

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## Evaluation Board Information

# **$\mu$ PG2024TQ DPDT SW IC (4.9 GHz/5.2 GHz/5.8 GHz) Evaluation Board**

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- Evaluation Board Pattern Layout
- Circuit Description
- Insertion Loss Data  
(Including loss of the test fixture)
- Isolation Data
- Input and Output Return Loss Data
- 4.9 GHz, 5.2 GHz and 5.8 GHz Pin vs. Pout Data
- Loss of The Test Fixture vs. Frequency Data

|                |               |   |
|----------------|---------------|---|
| <b>Caution</b> | GaAs Products | <p>This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> <li>• Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below.</li> <li>1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials.</li> <li>2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal.</li> <li>• Do not burn, destroy, cut, crush, or chemically dissolve the product.</li> <li>• Do not lick the product or in any way allow it to enter the mouth.</li> </ul> |
|----------------|---------------|---|

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**This document outlines general applications for this product. The application circuits and circuit constants provided in this document are simply examples and should not be used for mass production design. Be aware also that there is no intention to standardize the restrictions and characteristics of these application circuits.**

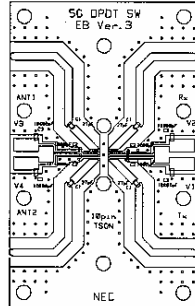
**The characteristics of high-frequency devices in particular vary depending on the external components and mounting pattern used.**

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M8E 00.4-0110

## Evaluation Board Pattern Layout

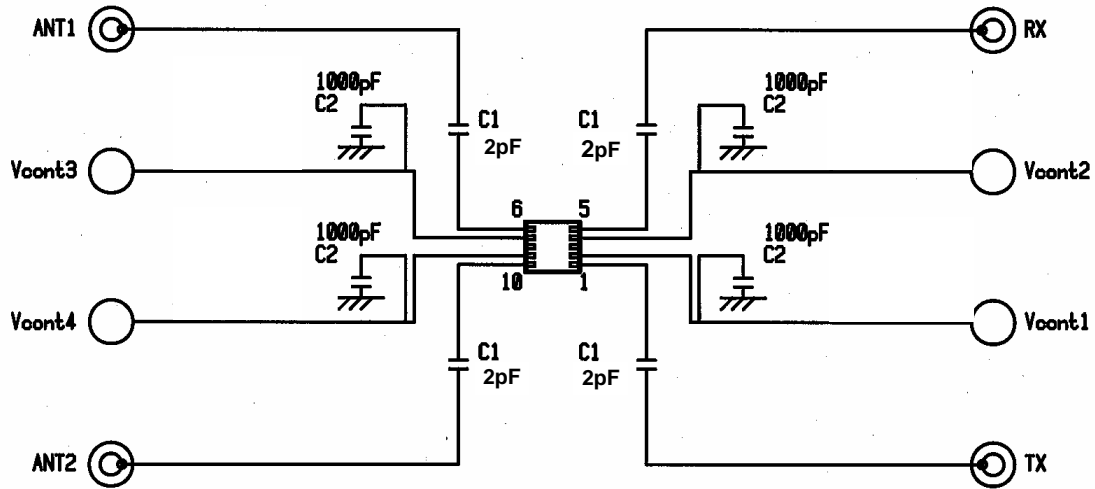


scale 1 : 1

size 26 mm × 42 mm

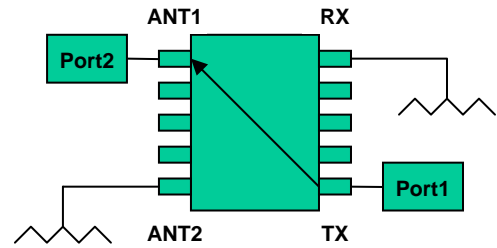
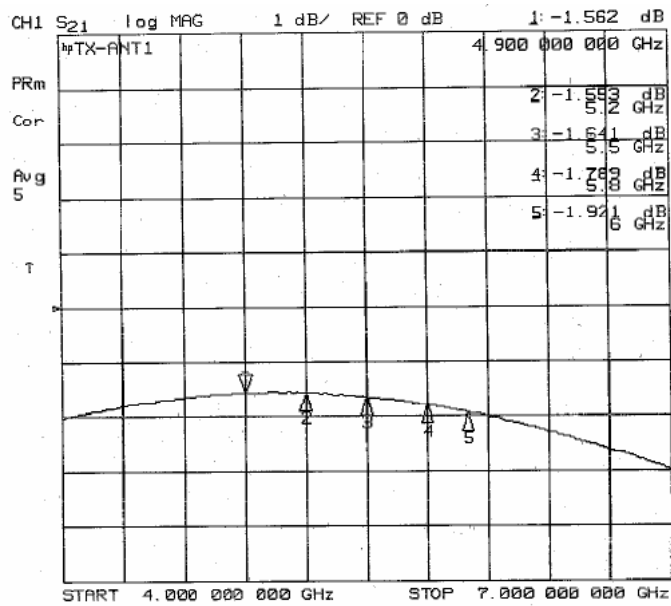
material RO4003 (Rogers)  
h = 0.51 mm,  $\epsilon_r = 3.38$

