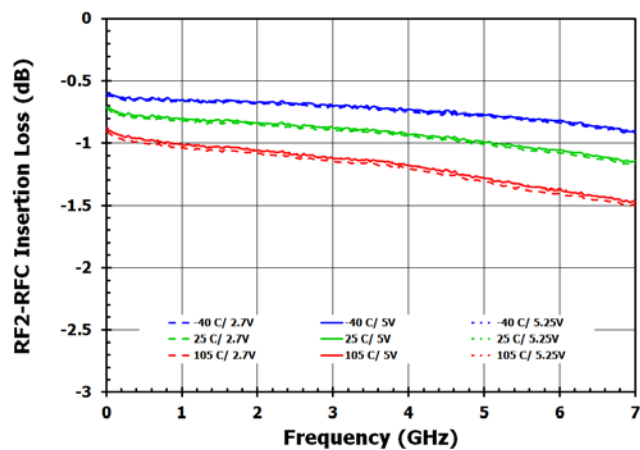


Figure 4. RF2 - RFC Insertion Loss

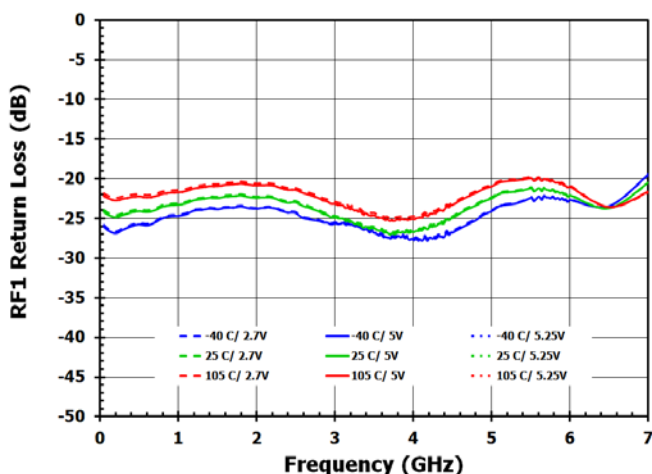


Figure 5. RF1 Return Loss

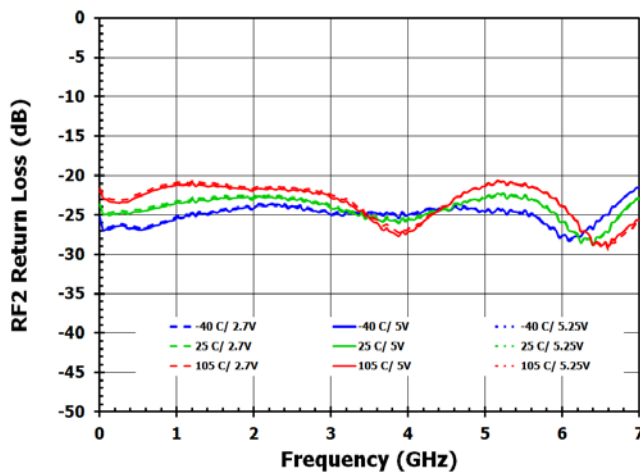


Figure 6. RF2 Return Loss

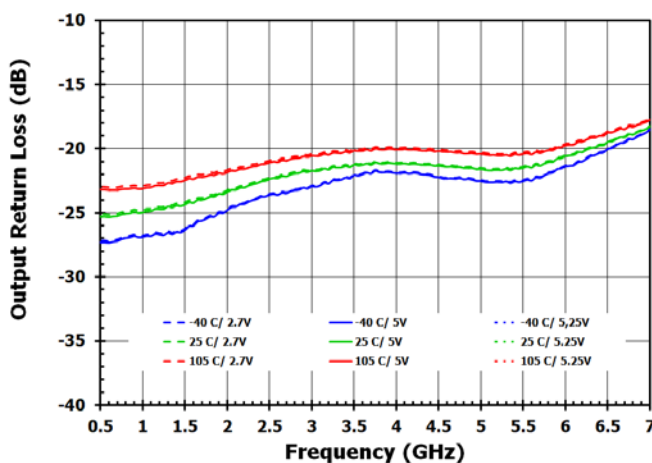


Figure 7. RFC Return Loss

