



## **SAW Components**

### **SAW Duplexer**

LTE Band 14

|                       |                          |
|-----------------------|--------------------------|
| <b>Series/type:</b>   | <b>B7929</b>             |
| <b>Ordering code:</b> | <b>B39791B7929P810</b>   |
| <b>Date:</b>          | <b>December 01, 2011</b> |
| <b>Version:</b>       | <b>2.0</b>               |



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B7929

### SAW Duplexer

793.00 / 763.00 MHz

#### Data sheet



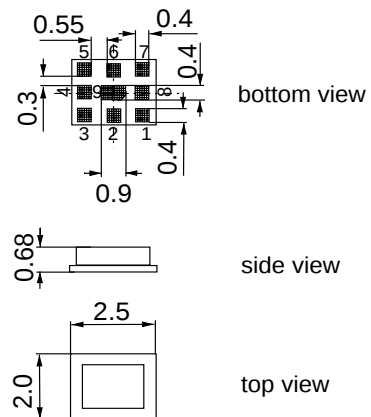
#### Application

- Low-loss SAW duplexer for mobile telephone LTE Band 14 systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 10 MHz
- 50  $\Omega$  single-ended in both Antenna-Rx and Antenna-Tx paths
- Very small size and low height



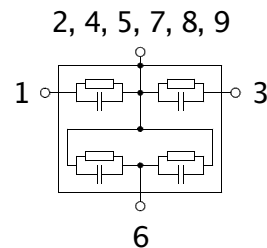
#### Features

- Package size 2.5 x 2.0 x 0.68 mm<sup>3</sup>
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level 3**



#### Pin configuration

- 1 Rx output
- 3 Tx input
- 6 Antenna
- 2, 4, 5, 7, 8, 9 To be grounded





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#### Characteristics

Temperature range for specification:  $T = -30\text{ °C to }+85\text{ °C}$   
 TX terminating impedance:  $Z_{Tx} = 50\ \Omega$   
 ANT terminating impedance:  $Z_{Ant} = 50\ \Omega \parallel 15\text{nH}$   
 RX terminating impedance:  $Z_{Rx} = 50\ \Omega$

| Characteristics Tx-Antenna    |                | min. | typ.<br>@ 25 °C | max. |     |
|-------------------------------|----------------|------|-----------------|------|-----|
| Center frequency              | $f_c$          | —    | 793.0           | —    | MHz |
| Maximum insertion attenuation | $\alpha$       | —    | 2.1             | 2.4  | dB  |
| Amplitude ripple (p-p)        | $\Delta\alpha$ | —    | 1.1             | 1.5  | dB  |
| Input VSWR (Tx port)          |                | —    | 1.6             | 2.0  |     |
| Output VSWR (Ant port)        |                | —    | 1.6             | 2.0  |     |
| Absolute attenuation          | $\alpha$       |      |                 |      |     |
| 40.0 ... 698.0 MHz            |                | 38   | 44              | —    | dB  |
| 716.0 ... 728.0 MHz           |                | 39   | 46              | —    | dB  |
| 728.0 ... 746.0 MHz           |                | 41   | 48              | —    | dB  |
| 746.0 ... 768.0 MHz           |                | 45   | 55              | —    | dB  |
| 769.0 ... 775.0 MHz           |                | 43   | 45              | —    | dB  |
| 869.0 ... 894.0 MHz           |                | 42   | 44              | —    | dB  |
| 1575.0 ... 1596.0 MHz         |                | 45   | 48              | —    | dB  |
| 1930.0 ... 1990.0 MHz         |                | 42   | 50              | —    | dB  |
| 2110.0 ... 2170.0 MHz         |                | 40   | 48              | —    | dB  |
| 2364.0 ... 2394.0 MHz         |                | 35   | 45              | —    | dB  |
| 2400.0 ... 2500.0 MHz         |                | 35   | 45              | —    | dB  |
| 3152.0 ... 3192.0 MHz         |                | 28   | 32              | —    | dB  |