## Circuit Description

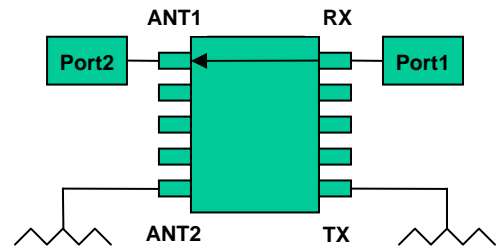
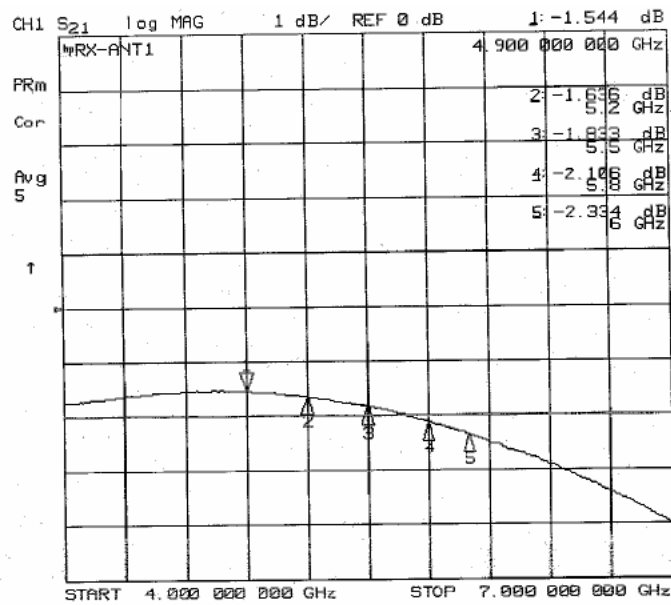


| Parts            | Model No.            | Value   | Maker   | Symbol |
|------------------|----------------------|---------|---------|--------|
| Chip Capacitance | GRM1554C1H2R0CZ01B   | 2 pF    | Murata  | C1     |
|                  | GRM155B11H102KA01B   | 1000 pF | Murata  | C2     |
| PC Terminal      | A2-2PA-2.54DSA       | —       | Hirose  | —      |
| RF Connector     | 142-0721-821         | —       | Jhonson | —      |
| Substrate        | RO4003 (t = 0.51 mm) | —       | Rogers  | —      |

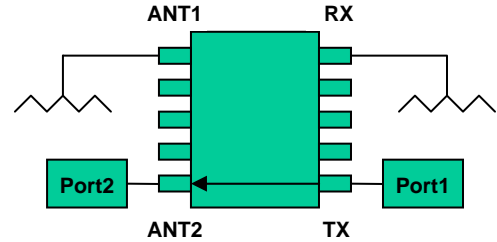
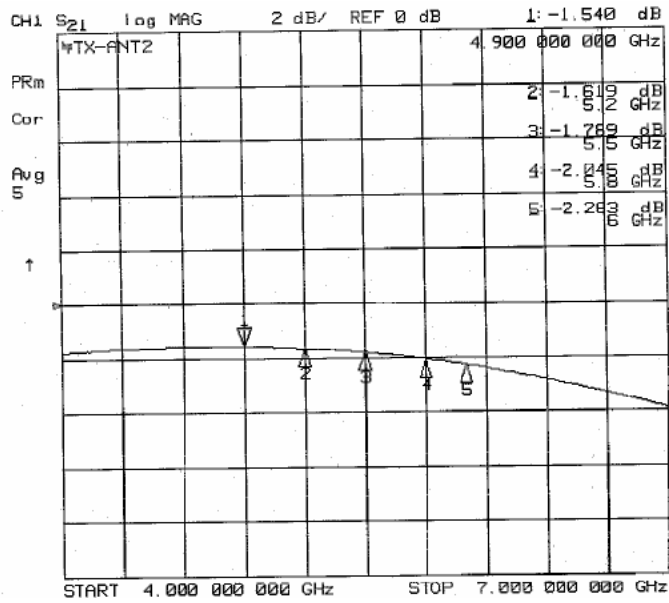
### TX-ANT1 Insertion Loss



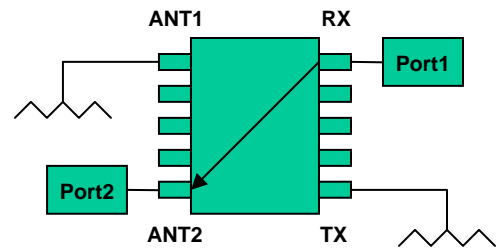
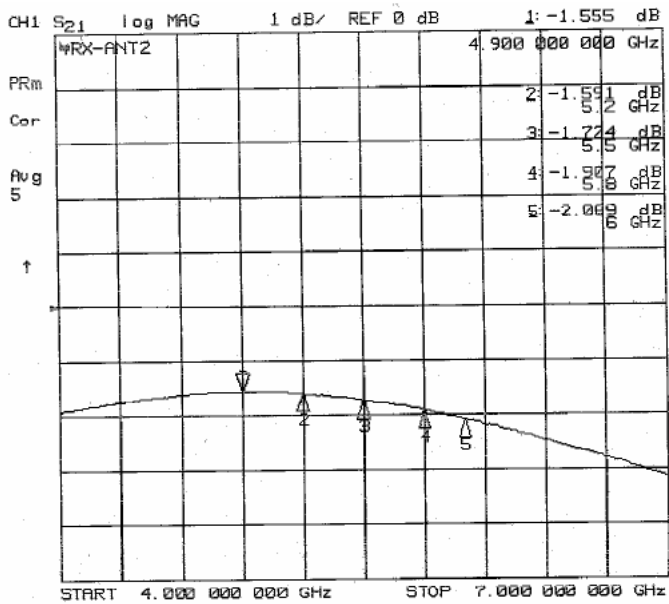
### RX-ANT1 Insertion Loss



