

## *ASSP Mobile Communication Systems*

# Piezoelectric SAW BPF (1000 to 2500 MHz)

## F6 Series (L2 type)

### ■ DESCRIPTION

The F6 series of SAW band pass filters apply to the frequency range 1000 to 2500 MHz.

The SAW filters are fabricated on a lithium tantalate ( $\text{LiTaO}_3$ ) substrate, producing filters with a wide frequency bandwidth, low insertion loss in passband and superior stability due to the high electromechanical coupling coefficient of the material.

Fujitsu's leading techniques for making filter pattern designs realized this high frequency filter.

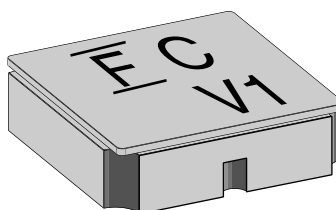
The F6 series filters are housed in a small surface mount package. Moreover, the impedance in the passband is 50  $\Omega$ , and so applications require no external matching circuits.

The F6 series SAW filters are suitable for interstage RF filter in mobile communications systems in the sub microwave frequency band. Standard devices are available for PCS, DCS1800, and 2.4 GHz wireless LAN systems.

### ■ FEATURES

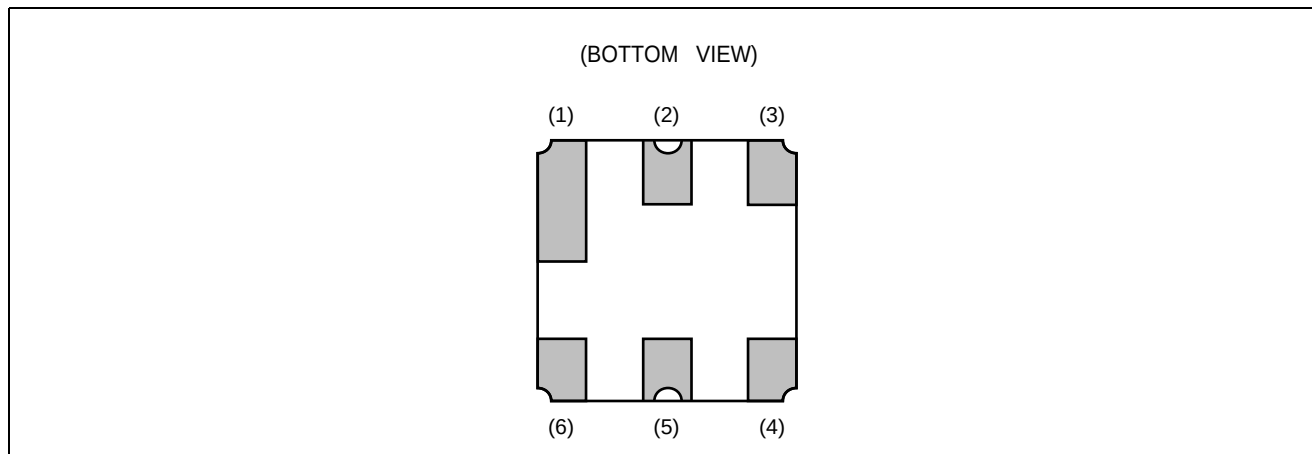
- High frequency filters
- Low insertion loss
- Ultra compact and light package (3.0 mm sq.)
- External matching circuits are not required.
- Surface mount package (SMT)
- Wide variety of standard devices for worldwide mobile communication systems

### ■ PACKAGE



# F6 Series (L2 type)

## ■ PIN ASSIGNMENT



## ■ PIN DESCRIPTION

| Pin No. | Pin name | Description |
|---------|----------|-------------|
| 1       | GND      | Ground      |
| 2       | IN       | Input       |
| 3       | GND      | Ground      |
| 4       | GND      | Ground      |
| 5       | OUT      | Output      |
| 6       | GND      | Ground      |

## ■ ABSOLUTE MAXIMUM RATINGS

| Parameter             | Symbol          | Value                               |      | Unit |
|-----------------------|-----------------|-------------------------------------|------|------|
|                       |                 | Min.                                | Max. |      |
| Operating temperature | Ta              | −30                                 | +85  | °C   |
| Storage temperature   | Tstg            | −40                                 | +100 | °C   |
| Maximum input level   | P <sub>IN</sub> | Refer to electrical characteristics |      | mW   |

**WARNING:** Semiconductor devices can be permanently damaged by application of stress (voltage, current, temperature, etc.) in excess of absolute maximum ratings. Do not exceed these ratings.

# F6 Series (L2 type)

## ■ RECOMMENDED OPERATING CONDITIONS (See WARNING)

| Parameter             | Symbol | Value |       | Unit |
|-----------------------|--------|-------|-------|------|
|                       |        | Min.  | Max.  |      |
| Operating temperature | Ta     | −30 * | +85 * | °C   |

\* : Standard Rating for Wireless LAN Systems is 0 to +60°C.

**WARNING:** Recommended operating conditions are normal operating ranges for the semiconductor device. All the device's electrical characteristics are warranted when operated within these ranges.

Always use semiconductor devices within the recommended operating conditions. Operation outside these ranges may adversely affect reliability and could result in device failure.

No warranty is made with respect to uses, operating conditions, or combinations not represented on the data sheet. Users considering application outside the listed conditions are advised to contact their FUJITSU representative beforehand.

## ■ STANDARD FREQUENCIES

| System       |    | Center freq.<br>(MHz) | Band<br>width | Part<br>symbol | Part number           | Remarks              |
|--------------|----|-----------------------|---------------|----------------|-----------------------|----------------------|
| GPS          |    | 1575.42               | 2             | 6              | FAR-F6CE-1G5754-L2UA  |                      |
| PCN          | Tx | 1747.5                | 75            | A              | FAR-F6CE-1G7475-L2YA  |                      |
|              | Rx | 1842.5                | 75            | B              | FAR-F6CE-1G8425-L2YB  |                      |
| US-PCS       | Tx | 1880.0                | 60            | C              | FAR-F6CE-1G8800-L2XA  |                      |
|              |    | 1880.0                | 60            | c              | FAR-F6CE-1G8800-L2XZ  | High Att. type       |
|              |    | 1880.0                | 60            | g              | FAR-F6CE-1G8800-L2XJ  | High Att. at Rx band |
|              | Rx | 1960.0                | 60            | D              | FAR-F6CE-1G9600-L2XB  |                      |
|              |    | 1960.0                | 60            | f              | FAR-F6CE-1G9600-L2XY  | High Att. type       |
| K-PCS        | Tx | 1750.0                | 60            | A              | FAR-F6CE-1G7475-L2YAC |                      |
|              |    | 1730.0                | 40            | K              | FAR-F6CE-1G7300-L2TC  |                      |
|              |    | 1765.0                | 30            | S              | FAR-F6CE-1G7650-L2TA  |                      |
|              | Rx | 1840.0                | 60            | B              | FAR-F6CE-1G8425-L2YBC |                      |
|              |    | 1820.0                | 40            | W              | FAR-F6CE-1G8200-L2TD  |                      |
|              |    | 1855.0                | 30            | T              | FAR-F6CE-1G8550-L2TB  |                      |
| Wireless LAN |    | 2448.5                | 97            | E              | FAR-F6CE-2G4500-L2WA  |                      |
|              |    | 2484.0                | 26            | P              | FAR-F6CE-2G4840-L2WC  | For Japan            |
|              |    | 2441.8                | 83            | L              | FAR-F6CE-2G4418-L2WD  | For Europe, USA      |

# F6 Series (L2 type)

## ■ ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

### 1. GPS

Part number: FAR-F6CE-1G5754-L2UA

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions             | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------------|-------|------|------|------|---------|
|                               |                 |                        | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1574.42 to 1776.42 MHz | —     | 2.7  | 3.5  | dB   |         |
| In-band deviation             | —               | 1574.42 to 1776.42 MHz | —     | 0.2  | 1.0  | dB   |         |
| Absolute stopband attenuation | —               | 1475.42 MHz            | 35    | 37   | —    | dB   |         |
|                               | —               | 1525.42 MHz            | 35    | 50   | —    | dB   |         |
|                               | —               | 1625.42 MHz            | 30    | 38   | —    | dB   |         |
|                               | —               | 1675.42 MHz            | 30    | 35   | —    | dB   |         |
| In-band VSWR                  | —               | 1574.42 to 1776.42 MHz | —     | 1.4  | 2.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1574.42 to 1776.42 MHz | —     | —    | 10   | mW   |         |

### 2. PCN (Tx)

Part number: FAR-F6CE-1G7475-L2YA

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1710 to 1785 MHz | —     | 3.0  | 4.2  | dB   |         |
| In-band deviation             | —               | 1710 to 1785 MHz | —     | 1.8  | 2.7  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 17    | 19   | —    | dB   |         |
|                               | —               | 1500 to 1670 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1805 to 1880 MHz | 7     | 12   | —    | dB   |         |
|                               | —               | 1880 to 2200 MHz | 20    | 23   | —    | dB   |         |
|                               | —               | 3420 to 3570 MHz | 25    | 31   | —    | dB   |         |
|                               | —               | 5130 to 5355 MHz | 15    | 25   | —    | dB   |         |
| In-band VSWR                  | —               | 1710 to 1785 MHz | —     | 2.5  | 3.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1710 to 1785 MHz | —     | —    | 20   | mW   |         |

# F6 Series (L2 type)

## 3. PCN (Rx)

Part number: FAR-F6CE-1G8425-L2YB

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1805 to 1880 MHz | —     | 3.3  | 4.5  | dB   |         |
| In-band deviation             | —               | 1805 to 1880 MHz | —     | 1.5  | 2.5  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1600 to 1710 MHz | 22    | 24   | —    | dB   |         |
|                               | —               | 1710 to 1785 MHz | 10    | 29   | —    | dB   |         |
|                               | —               | 1920 to 2400 MHz | 25    | 27   | —    | dB   |         |
|                               | —               | 3610 to 3760 MHz | 25    | 35   | —    | dB   |         |
|                               | —               | 5415 to 5640 MHz | 15    | 21   | —    | dB   |         |
| In-band VSWR                  | —               | 1805 to 1880 MHz | —     | 2.5  | 3.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1805 to 1880 MHz | —     | —    | 20   | mW   |         |

## 4. US-PCS (Tx)

Part number: FAR-F6CE-1G8800-L2XA

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1850 to 1910 MHz | —     | 3.2  | 4.2  | dB   |         |
| In-band deviation             | —               | 1850 to 1910 MHz | —     | 2.0  | 2.5  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1500 to 1800 MHz | 23    | 25   | —    | dB   |         |
|                               | —               | 1930 to 1990 MHz | 7     | 18   | —    | dB   |         |
|                               | —               | 3700 to 3820 MHz | 25    | 32   | —    | dB   |         |
|                               | —               | 5550 to 5730 MHz | 15    | 21   | —    | dB   |         |
| In-band VSWR                  | —               | 1850 to 1910 MHz | —     | 2.0  | 2.5  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1850 to 1910 MHz | —     | —    | 20   | mW   |         |

# F6 Series (L2 type)

## 5. US-PCS (Tx) High Attenuation type

Part number: FAR-F6CE-1G8800-L2XZ

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1850 to 1910 MHz | —     | 3.7  | 5.0  | dB   |         |
| In-band deviation             | —               | 1850 to 1910 MHz | —     | 1.7  | 3.0  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 120 MHz  | 40    | 47   | —    | dB   |         |
|                               | —               | 120 to 200 MHz   | 38    | 42   | —    | dB   |         |
|                               | —               | 200 to 1500 MHz  | 32    | 34   | —    | dB   |         |
|                               | —               | 1500 to 1800 MHz | 35    | 38   | —    | dB   |         |
|                               | —               | 1930 to 1990 MHz | 7     | 17   | —    | dB   |         |
|                               | —               | 1990 to 2200 MHz | 35    | 41   | —    | dB   |         |
|                               | —               | 2200 to 2350 MHz | 40    | 43   | —    | dB   |         |
|                               | —               | 2350 to 4000 MHz | 20    | 32   | —    | dB   |         |
|                               | —               | 4000 to 5000 MHz | 5     | 9    | —    | dB   |         |
| In-band VSWR                  | —               | 1850 to 1910 MHz | —     | 2.3  | 2.8  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1850 to 1910 MHz | —     | —    | 20   | mW   |         |

## 6. US-PCS (Tx) High Attenuation at Rx band type

Part number: FAR-F6CE-1G8800-L2XJ

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1850 to 1910 MHz | —     | 2.7  | 4.2  | dB   |         |
| In-band deviation             | —               | 1850 to 1910 MHz | —     | 1.2  | 2.6  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 15    | 20   | —    | dB   |         |
|                               | —               | 1500 to 1750 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1930 to 1990 MHz | 9     | 15   | —    | dB   |         |
|                               | —               | 1990 to 2300 MHz | 20    | 25   | —    | dB   |         |
|                               | —               | 2300 to 2500 MHz | 15    | 20   | —    | dB   |         |
| In-band VSWR                  | —               | 1850 to 1910 MHz | —     | 2.2  | 2.5  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1850 to 1910 MHz | —     | —    | 20   | mW   |         |