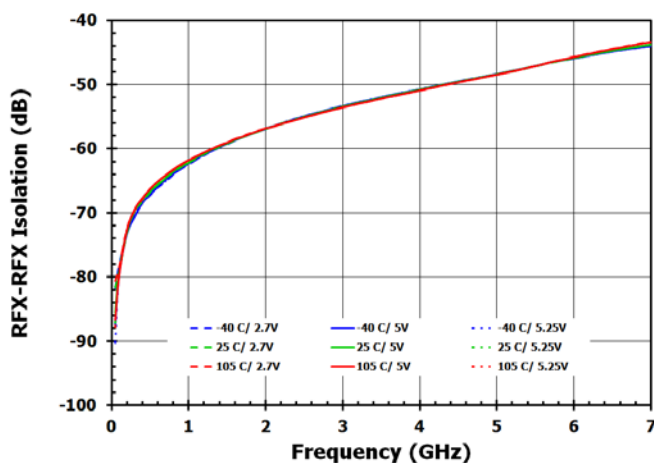


Figure 8. RF1 to RF2 Isolation

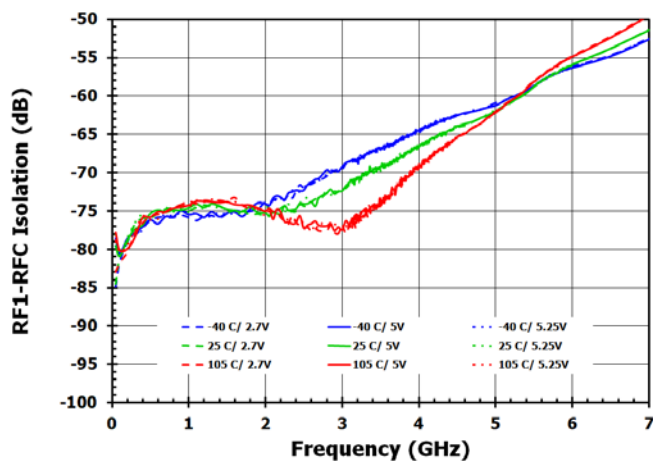


Figure 9. RF1 to RFC Isolation

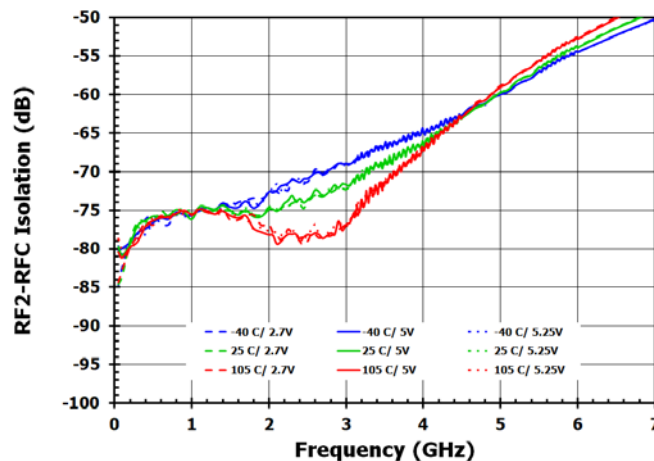


Figure 10. RF2 to RFC Isolation

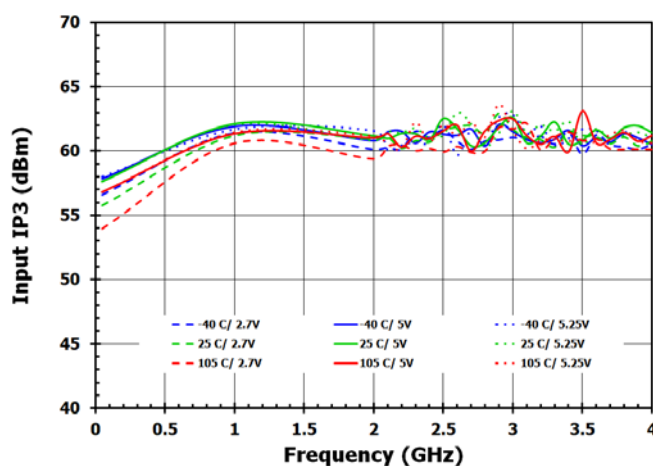


Figure 11. Input IP3

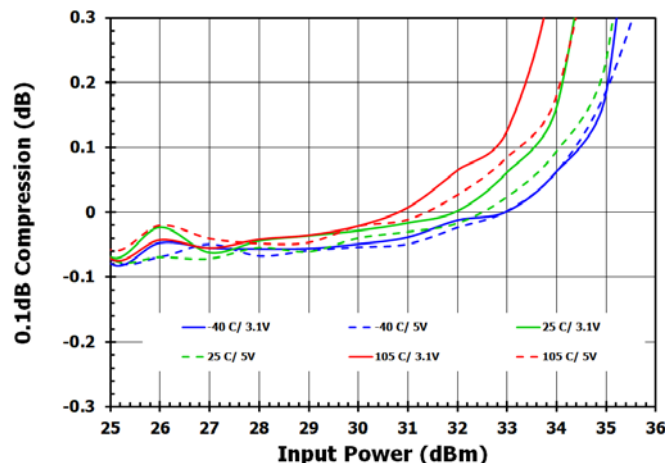