## TX-ANT2 Insertion Loss

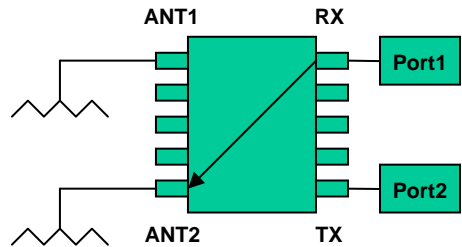
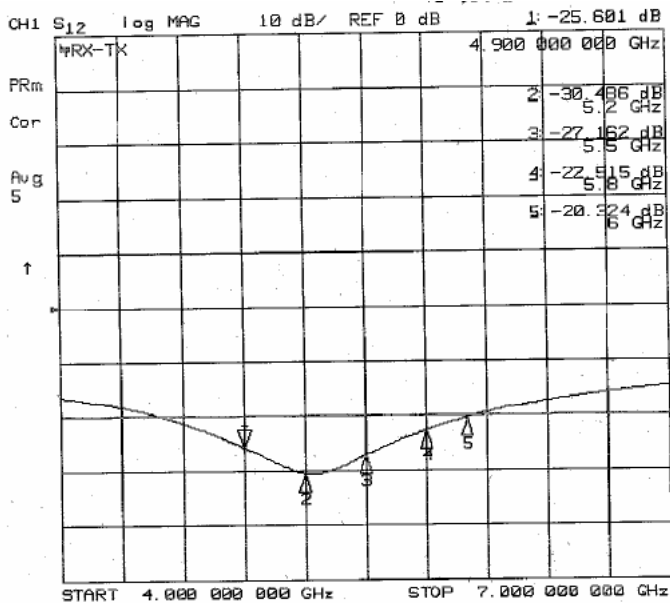


## RX-ANT2 Insertion Loss

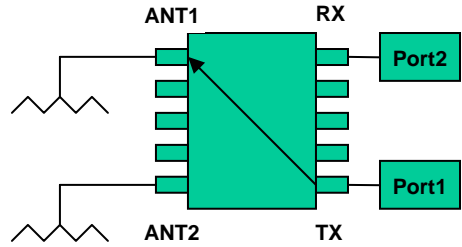
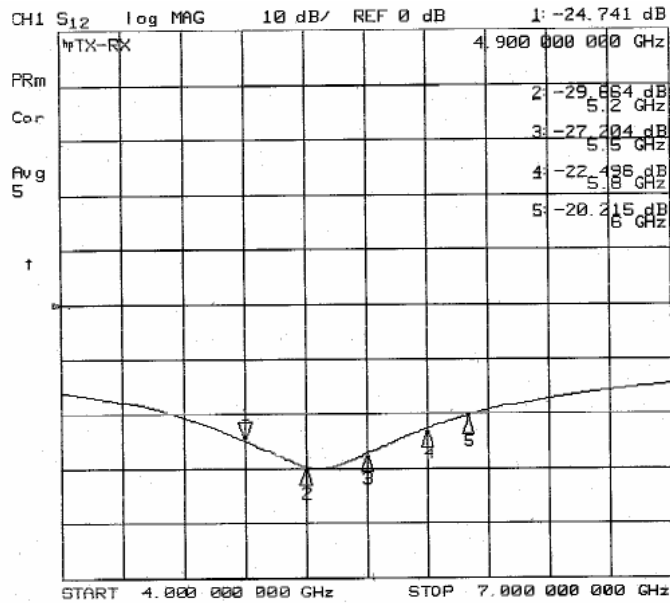




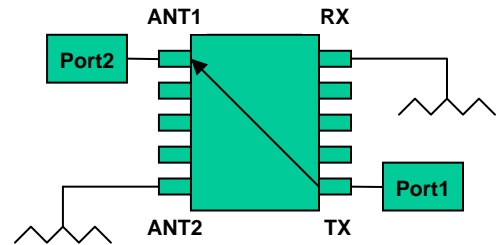
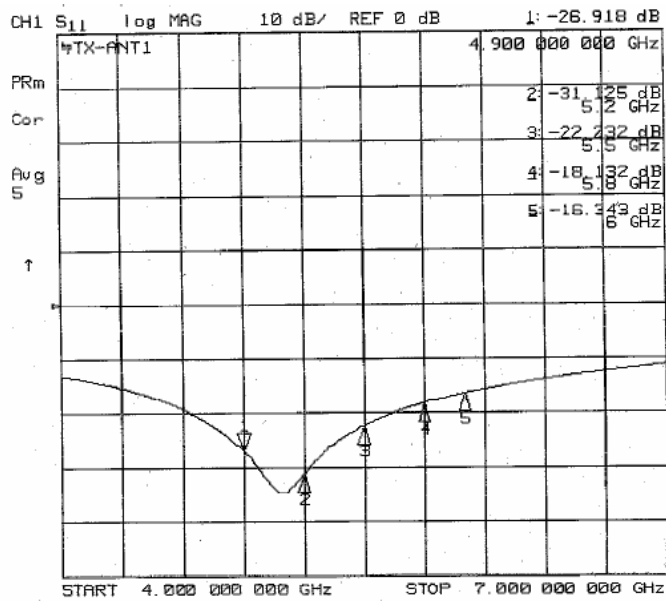
RX-TX Isolation ( $V_{cont}$  2.4 on)