# F6 Series (L2 type)

## 7. US-PCS (Rx)

Part number: FAR-F6CE-1G9600-L2XB

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1930 to 1990 MHz | —     | 3.3  | 4.5  | dB   |         |
| In-band deviation             | —               | 1930 to 1990 MHz | —     | 2.0  | 2.8  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 21    | 23   | —    | dB   |         |
|                               | —               | 1500 to 1850 MHz | 23    | 25   | —    | dB   |         |
|                               | —               | 1850 to 1910 MHz | 10    | 30   | —    | dB   |         |
|                               | —               | 3860 to 3980 MHz | 25    | 32   | —    | dB   |         |
|                               | —               | 5790 to 5970 MHz | 15    | 23   | —    | dB   |         |
| In-band VSWR                  | —               | 1930 to 1990 MHz | —     | 1.8  | 2.5  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1930 to 1990 MHz | —     | —    | 20   | mW   |         |

## 8. US-PCS (Rx) High Attenuation type

Part number: FAR-F6CE-1G9600-L2XY

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1930 to 1990 MHz | —     | 3.5  | 5.0  | dB   |         |
| In-band deviation             | —               | 1930 to 1990 MHz | —     | 1.0  | 2.5  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 100 MHz  | 40    | 42   | —    | dB   |         |
|                               | —               | 100 to 200 MHz   | 35    | 36   | —    | dB   |         |
|                               | —               | 200 to 1100 MHz  | 25    | 30   | —    | dB   |         |
|                               | —               | 1100 to 1190 MHz | 29    | 31   | —    | dB   |         |
|                               | —               | 1190 to 1700 MHz | 30    | 32   | —    | dB   |         |
|                               | —               | 1700 to 1850 MHz | 35    | 41   | —    | dB   |         |
|                               | —               | 1850 to 1880 MHz | 25    | 47   | —    | dB   |         |
|                               | —               | 1880 to 1910 MHz | 8     | 12   | —    | dB   |         |
|                               | —               | 2010 to 2040 MHz | 8     | 15   | —    | dB   |         |
|                               | —               | 2040 to 2070 MHz | 25    | 48   | —    | dB   |         |
|                               | —               | 2070 to 2300 MHz | 40    | 41   | —    | dB   |         |
|                               | —               | 2300 to 3100 MHz | 35    | 37   | —    | dB   |         |
|                               | —               | 3100 to 3700 MHz | 33    | 36   | —    | dB   |         |
|                               | —               | 3700 to 4800 MHz | 25    | 35   | —    | dB   |         |
|                               | —               | 4800 to 6000 MHz | 10    | 14   | —    | dB   |         |
| In-band VSWR                  | —               | 1930 to 1990 MHz | —     | 2.3  | 2.6  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1930 to 1990 MHz | —     | —    | 20   | mW   |         |

# F6 Series (L2 type)

## 9. Korea-PCS (Tx) 60 MHz Band Width

Part number: FAR-F6CE-1G7475-L2YAC

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1720 to 1780 MHz | —     | 2.5  | 3.5  | dB   |         |
| In-band deviation             | —               | 1720 to 1780 MHz | —     | 1.0  | 2.0  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 17    | 19   | —    | dB   |         |
|                               | —               | 1500 to 1670 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1810 to 1870 MHz | 12    | 18   | —    | dB   |         |
|                               | —               | 1870 to 2200 MHz | 20    | 23   | —    | dB   |         |
|                               | —               | 3420 to 3570 MHz | 25    | 31   | —    | dB   |         |
|                               | —               | 5130 to 5355 MHz | 15    | 25   | —    | dB   |         |
| In-band VSWR                  | —               | 1720 to 1780 MHz | —     | 2.5  | 3.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1720 to 1780 MHz | —     | —    | 20   | mW   |         |

## 10. Korea-PCS (Tx) Lower 40 MHz Band Width

Part number: FAR-F6CE-1G7300-L2TC

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1710 to 1750 MHz | —     | 2.2  | 3.0  | dB   |         |
| In-band deviation             | —               | 1710 to 1750 MHz | —     | 1.2  | 1.5  | dB   |         |
| Absolute stopband attenuation | —               | 1310 to 1350 MHz | 20    | 27   | —    | dB   |         |
|                               | —               | 1620 to 1660 MHz | 30    | 36   | —    | dB   |         |
|                               | —               | 1800 to 1840 MHz | 30    | 34   | —    | dB   |         |
|                               | —               | 2110 to 2150 MHz | 25    | 33   | —    | dB   |         |
| In-band VSWR                  | —               | 1710 to 1750 MHz | —     | 1.9  | 2.3  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1710 to 1750 MHz | —     | —    | 20   | mW   |         |



# F6 Series (L2 type)

## 11. Korea-PCS (Tx) Upper 30 MHz Band Width

Part number: FAR-F6CE-1G7650-L2TA

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks           |
|-------------------------------|-----------------|------------------|-------|------|------|------|-------------------|
|                               |                 |                  | Min.  | Typ. | Max. |      |                   |
| Insertion loss                | IL              | 1750 to 1780 MHz | —     | 2.2  | 2.5  | dB   | Ta = +25°C        |
|                               |                 |                  |       |      | 3.0  | dB   | Ta = -30 to +85°C |
| In-band deviation             | —               | 1750 to 1780 MHz | —     | 1.2  | 1.5  | dB   |                   |
| Absolute stopband attenuation | —               | 1350 to 1380 MHz | 25    | 27   | —    | dB   |                   |
|                               | —               | 1660 to 1690 MHz | 30    | 40   | —    | dB   |                   |
|                               | —               | 1840 to 1870 MHz | 30    | 35   | —    | dB   |                   |
|                               | —               | 2150 to 2180 MHz | 30    | 33   | —    | dB   |                   |
| In-band VSWR                  | —               | 1750 to 1780 MHz | —     | 1.8  | 2.0  | —    |                   |
| Max. input power              | P <sub>IN</sub> | 1750 to 1780 MHz | —     | —    | 20   | mW   |                   |

## 12. Korea-PCS (Rx) 60 MHz Band Width

Part number: FAR-F6CE-1G8425-L2YBC

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1810 to 1870 MHz | —     | 3.0  | 3.5  | dB   |         |
| In-band deviation             | —               | 1810 to 1870 MHz | —     | 1.5  | 2.0  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1500 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1500 to 1720 MHz | 22    | 24   | —    | dB   |         |
|                               | —               | 1720 to 1780 MHz | 20    | 33   | —    | dB   |         |
|                               | —               | 1920 to 2400 MHz | 25    | 27   | —    | dB   |         |
|                               | —               | 3610 to 3760 MHz | 25    | 35   | —    | dB   |         |
|                               | —               | 5415 to 5640 MHz | 15    | 21   | —    | dB   |         |
| In-band VSWR                  | —               | 1810 to 1870 MHz | —     | 2.5  | 3.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1810 to 1870 MHz | —     | —    | 20   | mW   |         |

# F6 Series (L2 type)

## 13. Korea-PCS (Rx) Lower 40 MHz Band Width

Part number: FAR-F6CE-1G8200-L2TD

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 1800 to 1840 MHz | —     | 2.2  | 3.0  | dB   |         |
| In-band deviation             | —               | 1800 to 1840 MHz | —     | 1.0  | 1.3  | dB   |         |
| Absolute stopband attenuation | —               | 1400 to 1440 MHz | 20    | 27   | —    | dB   |         |
|                               | —               | 1710 to 1750 MHz | 30    | 40   | —    | dB   |         |
|                               | —               | 1890 to 1930 MHz | 30    | 35   | —    | dB   |         |
|                               | —               | 2200 to 2240 MHz | 25    | 33   | —    | dB   |         |
| In-band VSWR                  | —               | 1800 to 1840 MHz | —     | 2.1  | 2.3  | —    |         |
| Max. input power              | P <sub>IN</sub> | 1800 to 1840 MHz | —     | —    | 20   | mW   |         |

## 14. Korea-PCS (Rx) Upper 30 MHz Band Width

Part number: FAR-F6CE-1G8550-L2TB

(Ta = -30 to +85°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks           |
|-------------------------------|-----------------|------------------|-------|------|------|------|-------------------|
|                               |                 |                  | Min.  | Typ. | Max. |      |                   |
| Insertion loss                | IL              | 1840 to 1870 MHz | —     | 2.2  | 2.5  | dB   | Ta = +25°C        |
|                               |                 |                  |       |      | 3.0  | dB   | Ta = -30 to +85°C |
| In-band deviation             | —               | 1840 to 1870 MHz | —     | 1.1  | 1.5  | dB   |                   |
| Absolute stopband attenuation | —               | 1440 to 1470 MHz | 25    | 28   | —    | dB   |                   |
|                               | —               | 1750 to 1780 MHz | 30    | 40   | —    | dB   |                   |
|                               | —               | 1930 to 1960 MHz | 30    | 40   | —    | dB   |                   |
|                               | —               | 2240 to 2270 MHz | 30    | 34   | —    | dB   |                   |
| In-band VSWR                  | —               | 1840 to 1870 MHz | —     | 1.7  | 2.0  | —    |                   |
| Max. input power              | P <sub>IN</sub> | 1840 to 1870 MHz | —     | —    | 20   | mW   |                   |

# F6 Series (L2 type)

## 15. Wireless-LAN 97 MHz Band Width

Part number: FAR-F6CE-2G4500-L2WA

(Ta = 0 to +60°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 2400 to 2497 MHz | —     | 4.0  | 5.0  | dB   |         |
| In-band deviation             | —               | 2400 to 2497 MHz | —     | 2.0  | 3.0  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1700 MHz | 20    | 22   | —    | dB   |         |
|                               | —               | 1800 to 2200 MHz | 25    | 27   | —    | dB   |         |
|                               | —               | 2700 to 3100 MHz | 30    | 33   | —    | dB   |         |
|                               | —               | 4800 to 5000 MHz | 10    | 16   | —    | dB   |         |
| In-band VSWR                  | —               | 2400 to 2497 MHz | —     | 2.2  | 2.6  | —    |         |
| Max. input power              | P <sub>IN</sub> | 2400 to 2497 MHz | —     | —    | 10   | mW   |         |

## 16. Wireless-LAN 26 MHz Band Width (For Japan)

Part number: FAR-F6CE-2G4840-L2WC

(Ta = 0 to +60°C)

| Parameter                     | Symbol          | Conditions       | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|------------------|-------|------|------|------|---------|
|                               |                 |                  | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 2471 to 2497 MHz | —     | 2.5  | 3.5  | dB   |         |
| In-band deviation             | —               | 2471 to 2497 MHz | —     | 1.0  | 1.5  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1700 MHz | 20    | 23   | —    | dB   |         |
|                               | —               | 1800 to 2200 MHz | 25    | 27   | —    | dB   |         |
|                               | —               | 2700 to 3100 MHz | 30    | 33   | —    | dB   |         |
|                               | —               | 4800 to 5000 MHz | 10    | 16   | —    | dB   |         |
| In-band VSWR                  | —               | 2471 to 2497 MHz | —     | 1.5  | 2.0  | —    |         |
| Max. input power              | P <sub>IN</sub> | 2471 to 2497 MHz | —     | —    | 10   | mW   |         |

# F6 Series (L2 type)

## 17. Wireless-LAN 83.5 MHz Band Width (For Europe, USA)

Part number: FAR-F6CE-2G4418-L2WD

(Ta = 0 to +60°C)