Figure 12. P0.1dB Compression (50MHz)

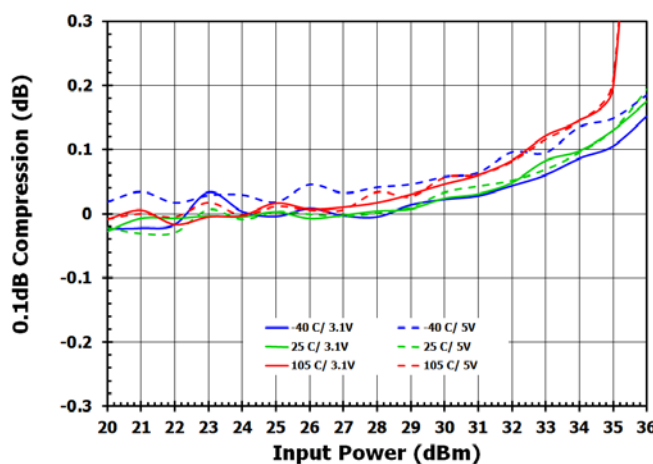


Figure 13. P0.1dB Compression (2GHz)

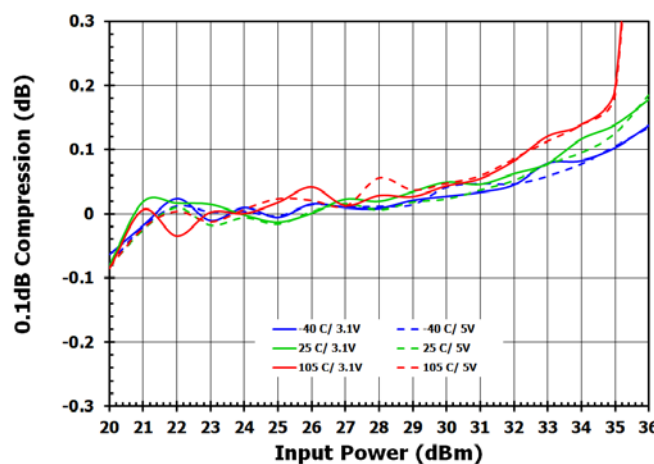


Figure 14. P0.1dB Compression (3GHz)

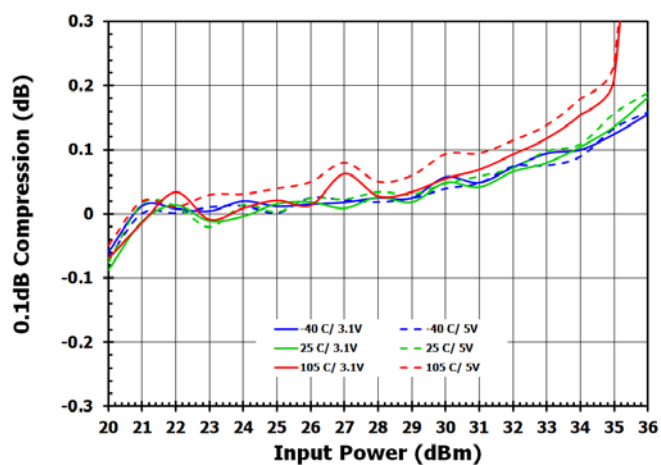


Figure 15. P0.1dB Compression (4GHz)