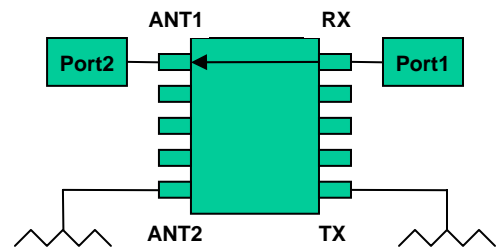
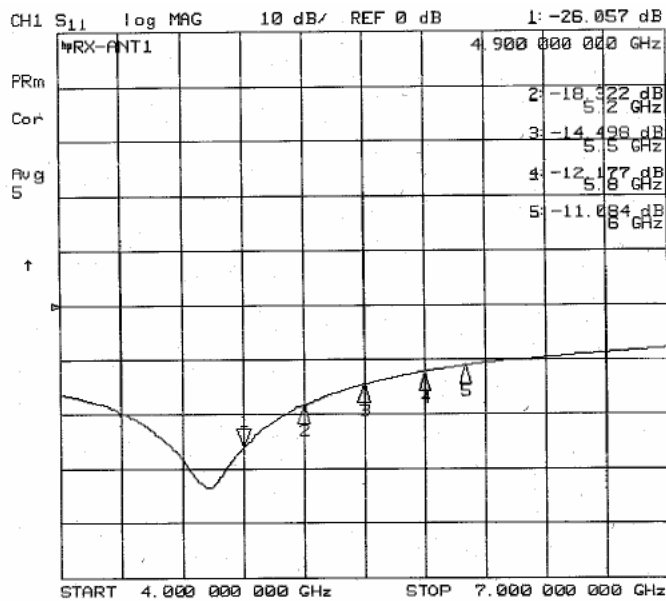
TX-RX Isolation ( $V_{cont}$  1.3 on)



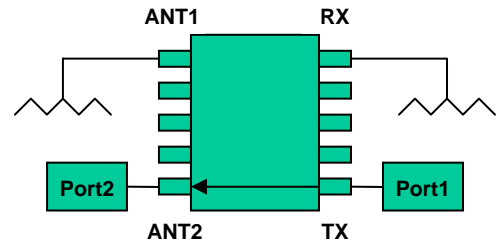
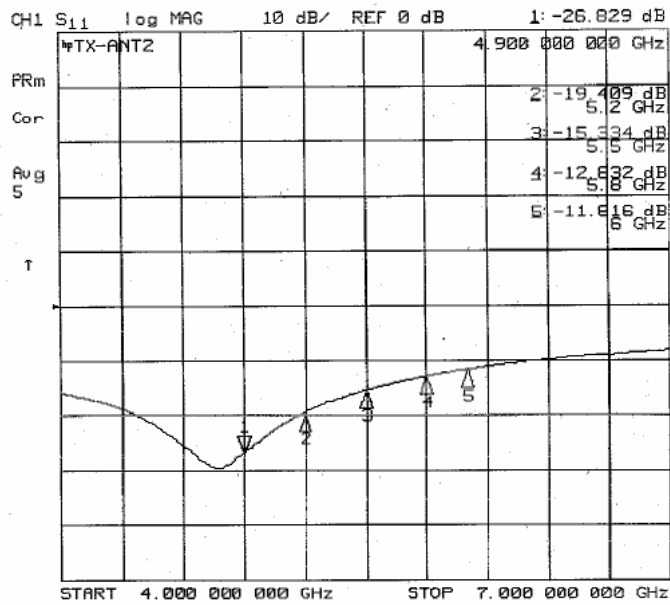
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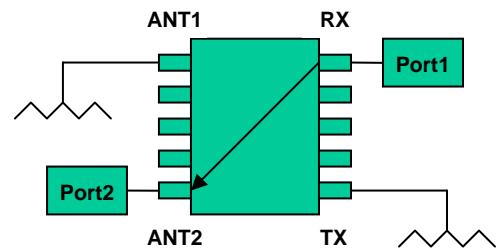
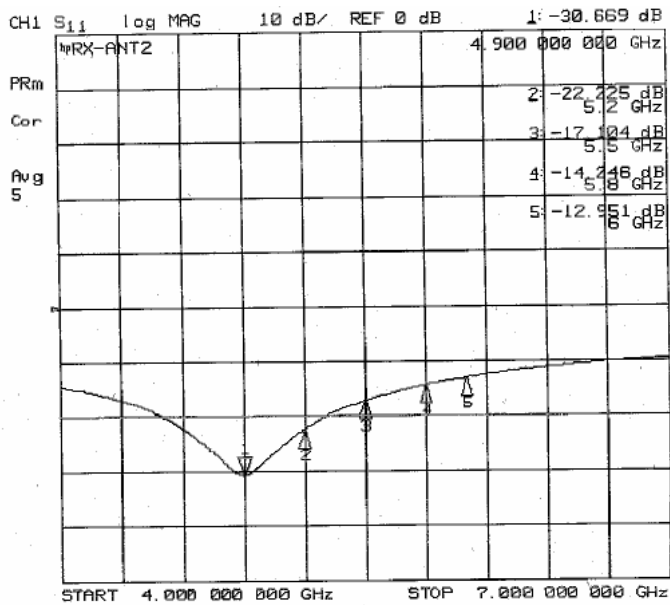
### RX-ANT1 Input Return Loss