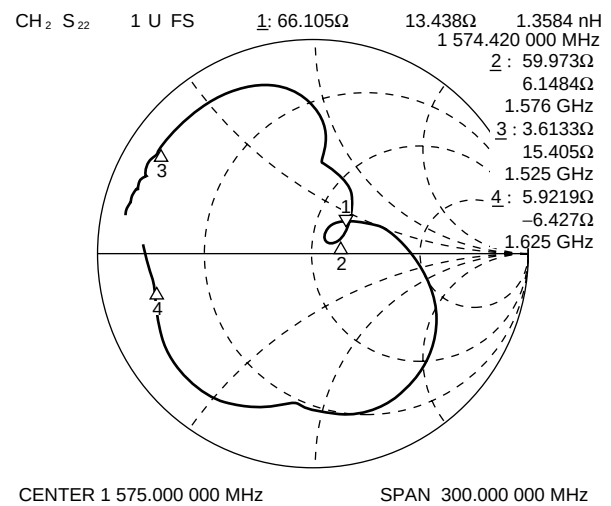
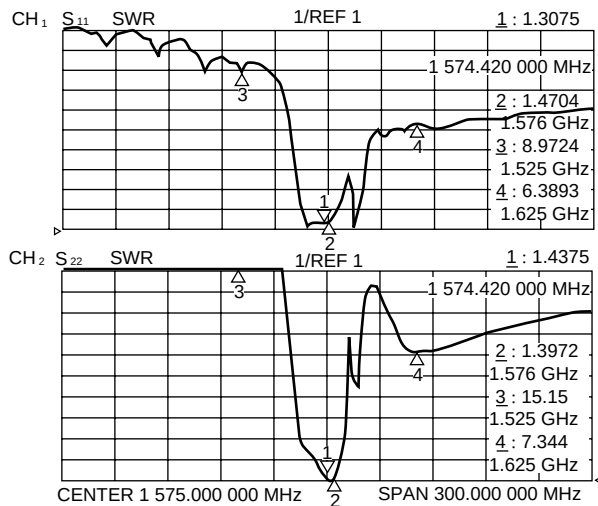
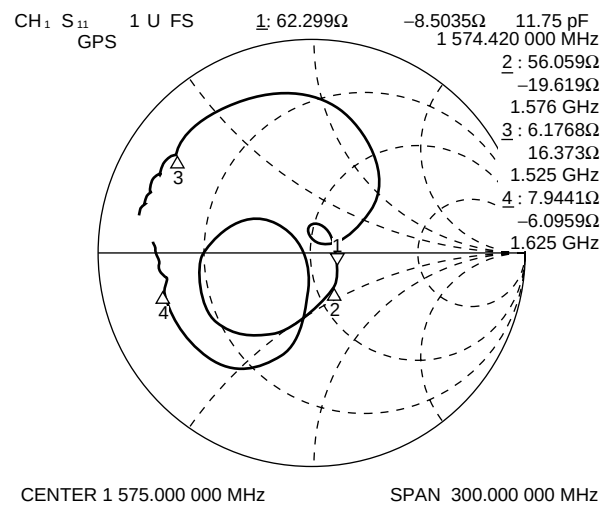
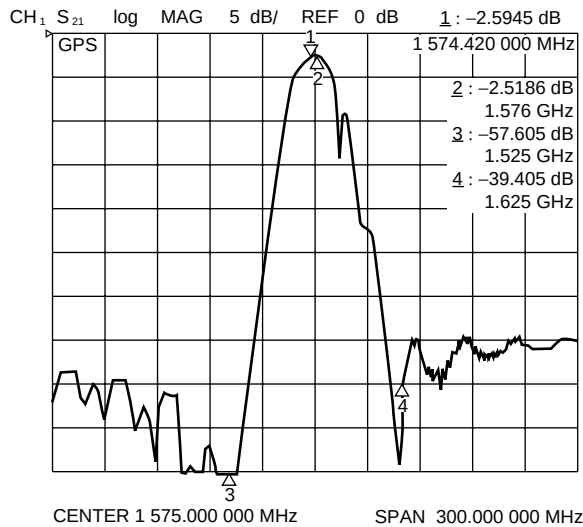
| Parameter                     | Symbol          | Conditions         | Value |      |      | Unit | Remarks |
|-------------------------------|-----------------|--------------------|-------|------|------|------|---------|
|                               |                 |                    | Min.  | Typ. | Max. |      |         |
| Insertion loss                | IL              | 2400 to 2483.5 MHz | —     | 3.2  | 4.5  | dB   |         |
| In-band deviation             | —               | 2400 to 2483.5 MHz | —     | 1.3  | 2.5  | dB   |         |
| Absolute stopband attenuation | —               | D.C. to 1700 MHz   | 20    | 22   | —    | dB   |         |
|                               | —               | 1800 to 2200 MHz   | 25    | 27   | —    | dB   |         |
|                               | —               | 2700 to 3100 MHz   | 30    | 33   | —    | dB   |         |
|                               | —               | 4800 to 5000 MHz   | 10    | 16   | —    | dB   |         |
| In-band VSWR                  | —               | 2400 to 2483.5 MHz | —     | 2.2  | 2.6  | —    |         |
| Max. input power              | P <sub>IN</sub> | 2400 to 2483.5 MHz | —     | —    | 10   | mW   |         |

# F6 Series (L2 type)

## ■ TYPICAL CHARACTERISTICS (STANDARD VERSION)

### 1. GPS

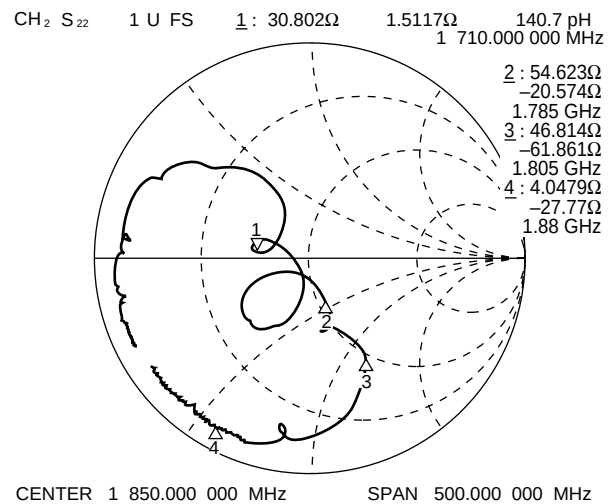
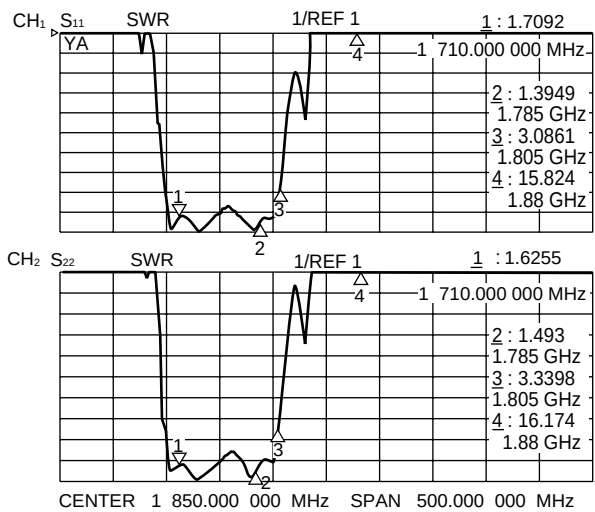
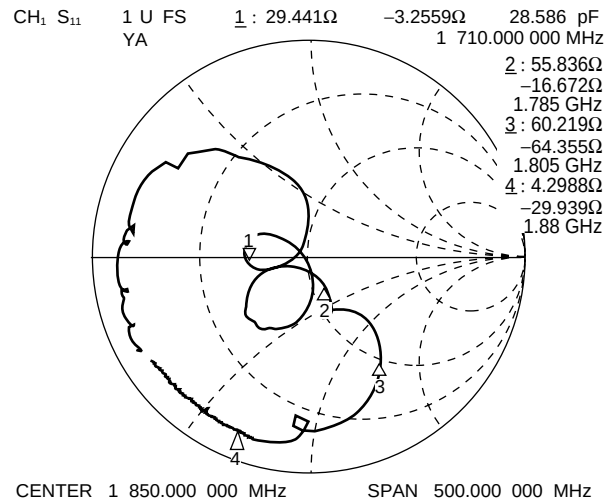
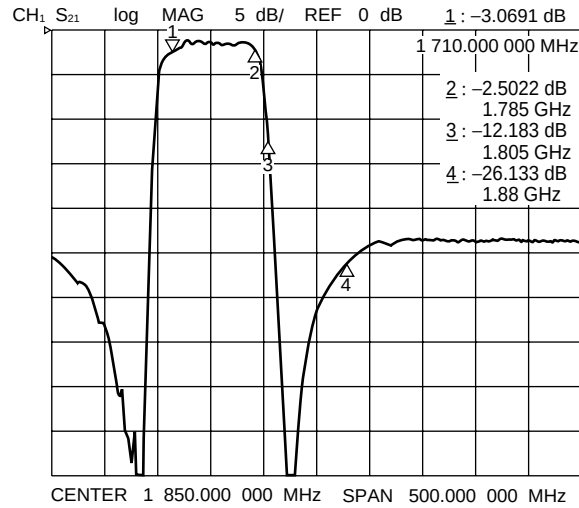
Part number: FAR-F6CE-1G5754-L2UA



# F6 Series (L2 type)

## 2. PCN (Tx)

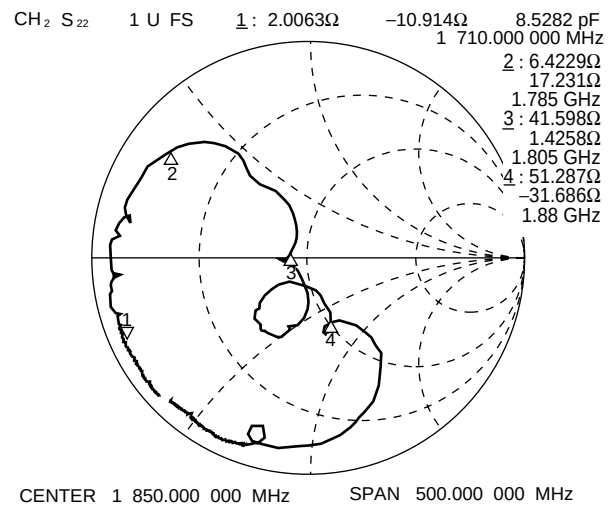
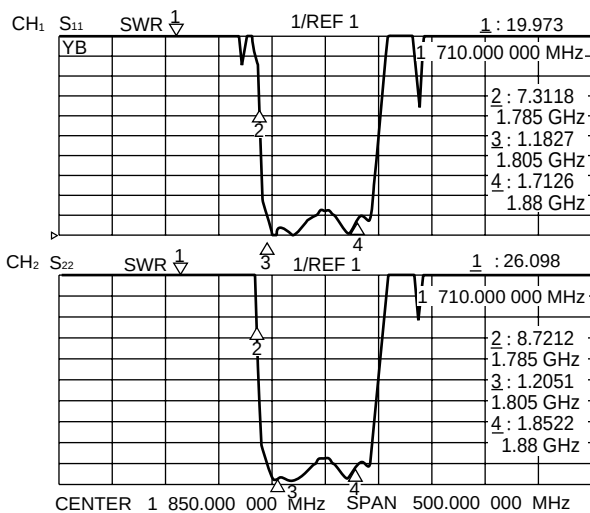
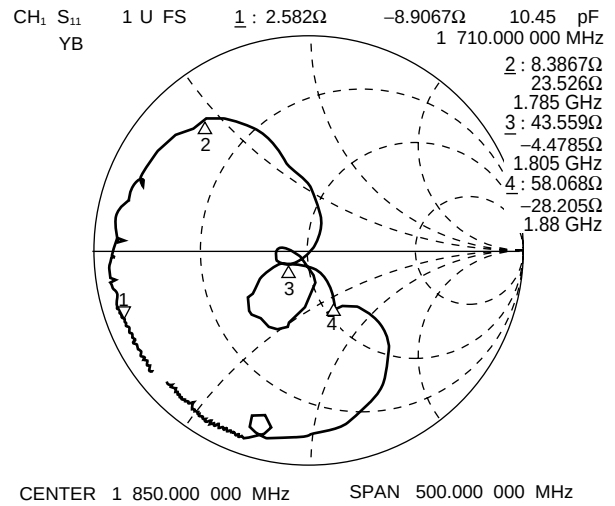
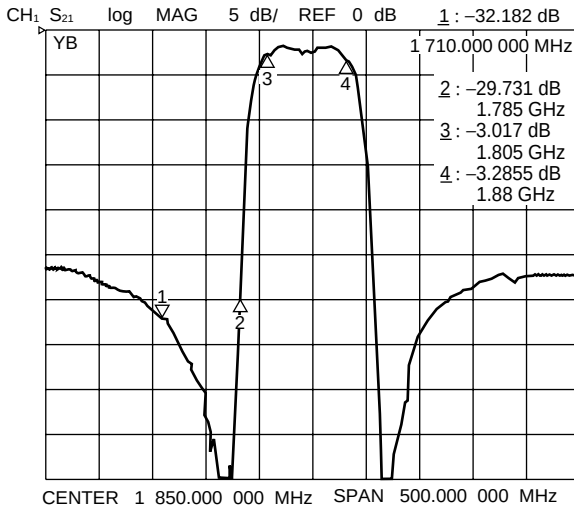
Part number: FAR-F6CE-1G7475-L2YA