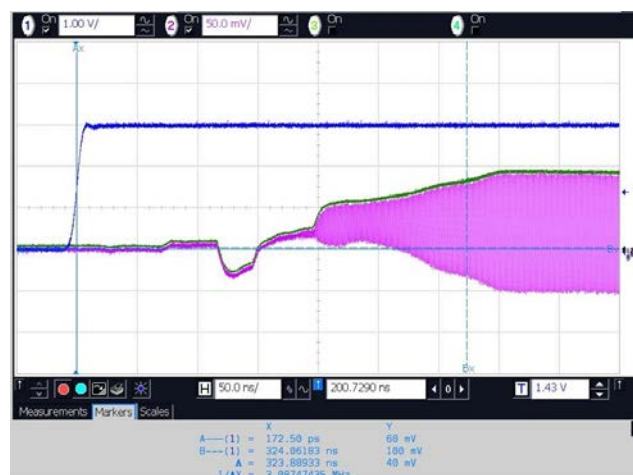


Figure 16. TON Switching Time

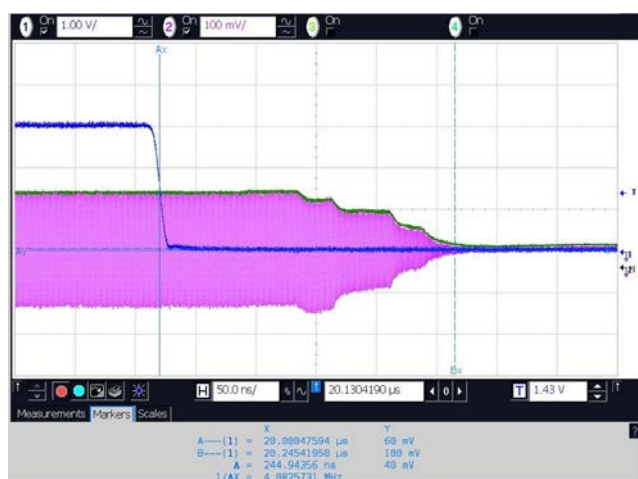


Figure 17. TOFF Switching Time

## 5. Application Information

### 5.1 Default Start-up

There are no internal pull-up or pull-down resistors on the VCTL or EN pins.

### 5.2 Logic Control

Control pins VCTL and EN are used to set the state of the SP2T switch (see Table 2).

### 5.3 Power Supplies

A common  $V_{DD}$  power supply should be used for all pins requiring DC power. All supply pins should be bypassed with external capacitors to minimize noise and fast transients. Supply noise can degrade noise figure and fast transients can trigger ESD clamps and cause them to fail. Supply voltage change or transients should have a slew rate smaller than  $1V / 20\mu s$ . In addition, all control pins should remain at 0V ( $\pm 0.3V$ ) while the supply voltage ramps or while it returns to zero.

### 5.4 Control Pin Interface

If control signal integrity is a concern and clean signals cannot be guaranteed due to overshoot, undershoot, ringing, etc., the following circuit at the input of each control pin is recommended. This applies to control pin 1 (VCTL) and pin 5 (EN) as shown below.