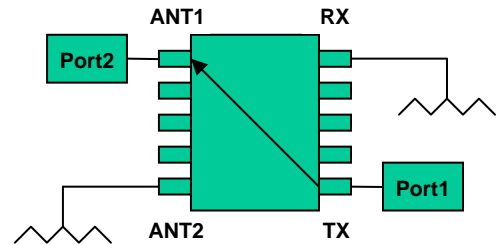
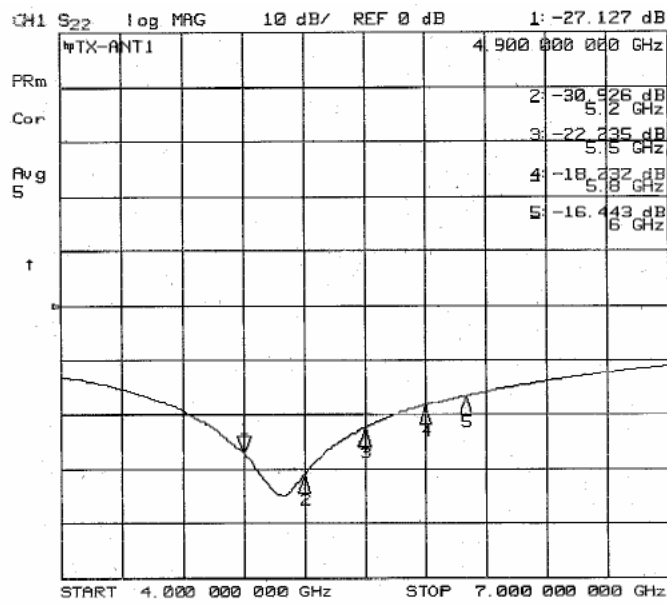
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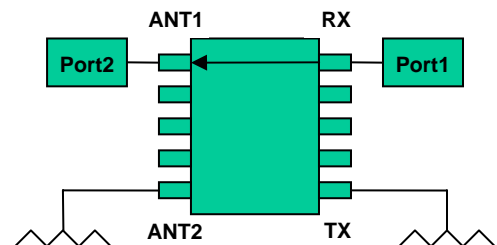
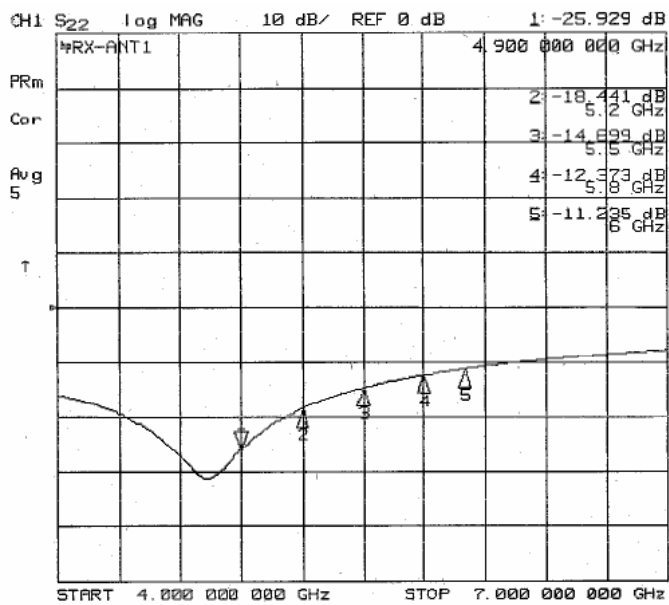
### RX-ANT2 Input Return Loss



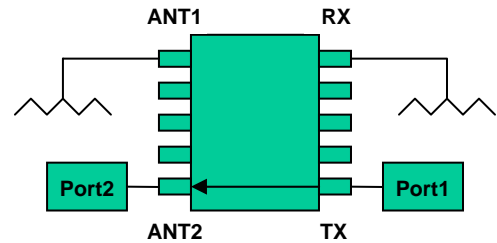
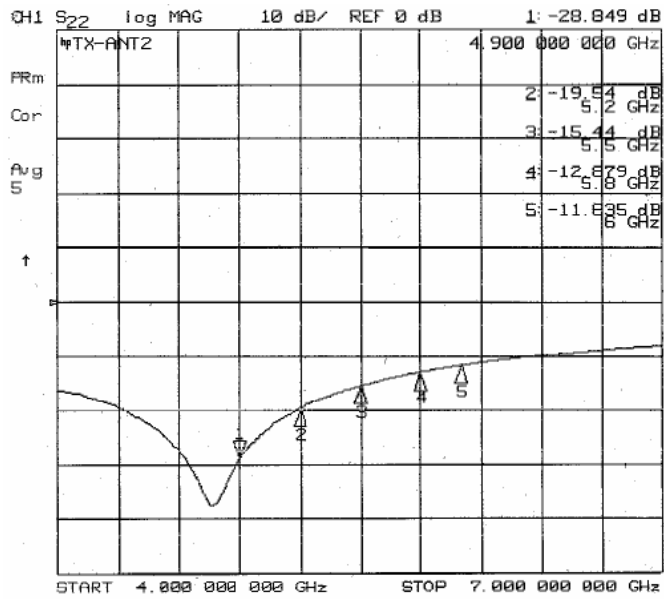
### TX-ANT1 Output Return Loss