# F6 Series (L2 type)

## 3. PCN (Rx)

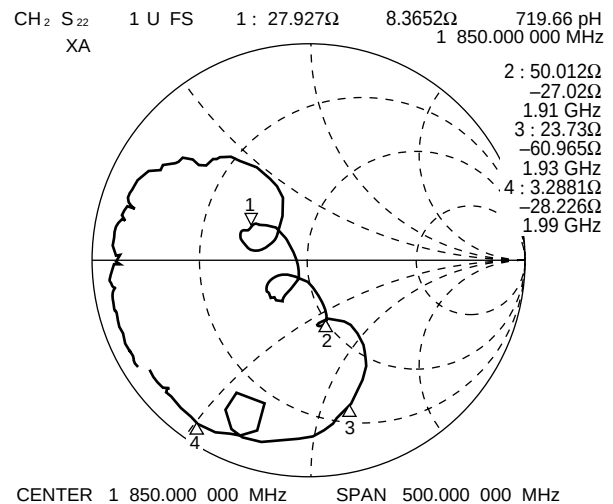
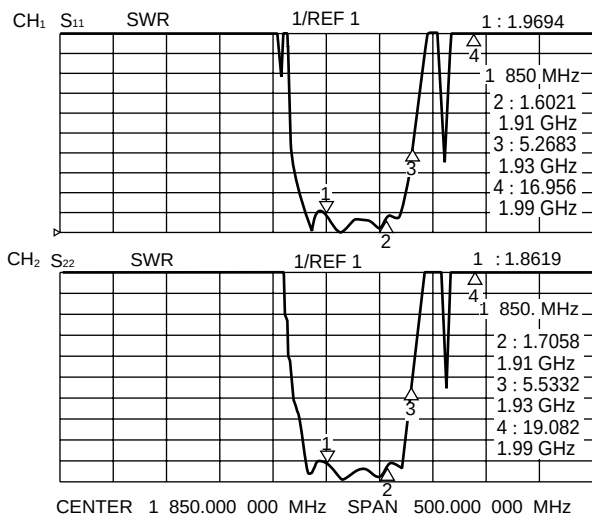
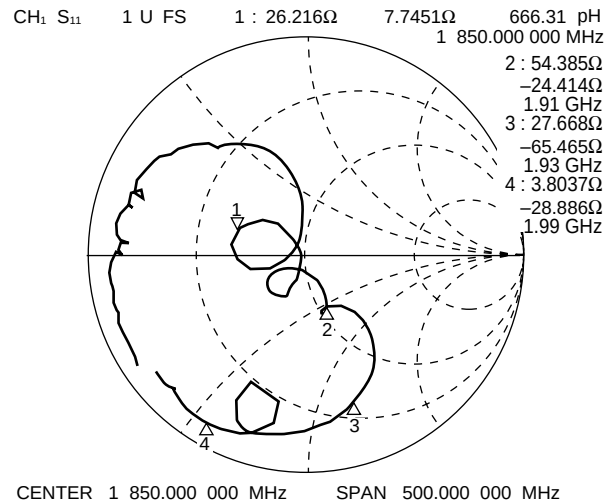
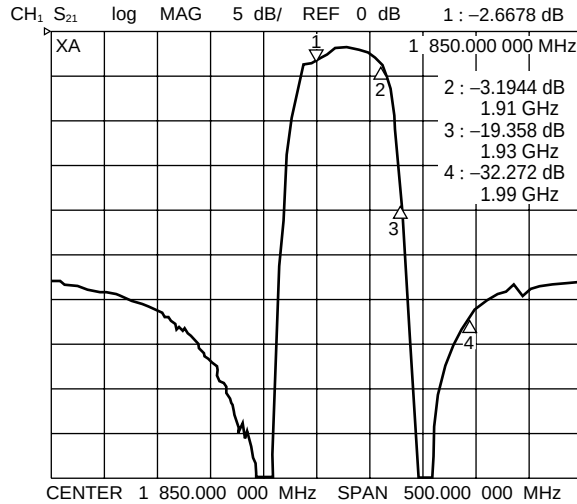
Part number: FAR-F6CE-1G8425-L2YB



# F6 Series (L2 type)

## 4. US-PCS (Tx)

Part number: FAR-F6CE-1G8800-L2XA

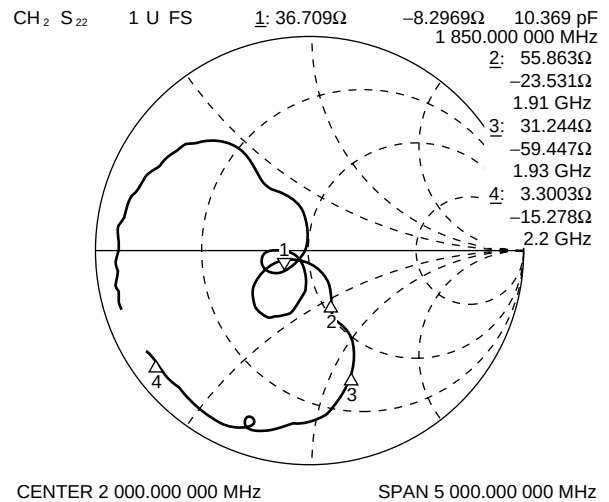
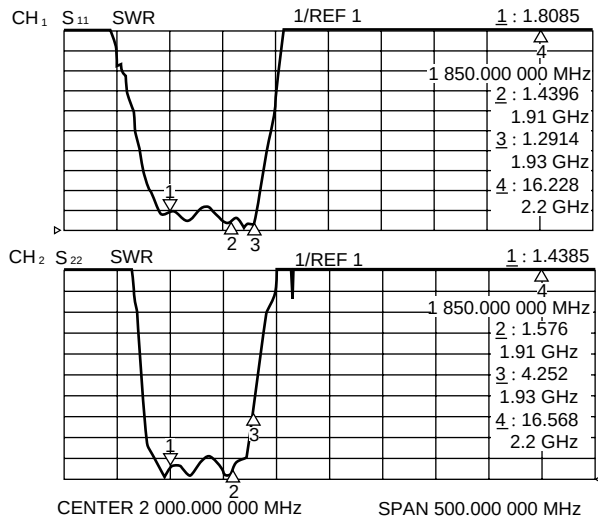
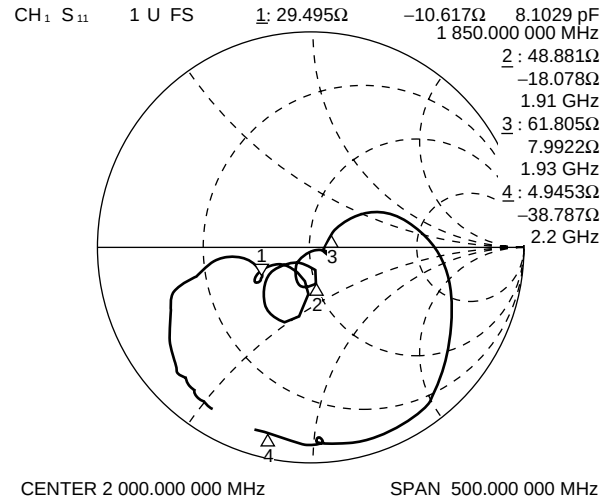
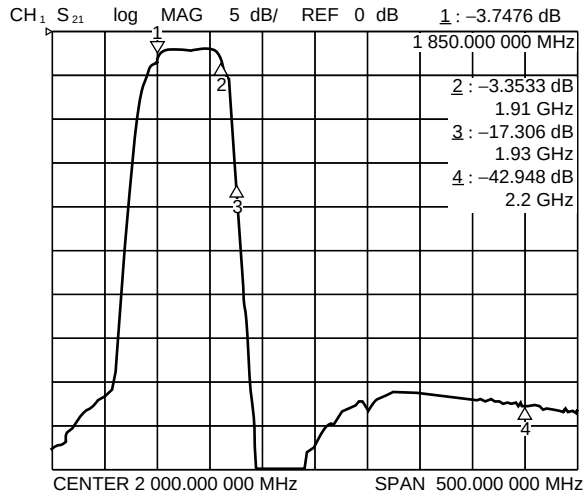




# F6 Series (L2 type)

## 5. US-PCS (Tx) High Attenuation type

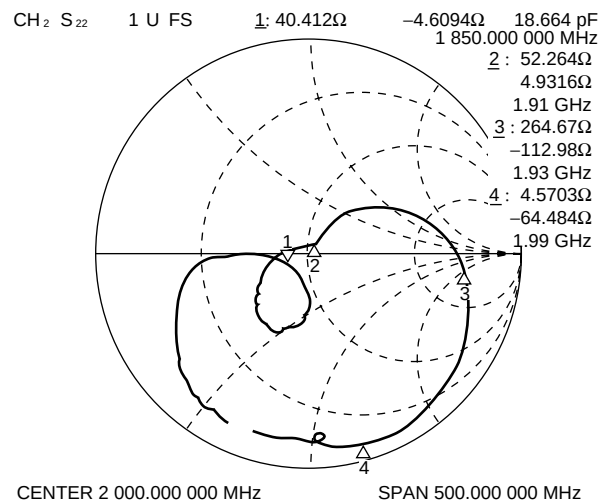
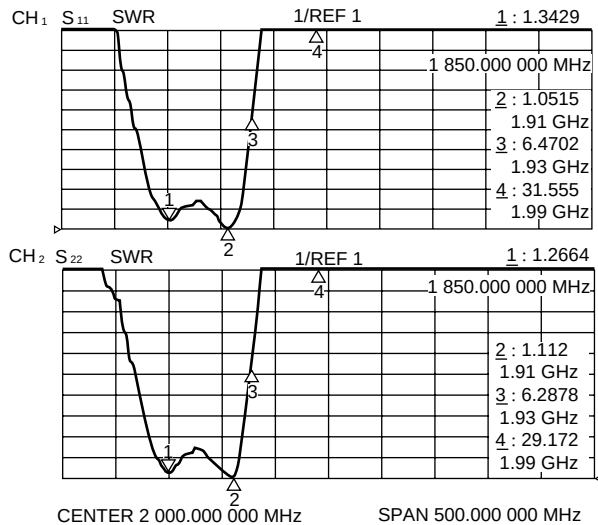
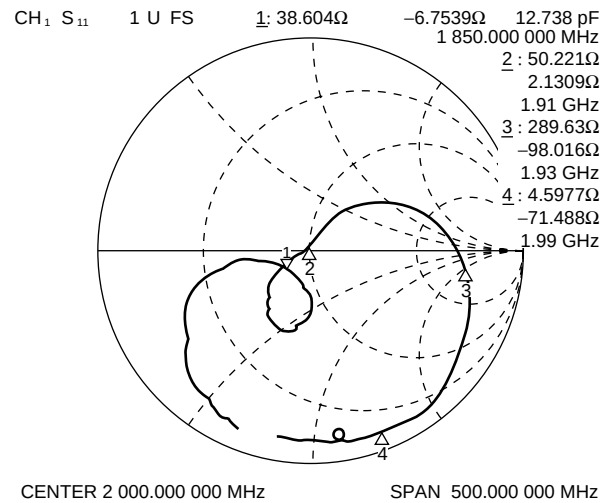
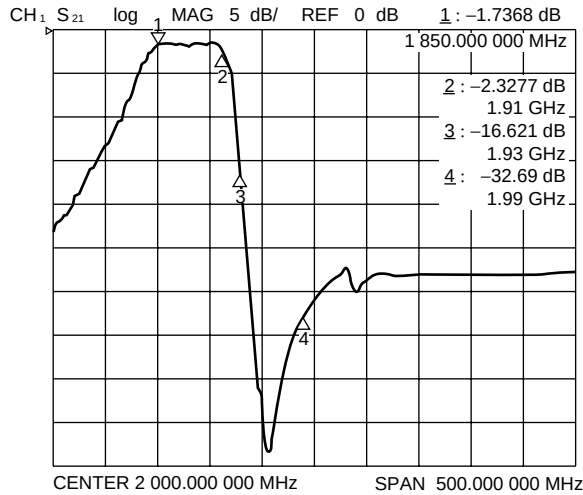
Part number: FAR-F6CE-1G8800-L2XZ