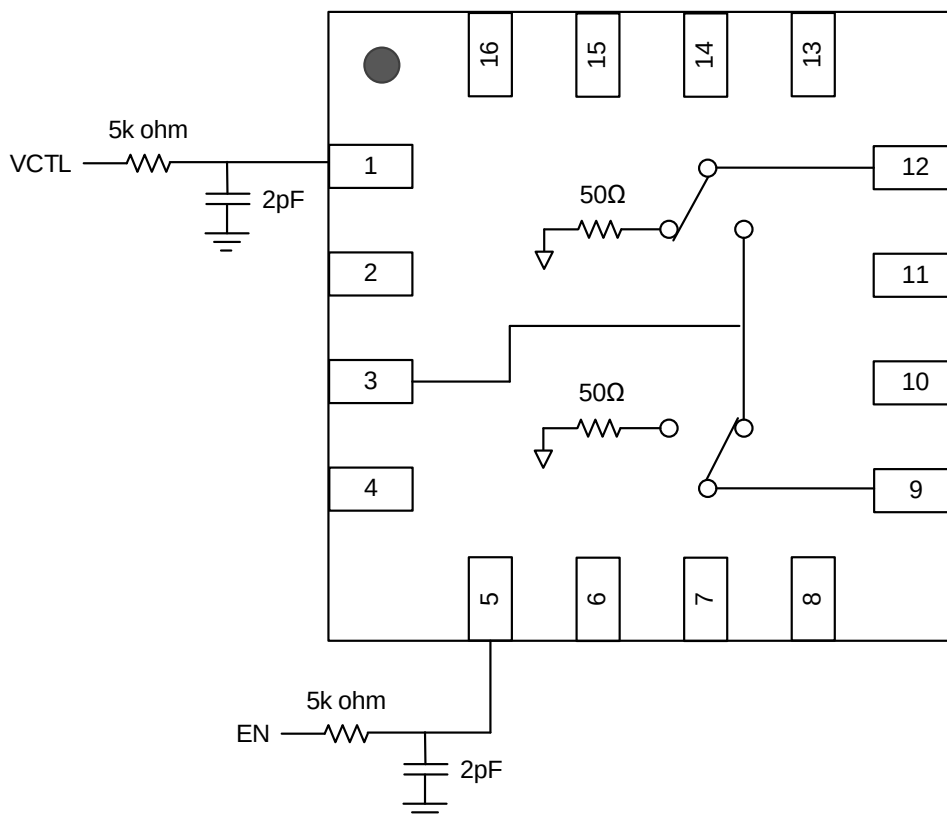


Figure 18. Typical Application Circuit

## 6. Evaluation Board

### 6.1 Board Images

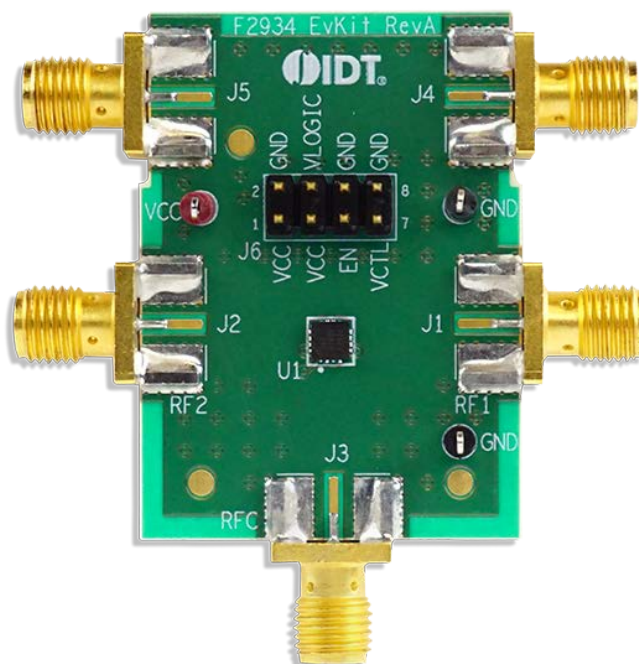


Figure 19. Evaluation Board – Top View

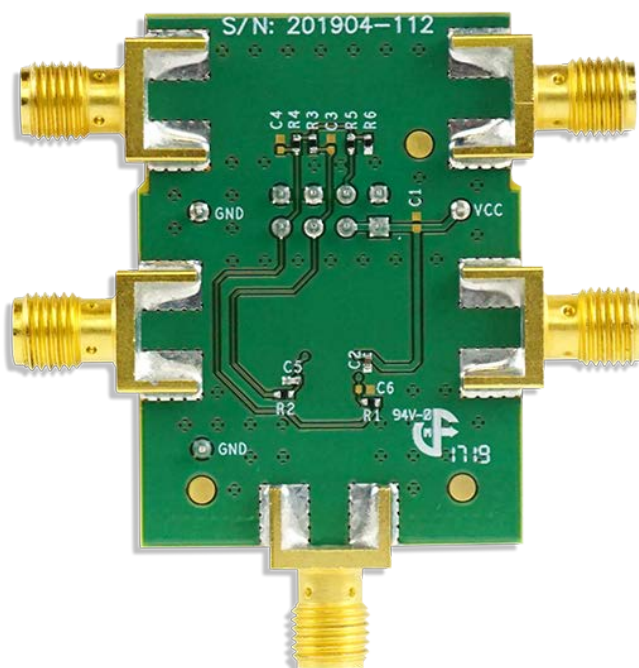


Figure 20. Evaluation Board – Bottom View

## 6.2 Setup and Configuration

### 6.2.1. External Supply Setup

Set up a VCC power supply in the voltage range of 2.7V to 5.25V and disable the power supply output.