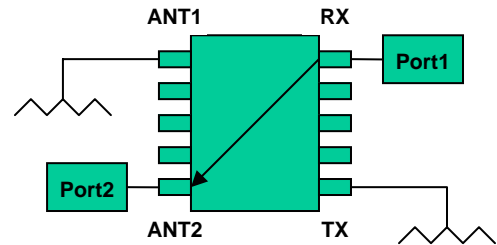
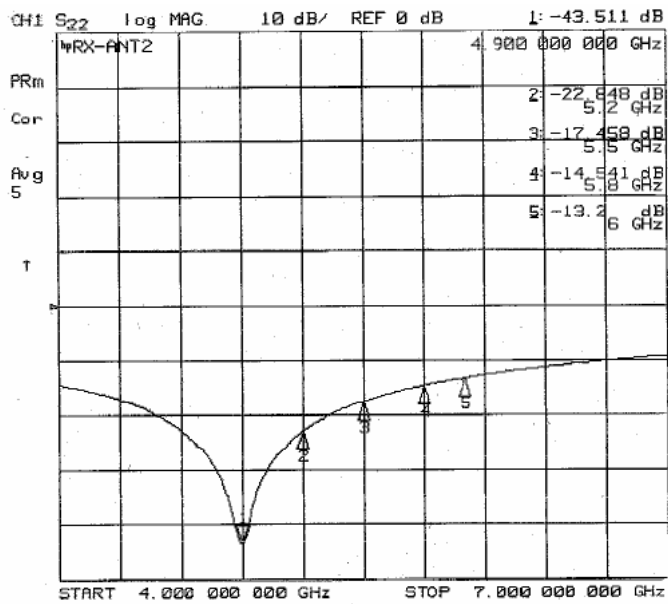
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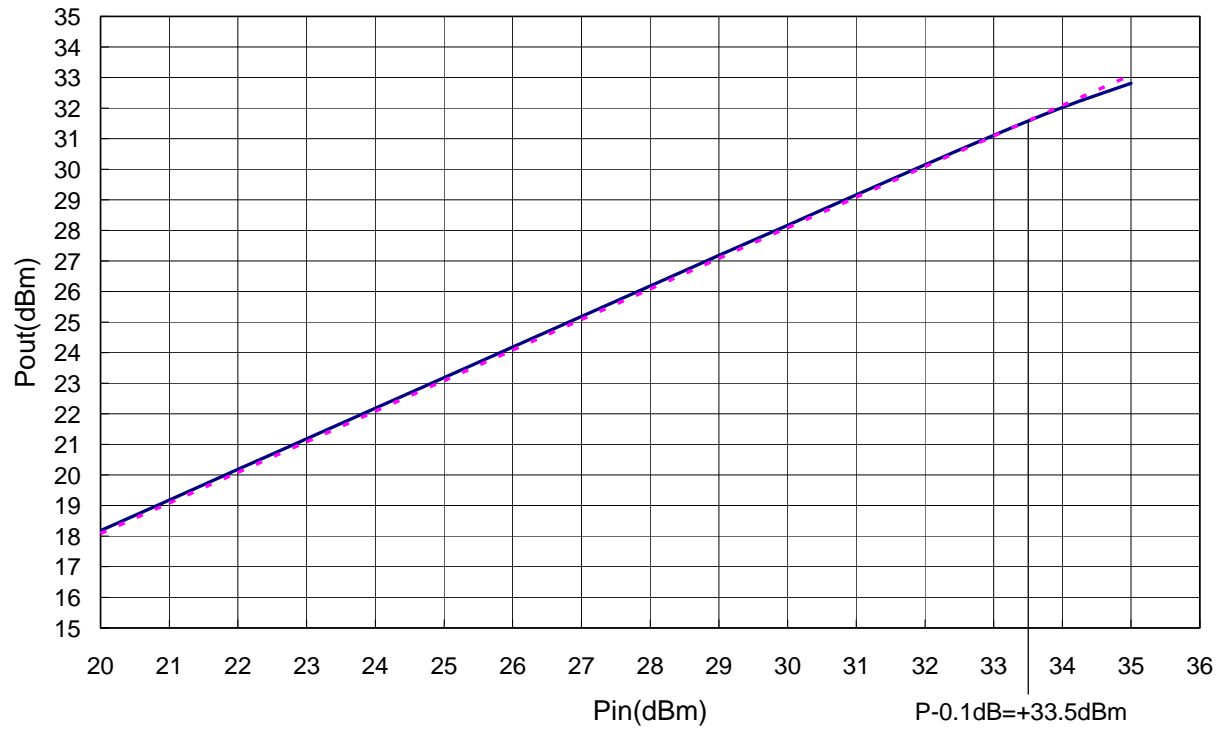
### TX-ANT2 Output Return Loss