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| TX terminating impedance:            | $Z_{Tx} = 50\ \Omega$                        |
| ANT terminating impedance:           | $Z_{Ant} = 50\ \Omega \parallel 15\text{nH}$ |
| RX terminating impedance:            | $Z_{Rx} = 50\ \Omega$                        |

| Characteristics Antenna-Rx                    | min. | typ.<br>@ 25 °C | max. |     |
|-----------------------------------------------|------|-----------------|------|-----|
| <b>Center frequency</b> $f_c$                 | —    | 763.0           | —    | MHz |
| <b>Maximum insertion attenuation</b> $\alpha$ |      |                 |      |     |
| 758.0 ... 768.0 MHz                           | —    | 2.1             | 2.5  | dB  |
| <b>Amplitude ripple (p-p)</b> $\Delta\alpha$  |      |                 |      |     |
| 758.0 ... 768.0 MHz                           | —    | 0.6             | 1.5  | dB  |
| <b>Input VSWR (Ant port)</b>                  |      |                 |      |     |
| 758.0 ... 768.0 MHz                           | —    | 1.6             | 2.0  |     |
| <b>Output VSWR (Rx port)</b>                  |      |                 |      |     |
| 758.0 ... 768.0 MHz                           | —    | 1.7             | 2.0  |     |
| <b>Absolute attenuation</b> $\alpha$          |      |                 |      |     |
| 40.0 ... 698.0 MHz                            | 37   | 39              | —    | dB  |
| 698.0 ... 716.0 MHz                           | 37   | 40              | —    | dB  |
| 716.0 ... 728.0 MHz                           | 37   | 41              | —    | dB  |
| 746.0 ... 756.0 MHz                           | 1    | 2               | —    | dB  |
| 773.0 ... 777.0 MHz                           | 1    | 3               | —    | dB  |
| 777.0 ... 787.0 MHz                           | 3    | 11              | —    | dB  |
| 788.0 ... 798.0 MHz                           | 50   | 55              | —    | dB  |
| 798.0 ... 805.0 MHz                           | 45   | 53              | —    | dB  |
| 818.0 ... 824.0 MHz                           | 38   | 44              | —    | dB  |
| 824.0 ... 849.0 MHz                           | 38   | 42              | —    | dB  |
| 1516.0 ... 1566.0 MHz                         | 35   | 39              | —    | dB  |
| 1710.0 ... 1755.0 MHz                         | 35   | 39              | —    | dB  |
| 1850.0 ... 1920.0 MHz                         | 35   | 39              | —    | dB  |
| 2274.0 ... 2304.0 MHz                         | 35   | 38              | —    | dB  |
| 2334.0 ... 2364.0 MHz                         | 35   | 38              | —    | dB  |
| 3032.0 ... 3072.0 MHz                         | 32   | 37              | —    | dB  |



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### Characteristics

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| TX terminating impedance:            | $Z_{Tx} = 50\ \Omega$                        |
| ANT terminating impedance:           | $Z_{Ant} = 50\ \Omega \parallel 15\text{nH}$ |
| RX terminating impedance:            | $Z_{Rx} = 50\ \Omega$                        |

| Characteristics Tx-Rx |                     | min. | typ.<br>@ 25 °C | max. |    |
|-----------------------|---------------------|------|-----------------|------|----|
| Isolation             | $\alpha$            |      |                 |      |    |
|                       | 758.0 ... 768.0 MHz | 55   | 60              | —    | dB |
|                       | 788.0 ... 798.0 MHz | 50   | 57              | —    | dB |

### Maximum Ratings

|                           |           |                        |     |                                      |
|---------------------------|-----------|------------------------|-----|--------------------------------------|
| Storage temperature range | $T_{stg}$ | −40/+85                | °C  | machine model, 1 pulse               |
| DC voltage                | $V_{DC}$  | 5                      | V   |                                      |
| ESD voltage               | $V_{ESD}$ | est. 100 <sup>1)</sup> | V   |                                      |
| Input power at Tx Port    |           |                        |     |                                      |
| 788.0 ...798.0 MHz        | $P_{in}$  | 29                     | dBm | } continuous wave<br>55 °C, 50000hrs |
| 799.0 ...805.0 MHz        | $P_{in}$  | 25                     | dBm |                                      |
| elsewhere                 | $P_{in}$  | 10                     | dBm |                                      |
| Input power at ANT Port   |           |                        |     | continuous wave, 55 °C, 2500hrs      |
| 769.0 ...775.0 MHz        | $P_{in}$  | 25                     | dBm |                                      |

<sup>1)</sup> According to JESD22-A115A (machine model), 1 negative and 1 positive pulse. Value to be ascertained via test when samples are fabricated.