# F6 Series (L2 type)

## 6. US-PCS (Tx) High Attenuation at Rx band type

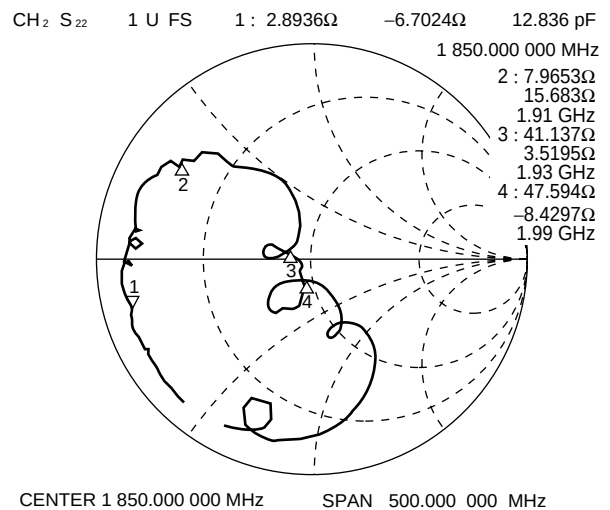
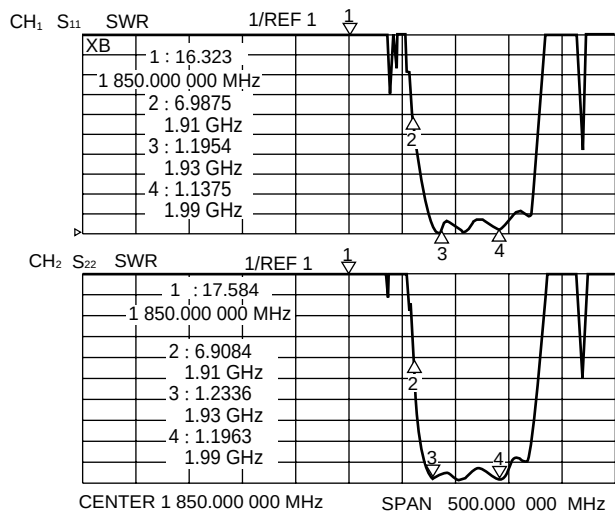
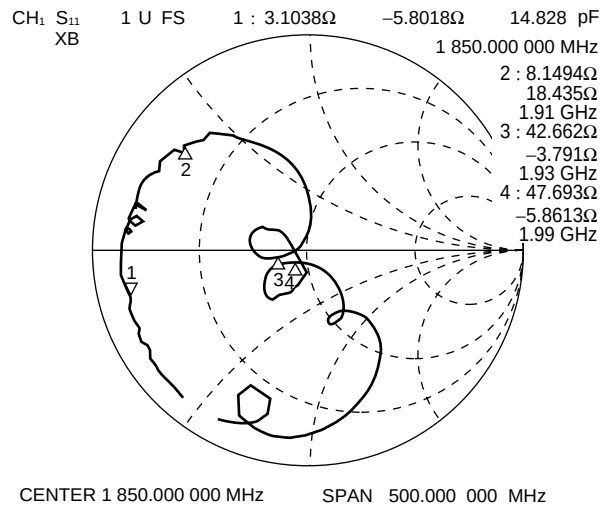
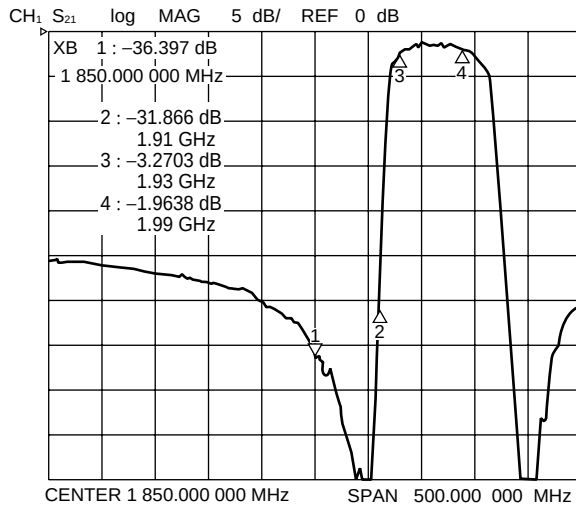
Part number: FAR-F6CE-1G8800-L2XJ



# F6 Series (L2 type)

## 7. US-PCS (Rx)

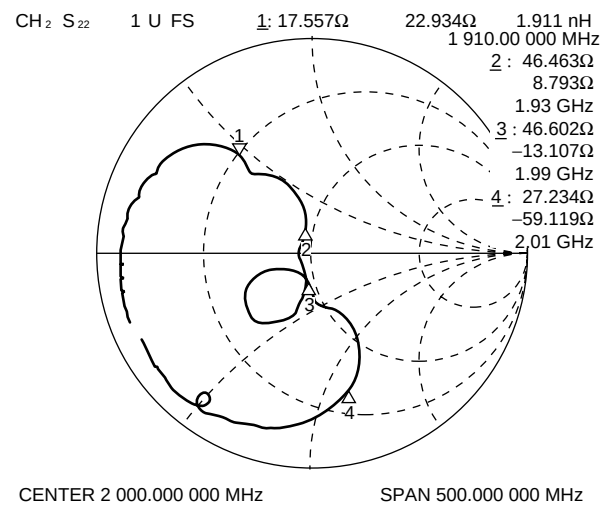
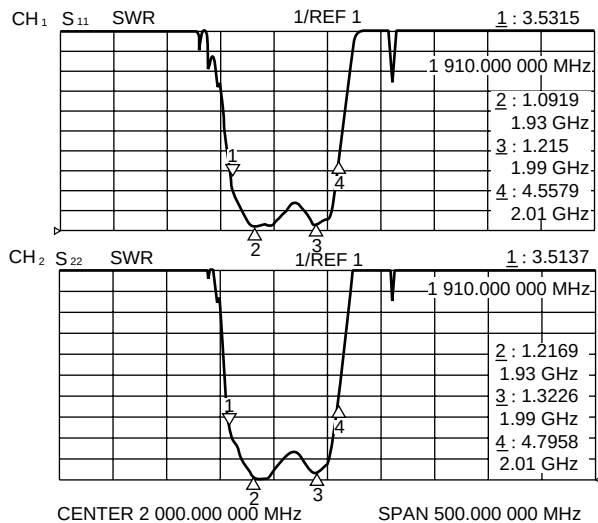
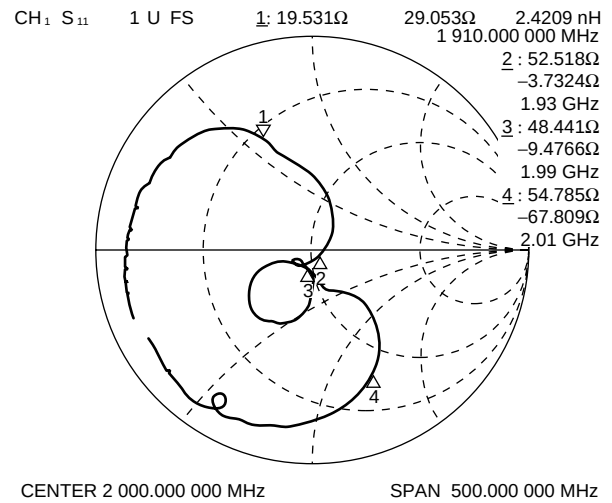
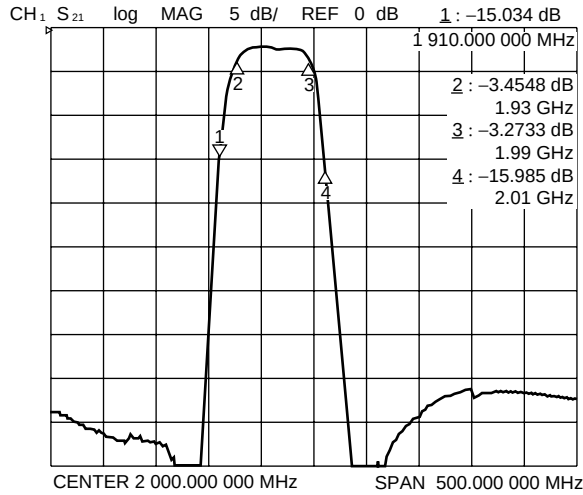
Part number: FAR-F6CE-1G9600-L2XB



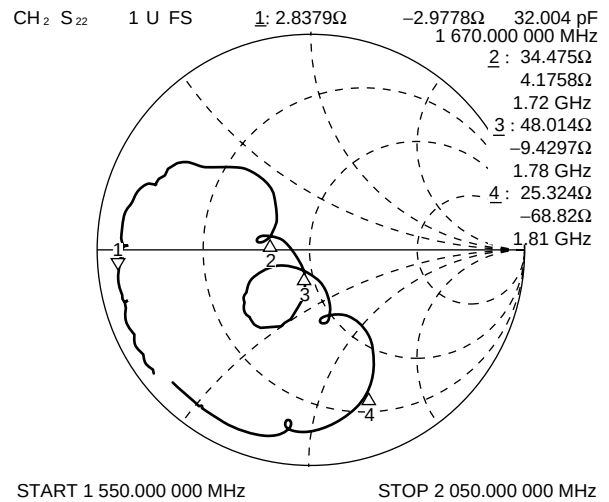
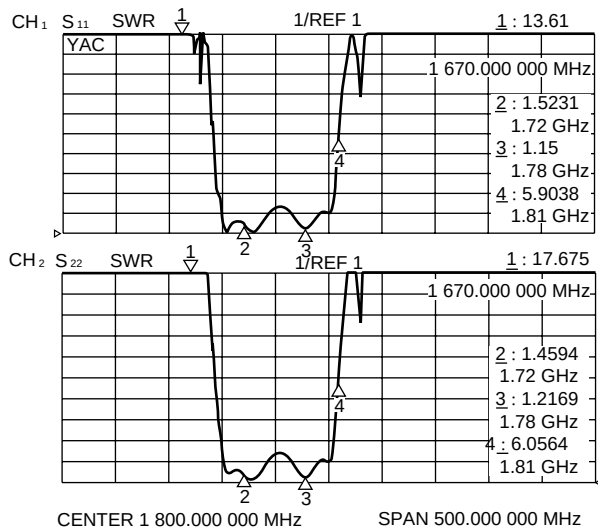
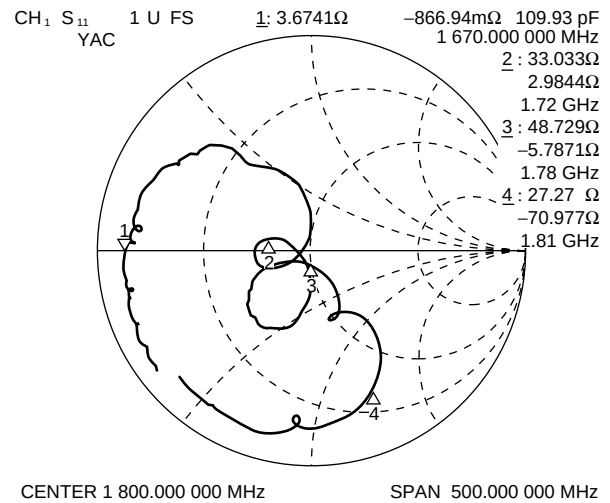
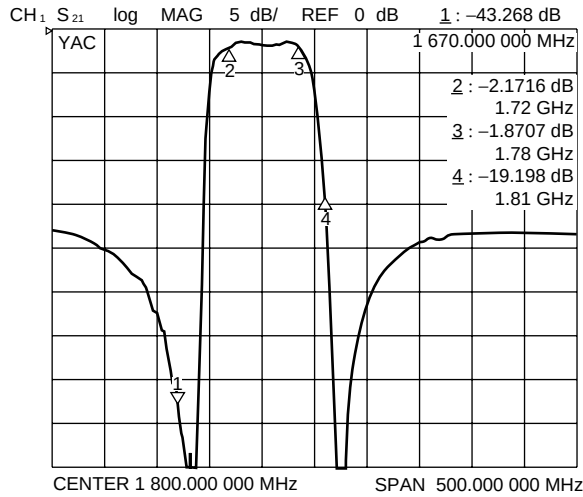
# F6 Series (L2 type)