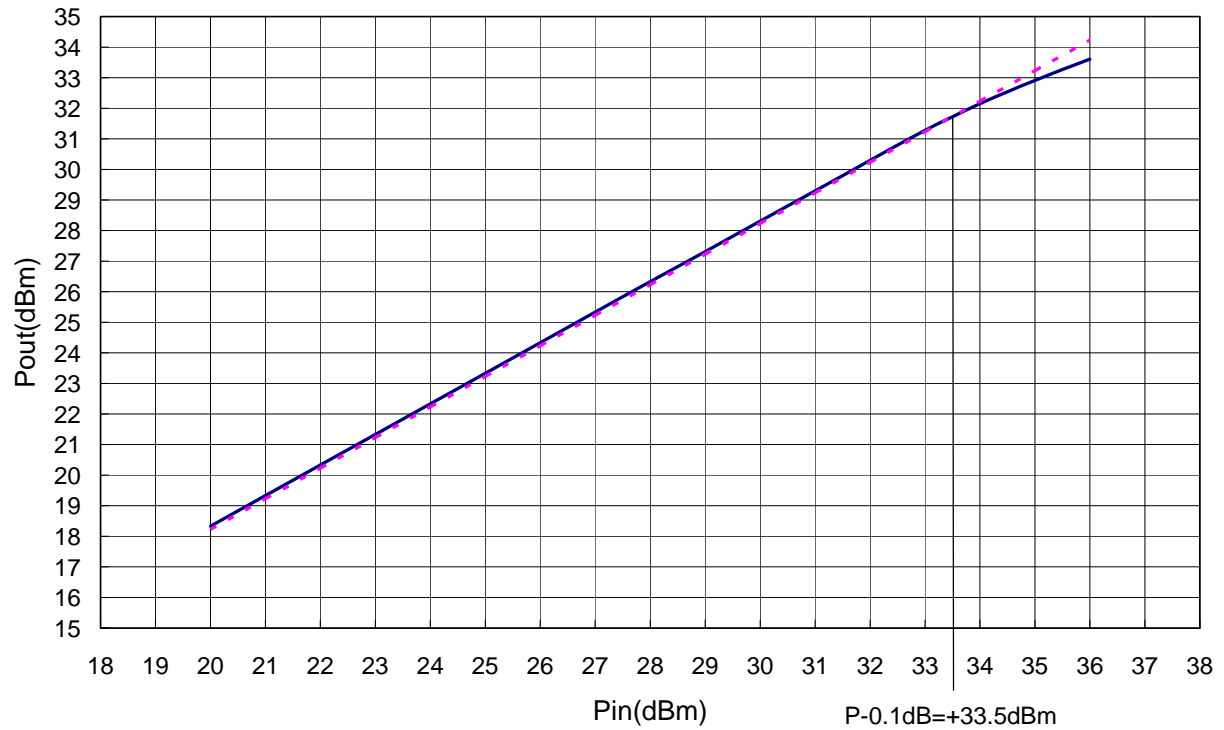
### RX-ANT2 Output Return Loss



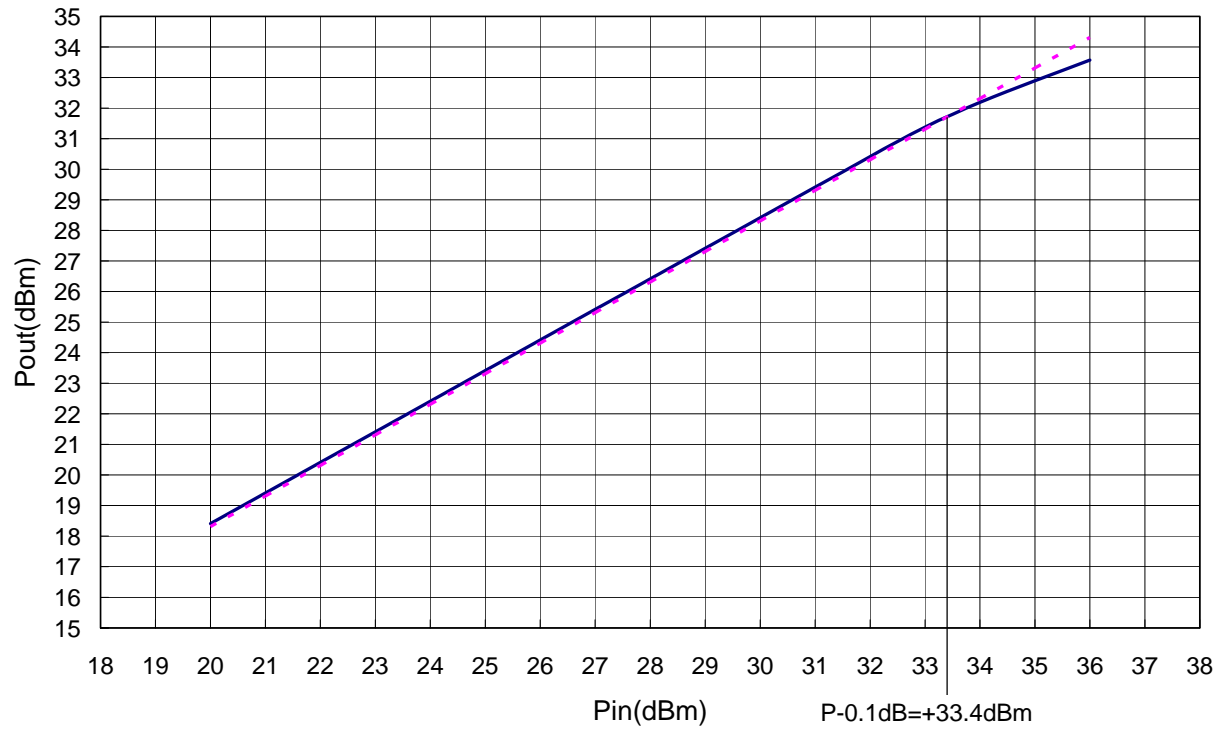
**4.9 GHz  $P_{in}$  vs.  $P_{out}$**



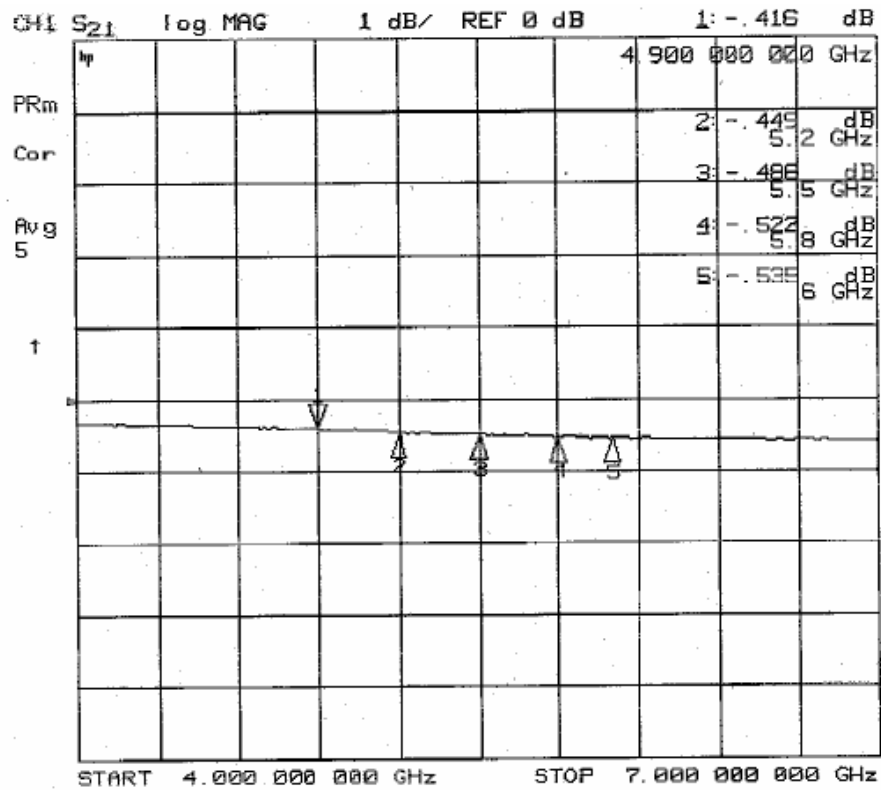
**5.2 GHz  $P_{in}$  vs.  $P_{out}$**



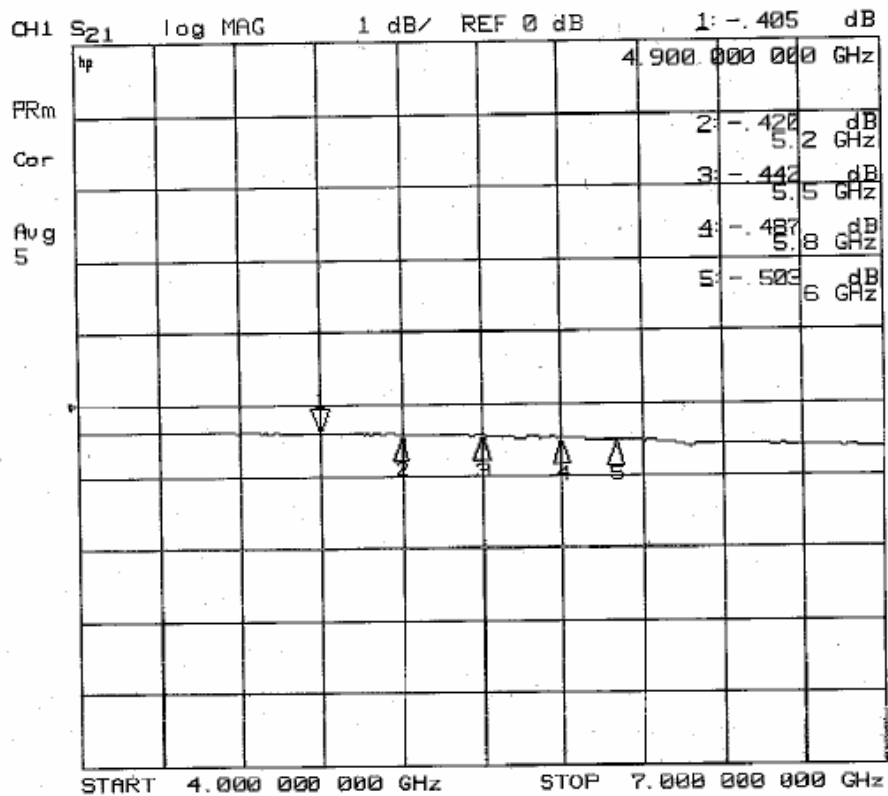
5.8 GHz  $P_{in}$  vs.  $P_{out}$