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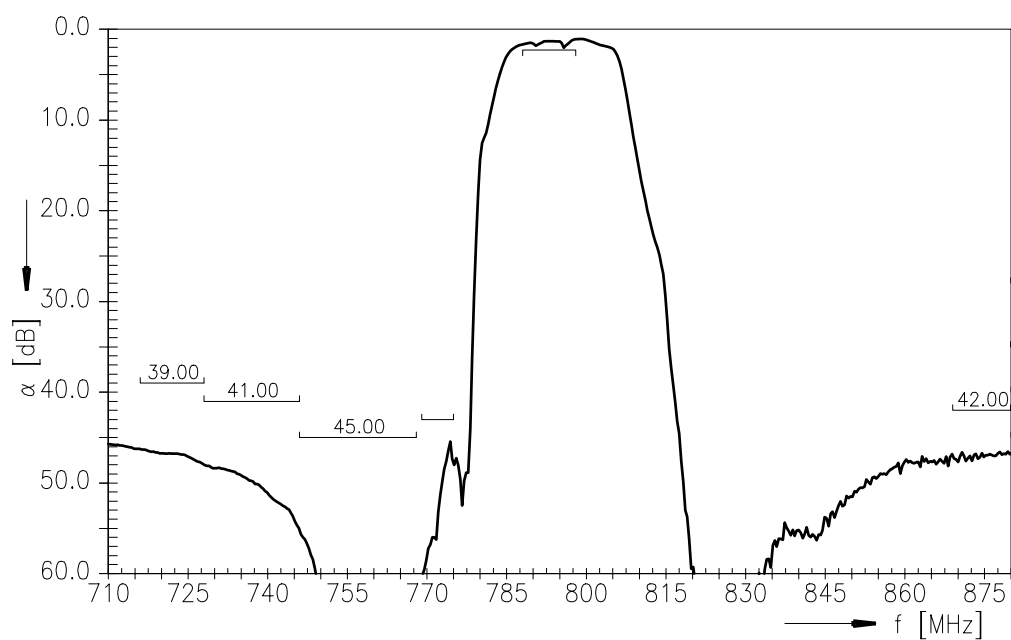
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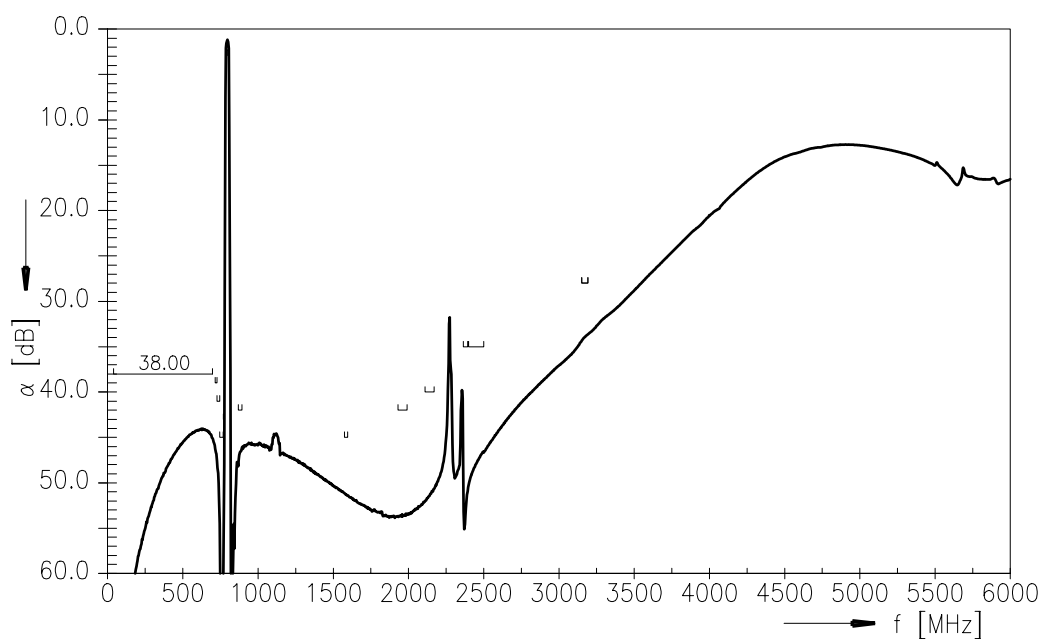
Data sheet



### Frequency response TX-ANT



### Frequency response TX-ANT (wideband)



Please read *cautions and warnings* and *important notes* at the end of this document.