## 8. US-PCS (Rx) High Attenuation type

Part number: FAR-F6CE-1G9600-L2XY



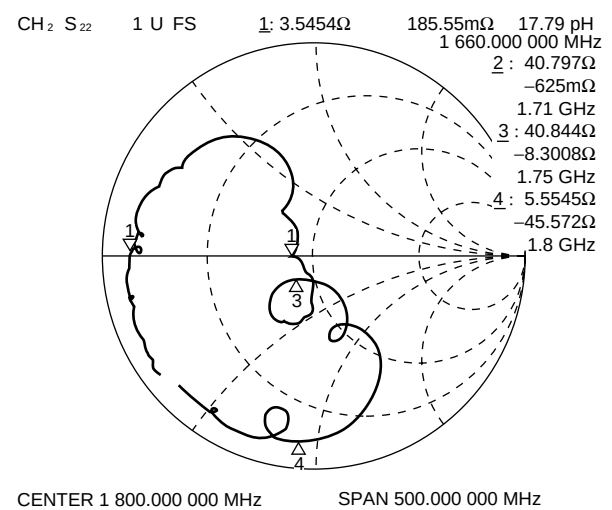
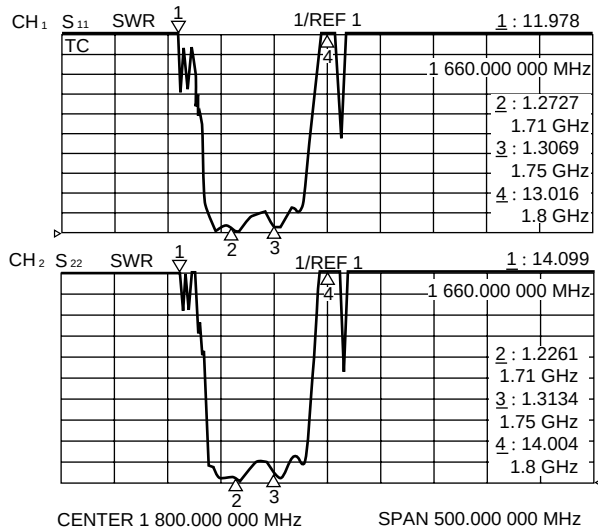
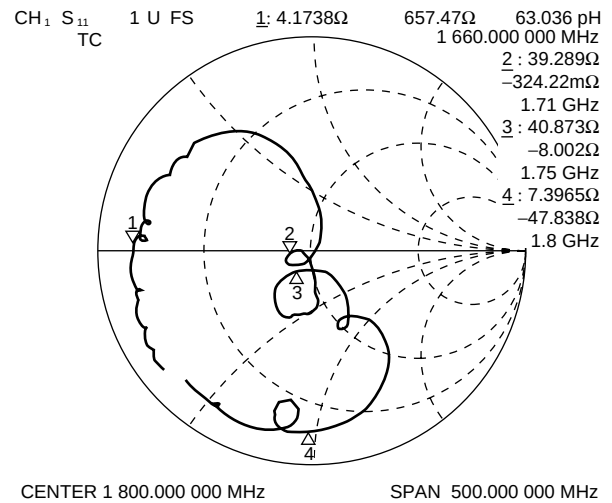
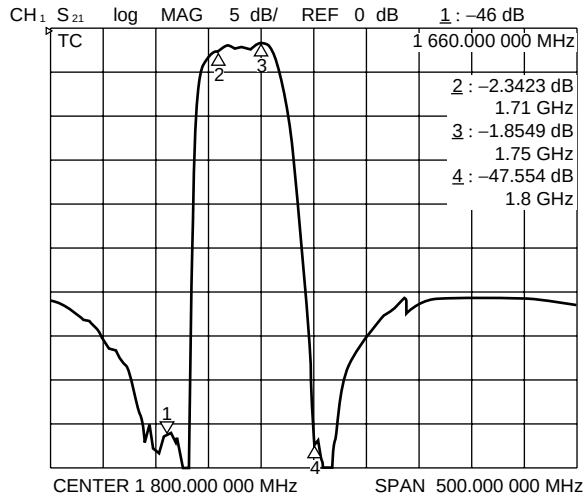
## 9. Korea-PCS (Tx) 60 MHz Band Width Part number: FAR-F6CE-1G7475-L2YAC



# F6 Series (L2 type)

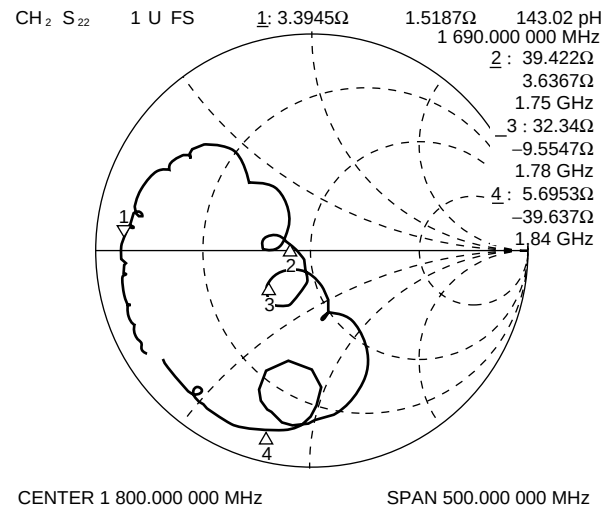
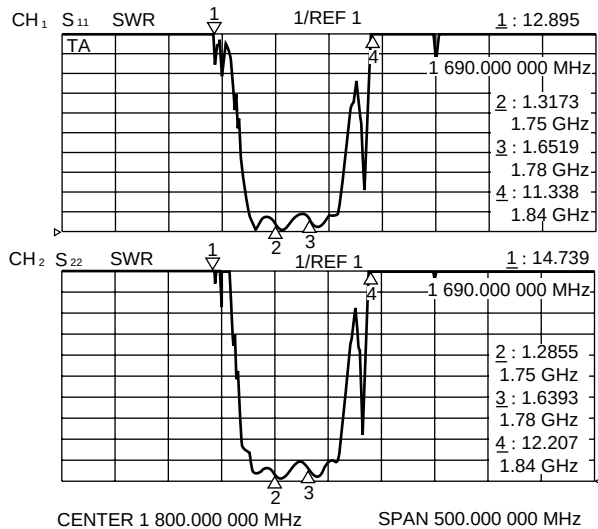
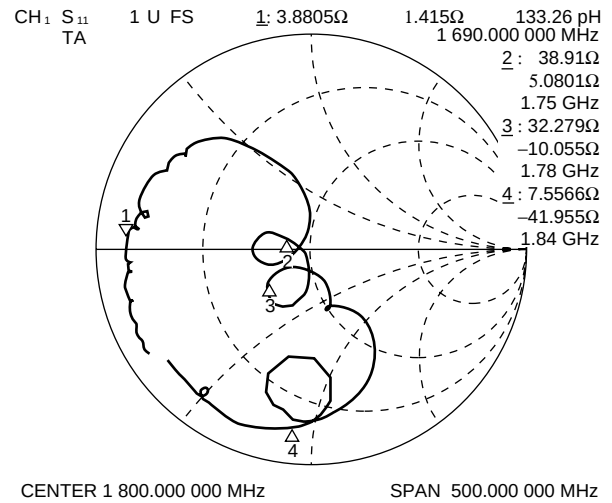
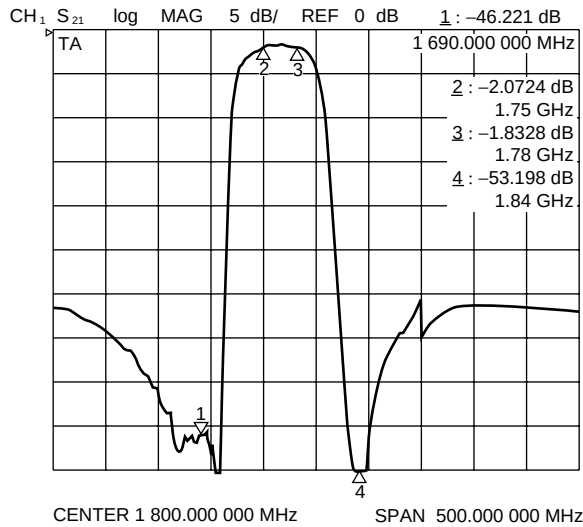
## 10. Korea-PCS (Tx) Lower 40 MHz Band Width

Part number: FAR-F6CE-1G7300-L2TC



## 11. Korea-PCS (Tx) Upper 30 MHz Band Width

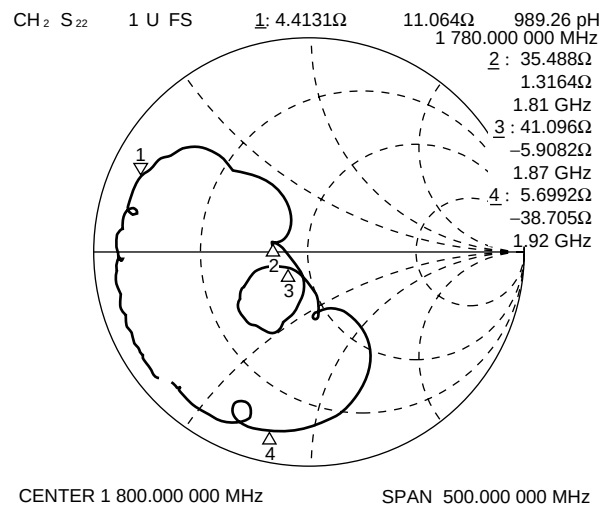
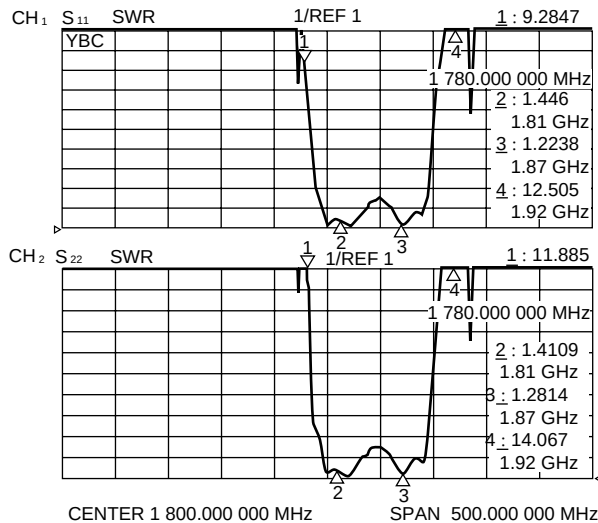
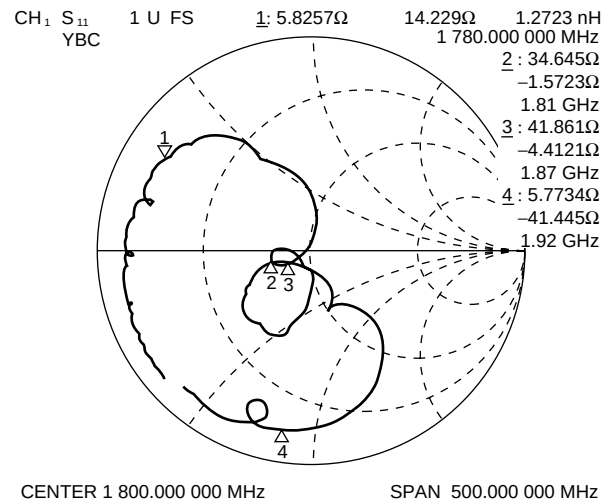
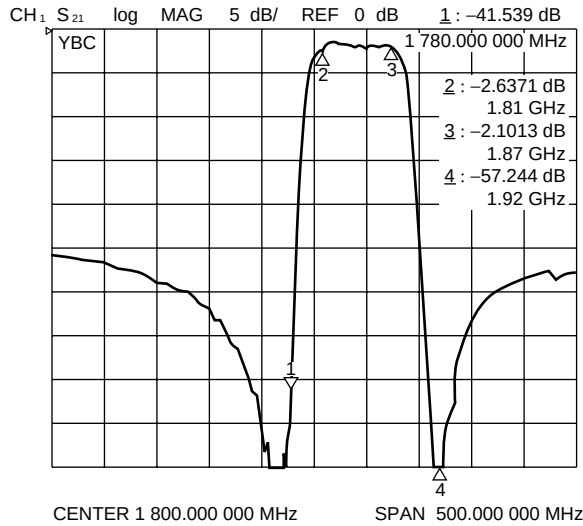
Part number: FAR-F6CE-1G7650-L2TA



# F6 Series (L2 type)

## 12. Korea-PCS (Rx) 60 MHz Band Width

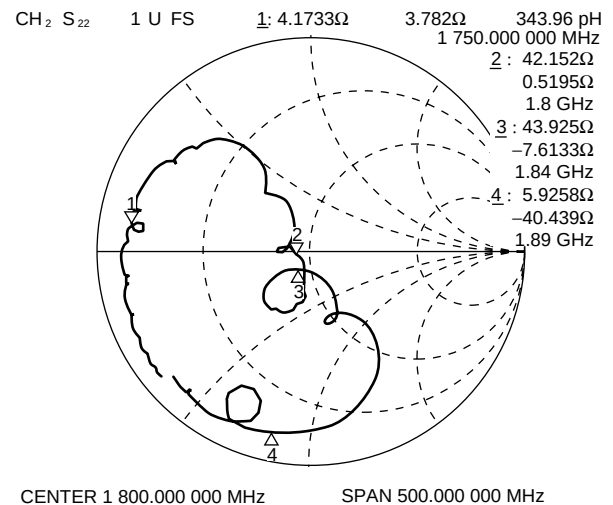
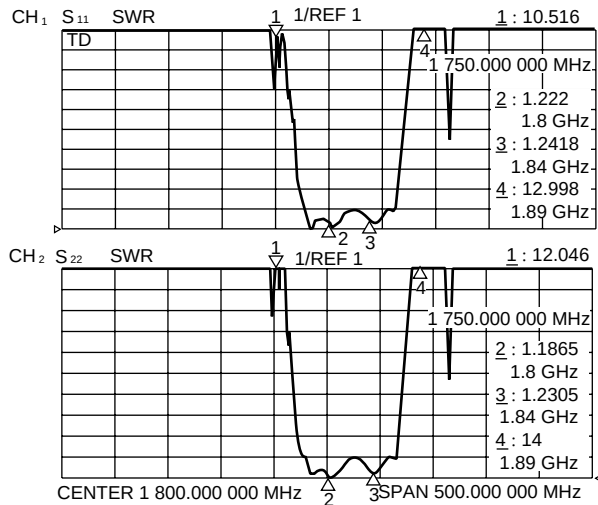
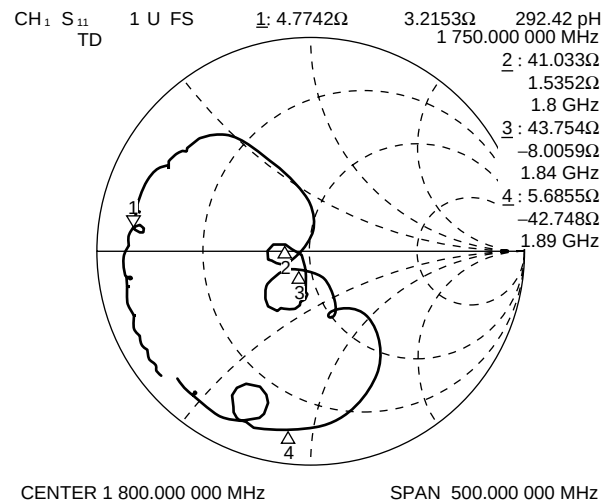
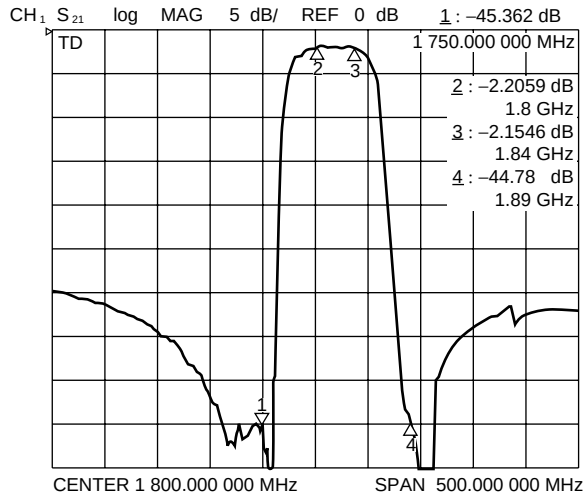
Part number: FAR-F6CE-1G8425-L2YBC