### 6.2.2. Logic Control Setup

**Using the evaluation board to manually set the control logic:**

On connector J6 connect a 2-pin shunt from pin 3 (V<sub>CC</sub>) to pin 4 (V<sub>LOGIC</sub>). This connection provides the VCC voltage supply to the Eval Board logic control pull up network. Resistors R5 and R6 form a voltage divider to set the V<sub>high</sub> level over the 2.7V to 5.25V V<sub>CC</sub> range for manual logic control.

Connector J6 has 2 logic input pins: EN (pin 5) and V<sub>CTL</sub> (pin 7). See Table 2 for Logic Truth Table. With the pull-up network enabled (as noted above) these pins can be left open to provide a logic high through pull-up resistors R3 and R4. To set a logic low for EN and V<sub>CTL</sub> connect 2-pin shunts on J6 from pin 5 (EN) to pin 6 (GND) and from pin 7 (V<sub>CTL</sub>) to pin 8 (GND).

Note that when using the on board R5 / R6 voltage divider the current draw from the V<sub>CC</sub> supply will be higher by approximately  $V_{CC} / 37k\Omega$ .

**Using external control logic:**

External logic controls are applied to J6 pin 5 (EN) and pin 7 (V<sub>CTL</sub>). See Table 2 for Logic Truth Table.

### 6.2.3. Turn On Procedure

Setup the supplies and Evaluation Board as noted in the **External Supply Setup** and **Logic Control Setup** sections above.

Connect the preset disabled V<sub>CC</sub> power supply to the red V<sub>CC</sub> loop and ground to GND1 or GND2.

Enable the V<sub>CC</sub> supply.

Set the desired logic setting using J6 pin 5 (EN) and pin 7 (V<sub>CTL</sub>) to achieve the desired Table 2 setting. Note that external control logic should not be applied without V<sub>CC</sub> being present.

### 6.2.4. Turn Off Procedure

If using external control logic for EN and V<sub>CTL</sub> then set them to a logic low.

Disable the V<sub>CC</sub> supply.