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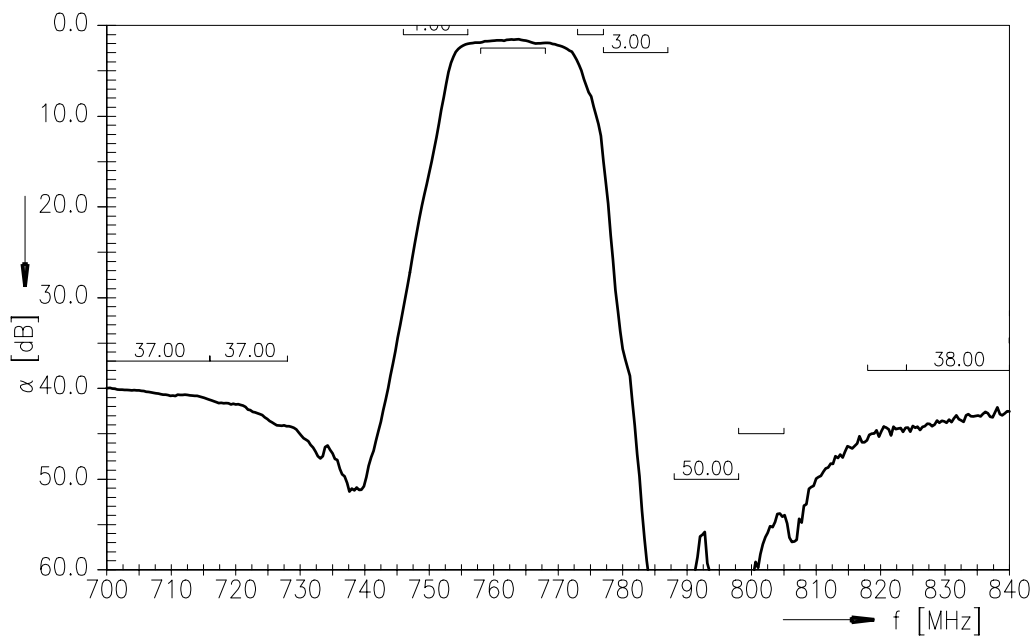
SAW Duplexer