### RX-ANT2/TX-ANT1 Loss of The Test Fixture vs. Frequency



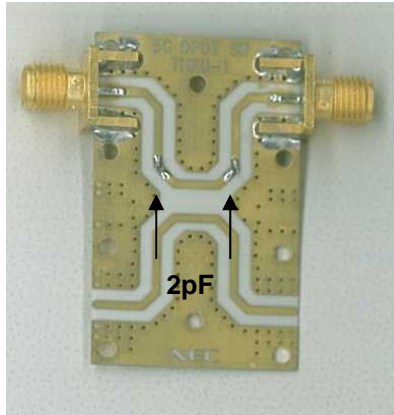
### RX-ANT1/TX-ANT2 Loss of The Test Fixture vs. Frequency



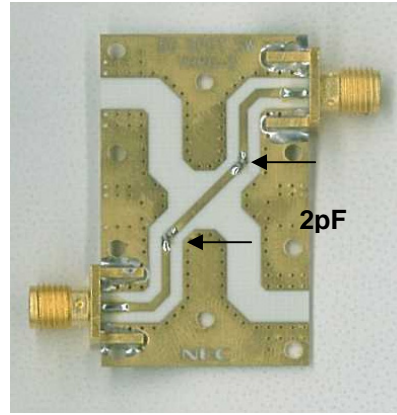


**Through Board  
(Including DC Block Capacitances)**

**RX-ANT1/TX-ANT2**



**RX-ANT2/TX-ANT1**



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