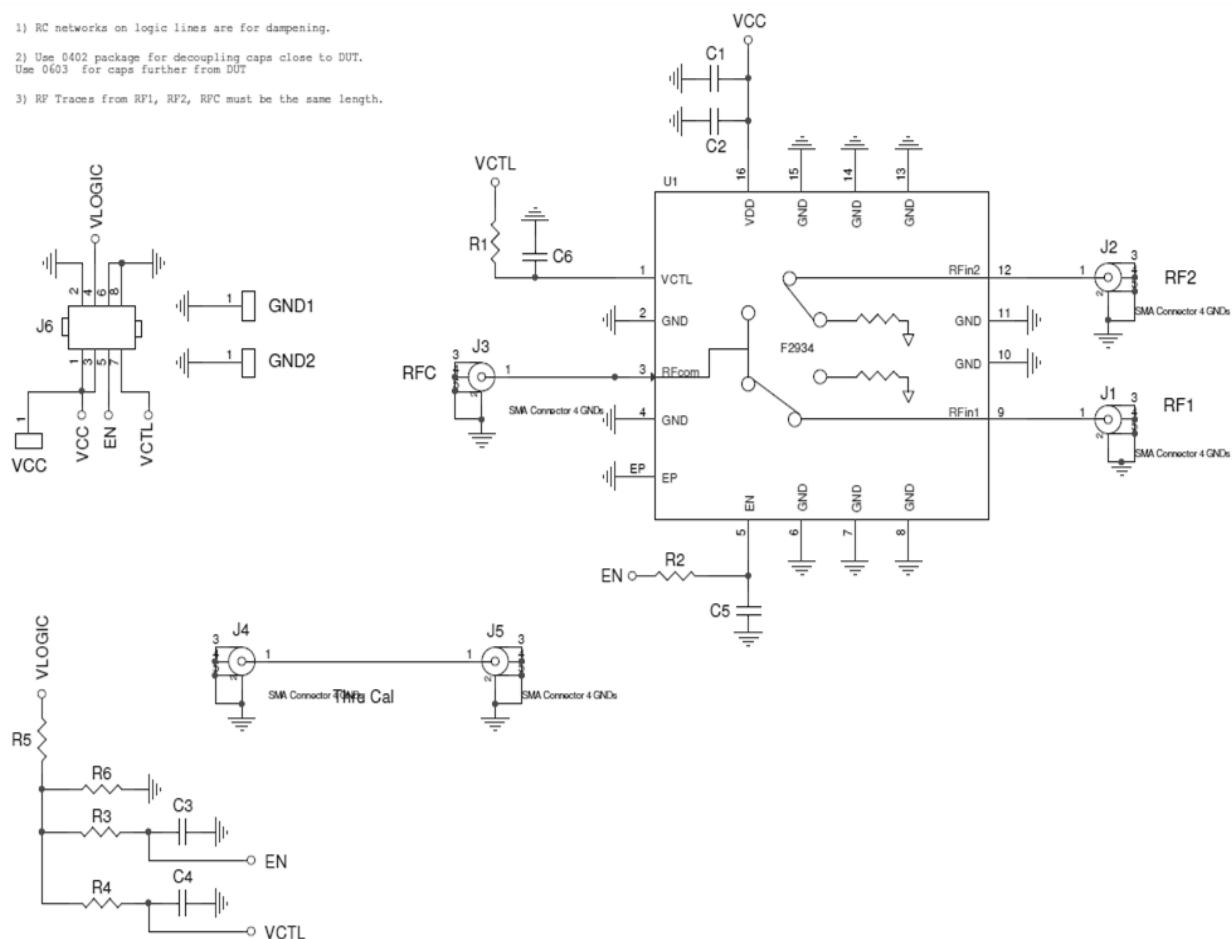


## 6.3 Application Circuit

1) RC networks on logic lines are for dampening.

2) Use 0402 package for decoupling caps close to DUT.  
Use 0603 for caps further from DUT

3) RF Traces from RF1, RF2, RFC must be the same length.



## 6.4 Bill of Materials

Table 3. Bill of Materials (BOM)

| Qty | Ref. Designator | Description                                    | Mfr. Part #      | Mfr.            |
|-----|-----------------|------------------------------------------------|------------------|-----------------|
| 0   | C1              | Not Installed (0402)                           |                  |                 |
| 1   | C2              | 0.1μF ±10%, 16V, X7R, Ceramic Capacitor (0402) | GRM155R71C104K   | Murata          |
| 0   | C3, C4, C6      | Not Installed (0402)                           |                  |                 |
| 1   | C5              | 100pF ±5%, 50V, C0G, Ceramic Capacitor (0402)  | GRM1555C1H101J   | Murata          |
| 2   | R1, R2          | 100Ω ±1%, 1/10W, Resistor (0402)               | ERJ-2RKF1000X    | Panasonic       |
| 2   | R3, R4          | 100kΩ ±1%, 1/10W, Resistor (0402)              | ERJ-2RKF1003X    | Panasonic       |
| 1   | R5              | 15kΩ ±1%, 1/10W, Resistor (0402)               | ERJ-2RKF1502X    | Panasonic       |
| 1   | R6              | 22kΩ ±1%, 1/10W, Resistor (0402)               | ERJ-2RKF2202X    | Panasonic       |
| 5   | J1 – J5         | SMA Edge Launch (0.375-inch pitch ground tabs) | 142-0701-851     | Emerson Johnson |
| 1   | F2934           | SP2T Switch 3 mm x 3 mm QFN16-EP               | F2934NTGI8       | Renesas         |
| 1   |                 | Printed Circuit Board                          | F2934 EVKIT REVA | Renesas         |

## 7. Package Outline Drawings

The package outline drawings are located at the end of this document and are accessible from the Renesas website. The package information is the most current data available and is subject to change without revision of this document.

## 8. Ordering Information

| Part Number | Package Description                 | Carrier Type  | Temperature Range |
|-------------|-------------------------------------|---------------|-------------------|
| F2934NTGI8  | 3 × 3 mm, <a href="#">16-VFQFPN</a> | Tape and Reel | -40 to +105°C     |

## 9. Revision History

| Revision | Date         | Description                                                                                     |
|----------|--------------|-------------------------------------------------------------------------------------------------|
| 1.02     | Feb 3, 2023  | Corrected the Temperature Range in Ordering Information to -40°C to +105°C from -40°C to +85°C. |
| -        | Apr 28, 2021 | Updated Figure 9 and Figure 10.                                                                 |
| -        | Mar 9, 2021  | Initial release.                                                                                |