## 13. Korea-PCS (Rx) Lower 40 MHz Band Width

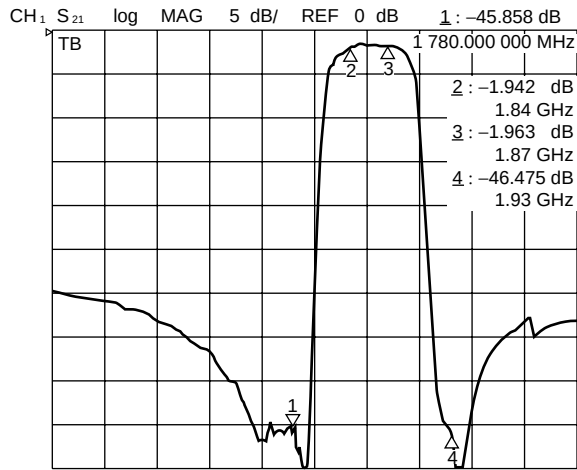
Part number: FAR-F6CE-1G8200-L2TD



# F6 Series (L2 type)

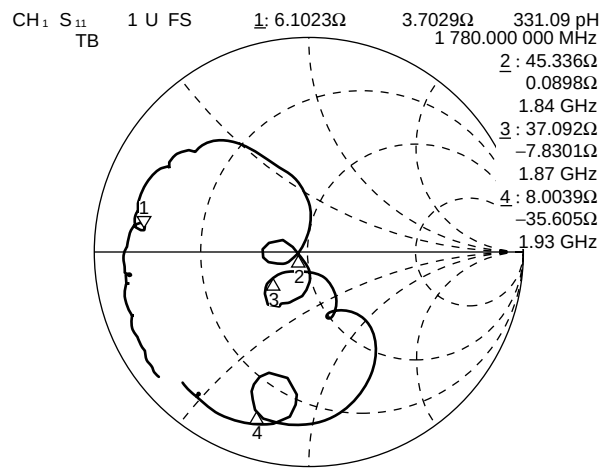
## 14. Korea-PCS (Rx) Upper 30 MHz Band Width

Part number: FAR-F6CE-1G8550-L2TB



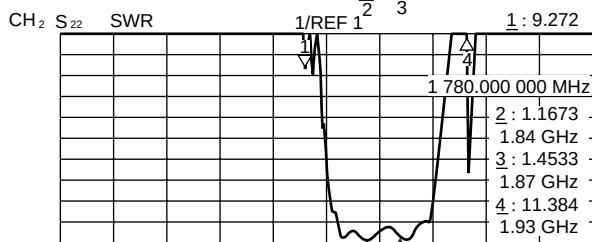
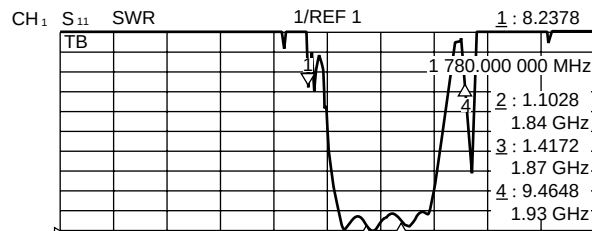
CENTER 1 800.000 000 MHz

SPAN 500.000 000 MHz



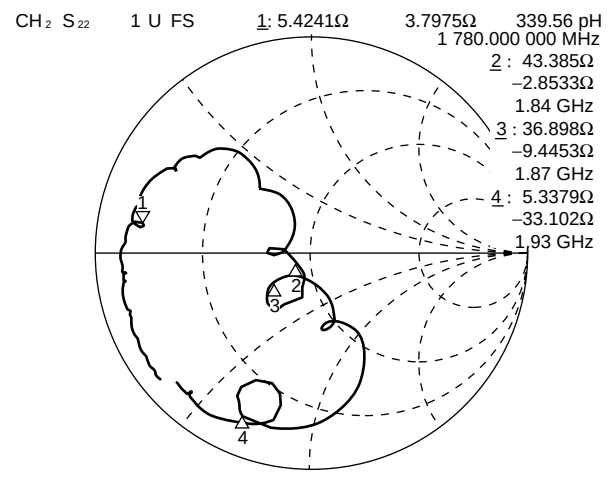
CENTER 1 800.000 000 MHz

SPAN 500.000 000 MHz



CENTER 1 800.000 000 MHz

SPAN 500.000 000 MHz



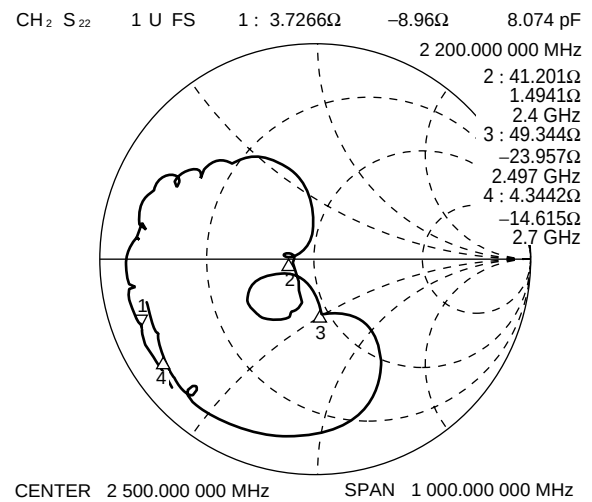
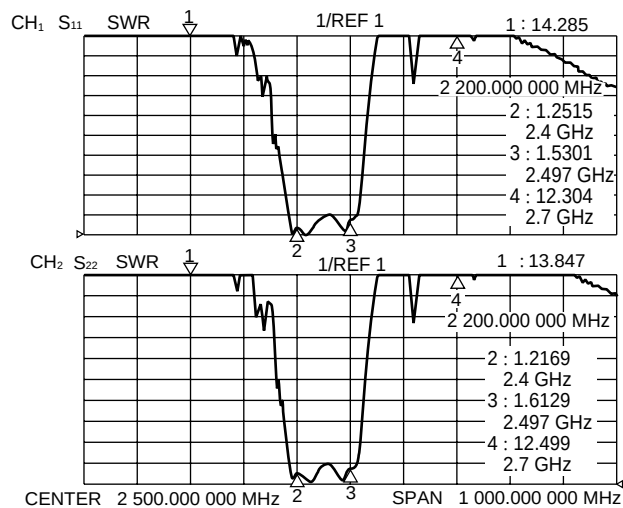
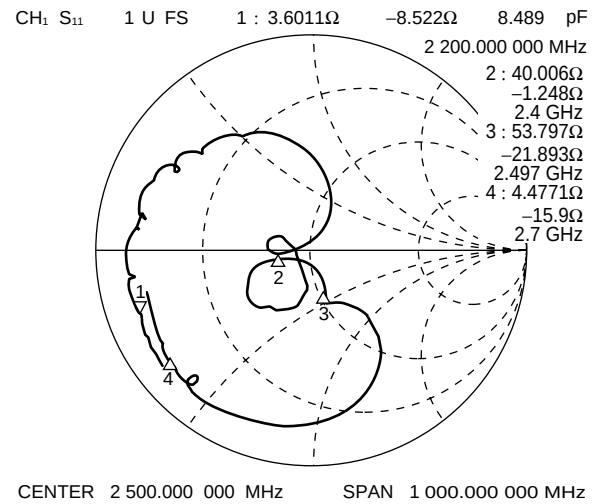
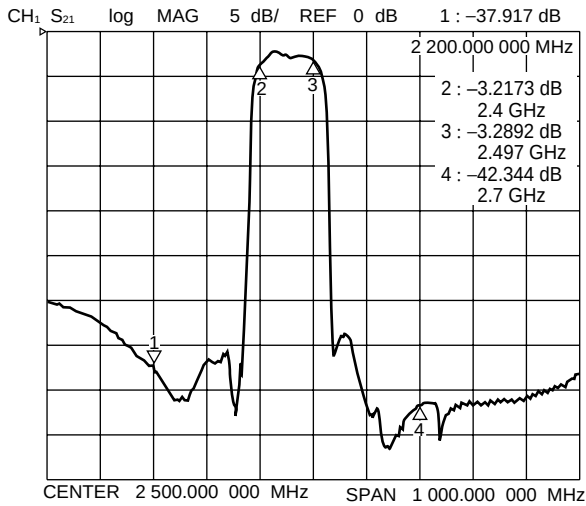
START 1 550.000 000 MHz

STOP 2 050.000 000 MHz

# F6 Series (L2 type)

## 15. Wireless-LAN 97 MHz Band Width

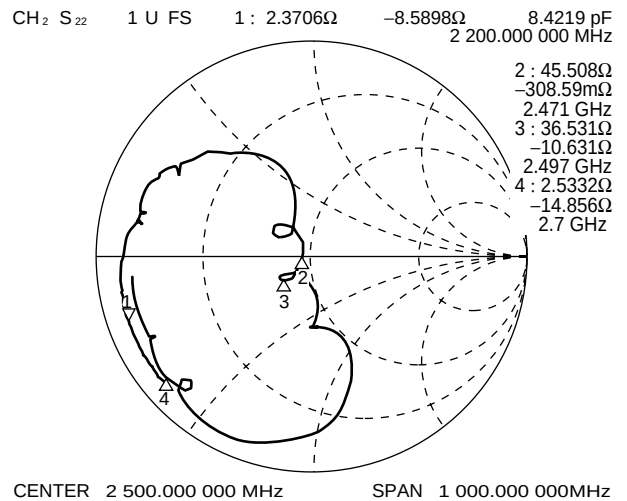
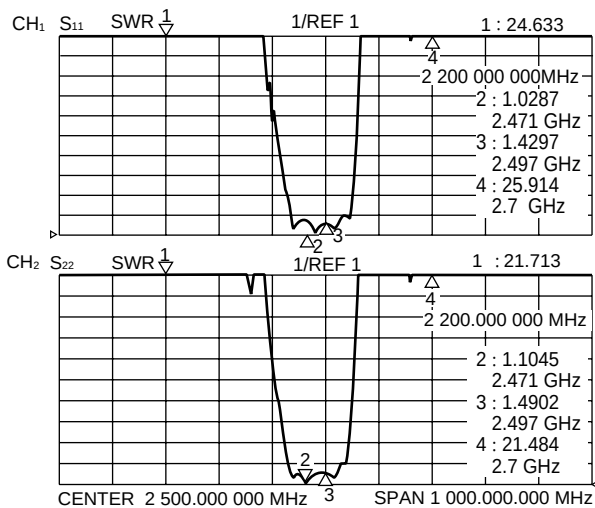
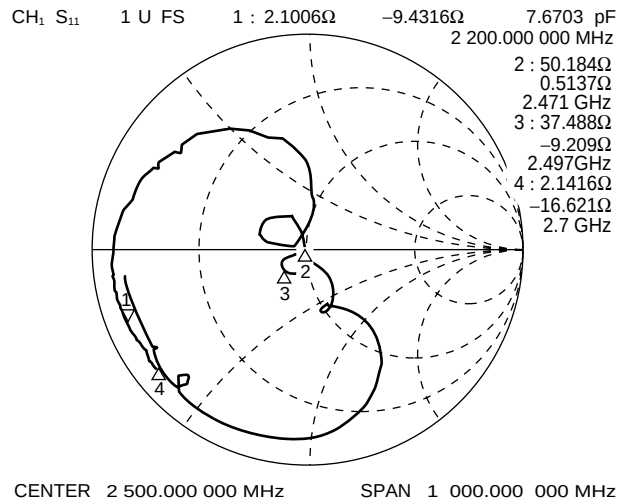
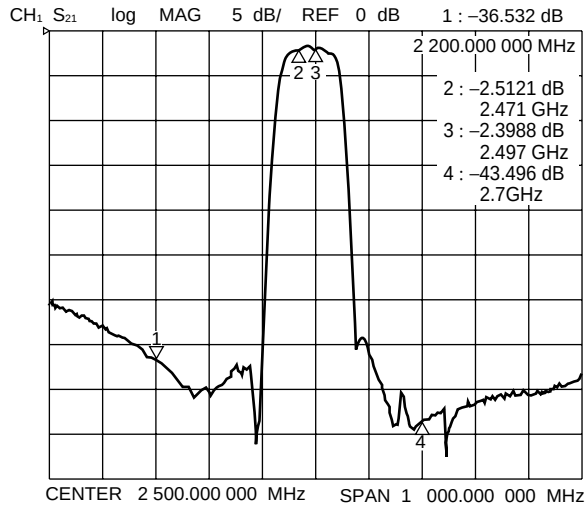
Part number: FAR-F6CE-2G4500-L2WA