793.00 / 763.00 MHz

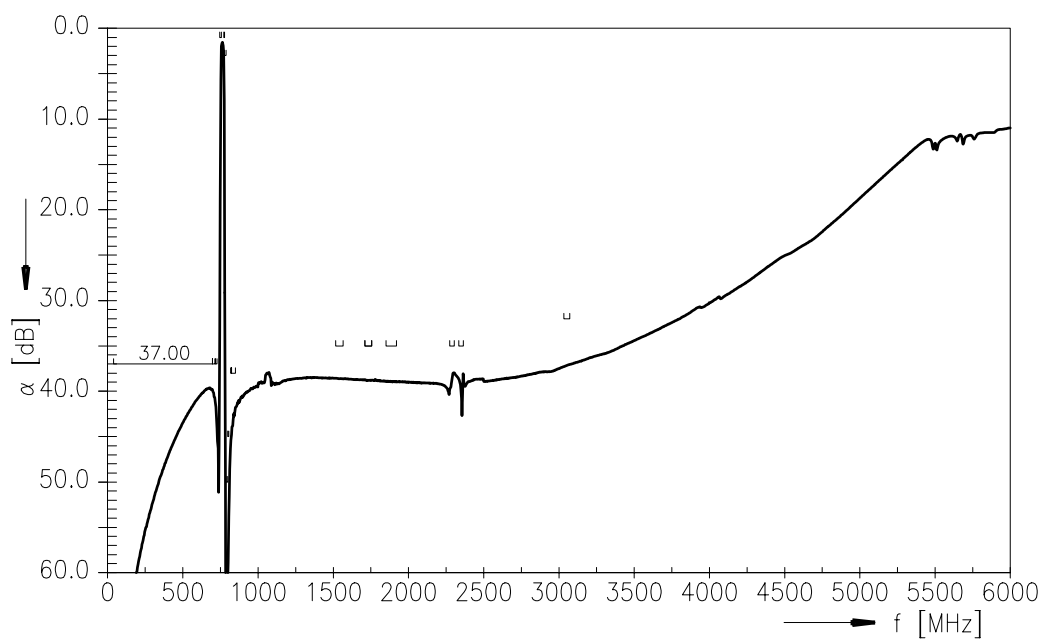
Data sheet



### Frequency Response RX-ANT



### Frequency Response RX-ANT (wideband)



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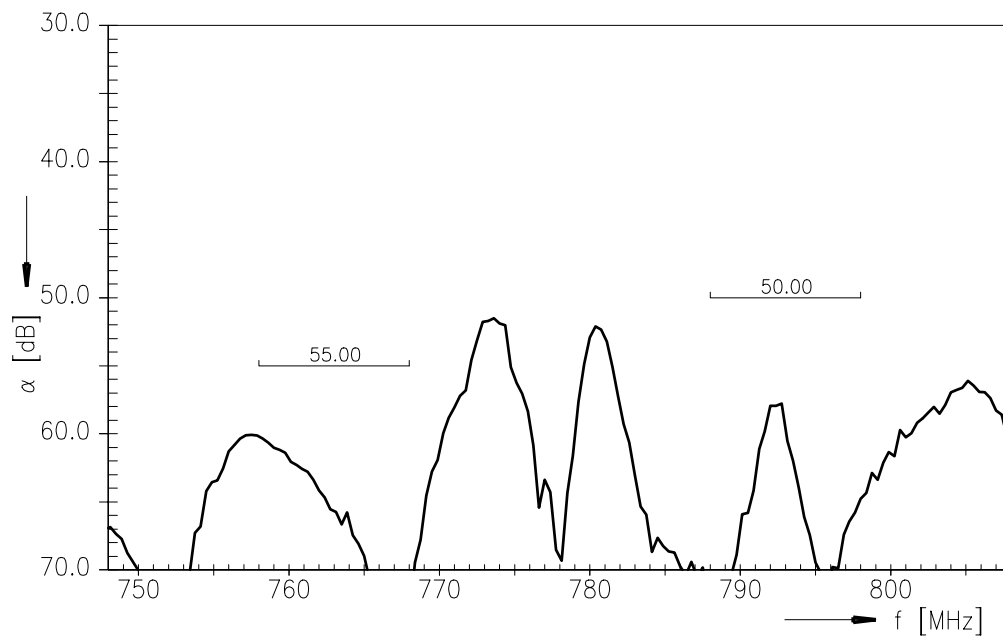
SAW Duplexer

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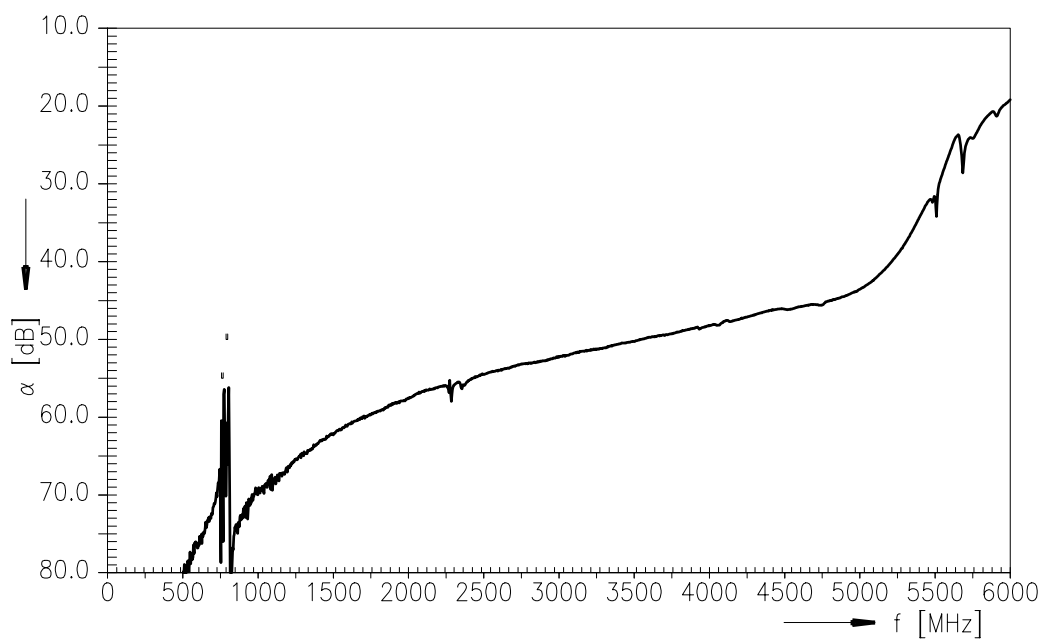
Data sheet



### Frequency Response TX-RX



### Frequency Response TX-RX (wideband)



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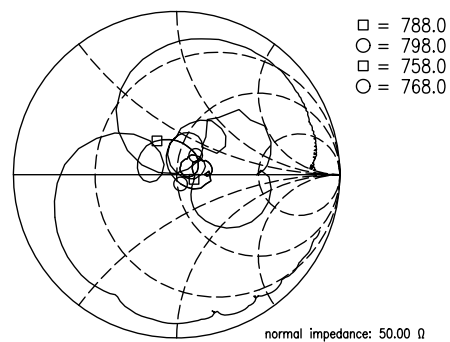
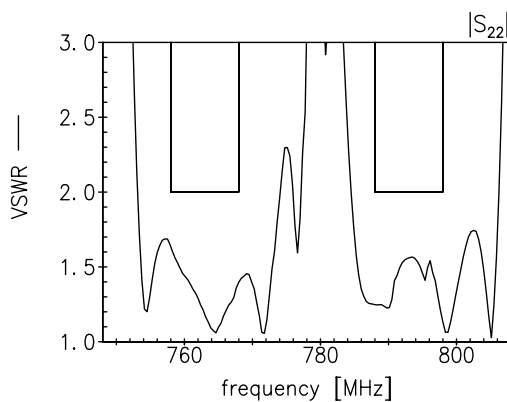
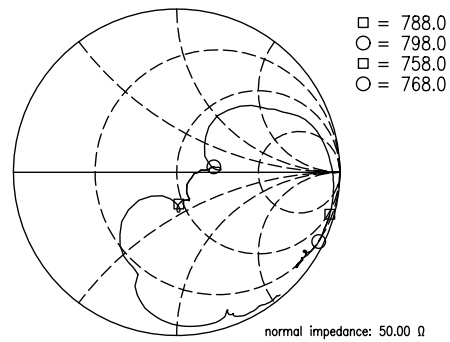
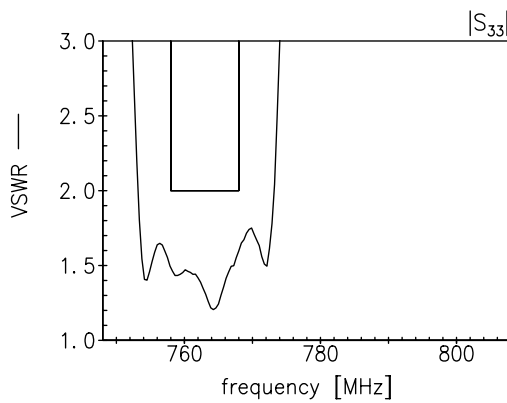
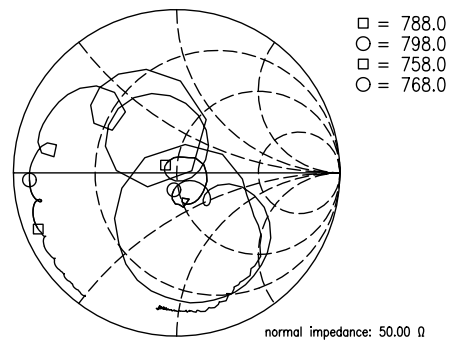
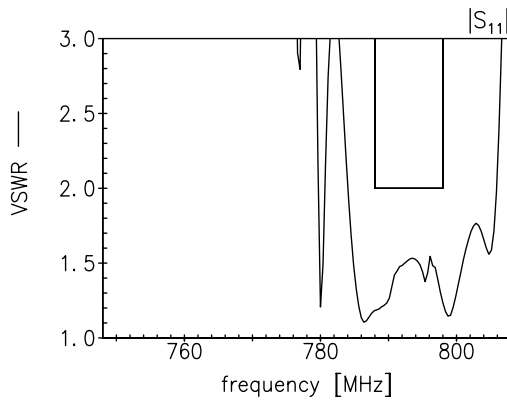


Return Loss

$S_{11}$  TX- port

$S_{22}$  ANT-port

$S_{33}$  RX-port



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**References**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                | B7929                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Ordering code</b>       | B39791B7929P810                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Marking and package</b> | C61157-A3-A61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Packaging</b>           | F611074-V8153-Z000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Date codes</b>          | L_1126                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>S-parameters</b>        | B7929_NB.s3p, B7929_WB.s3p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Soldering profile</b>   | S_6001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>RoHS compatible</b>     | defined as compatible with the following documents:<br>"DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment." |
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