# F6 Series (L2 type)

## 16. Wireless-LAN 26 MHz Band Width (For Japan)

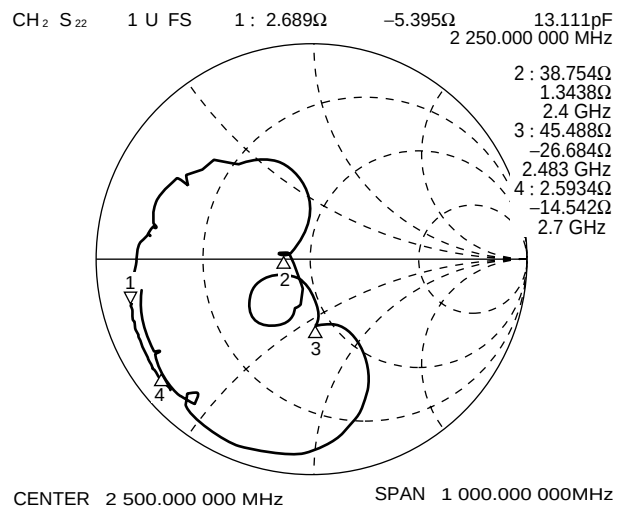
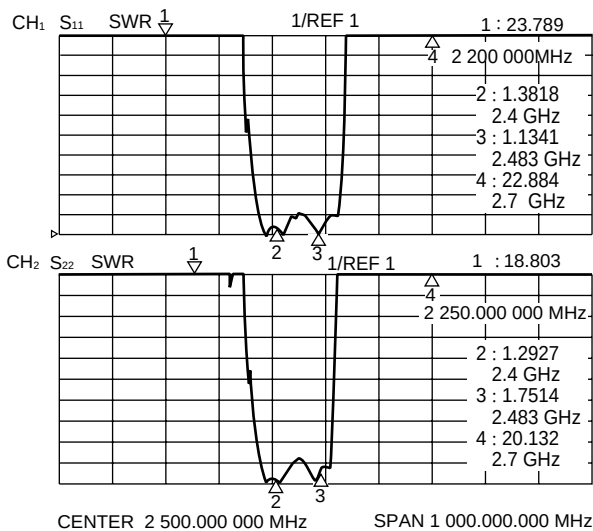
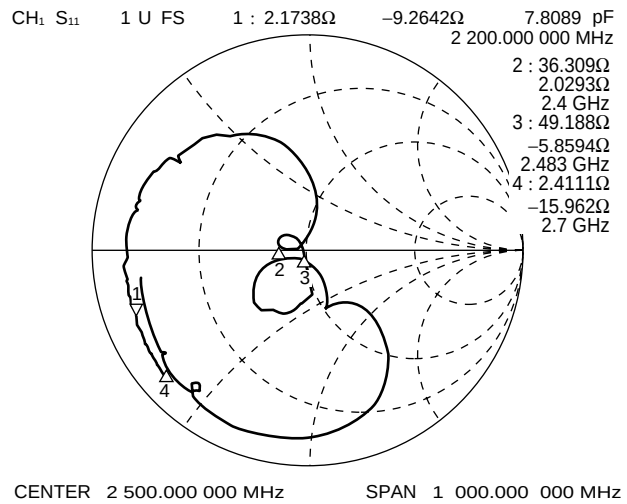
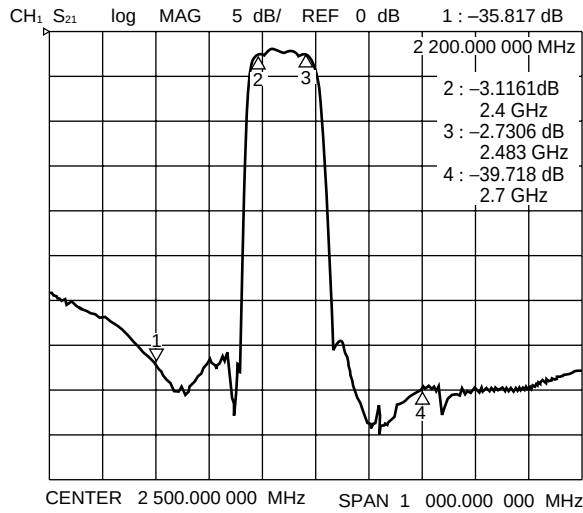
Part number: FAR-F6CE-2G4840-L2WC



# F6 Series (L2 type)

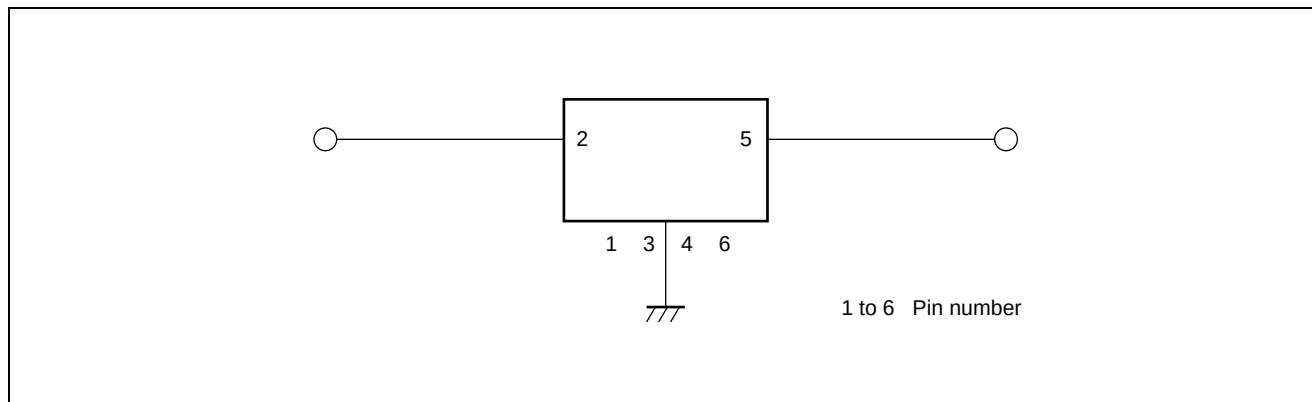
## 17. Wireless-LAN 83.5 MHz Band Width (For Europe, USA)

Part number: FAR-F6CE-2G4418-L2WD



# F6 Series (L2 type)

## MEASUREMENT CIRCUIT



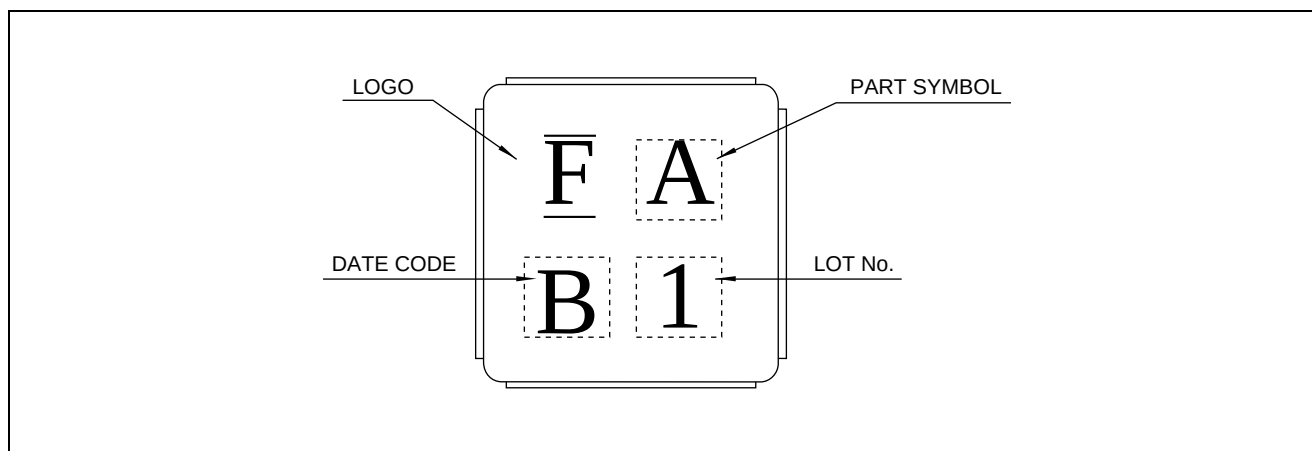
## PART NUMBER DESIGNATION

[Designation example]

FAR-F6CE-□□□□□□-L2□□-□  
 (1) (2) (3) (4)

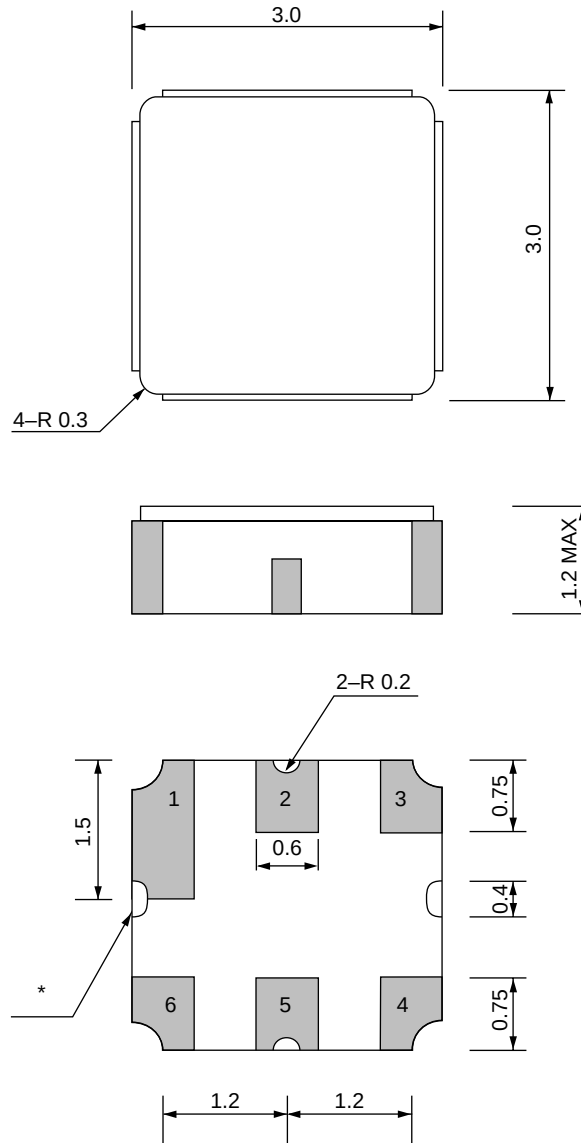
- (1) Package designation : E: 3.0 mm sq. × 1.2 mm (height)
- (2) Frequency designation : Specify the nominal frequency in six alphanumeric characters.  
 Enter G (for GHz) at the decimal point.  
 Refer to standard frequencies.  
 [Example] 1.8800 GHz ⇒ 1G8800
- (3) Serial number : Specify a characters from WA to ZZ.  
 Refer to standard frequencies.
- (4) Packing (Reeled tape) : W : 1000 pcs/reel  
 V : 3000 pcs/reel  
 U : 5000 pcs/reel

## MARKING



# F6 Series (L2 type)

## ■ PACKAGE DIMENSIONS



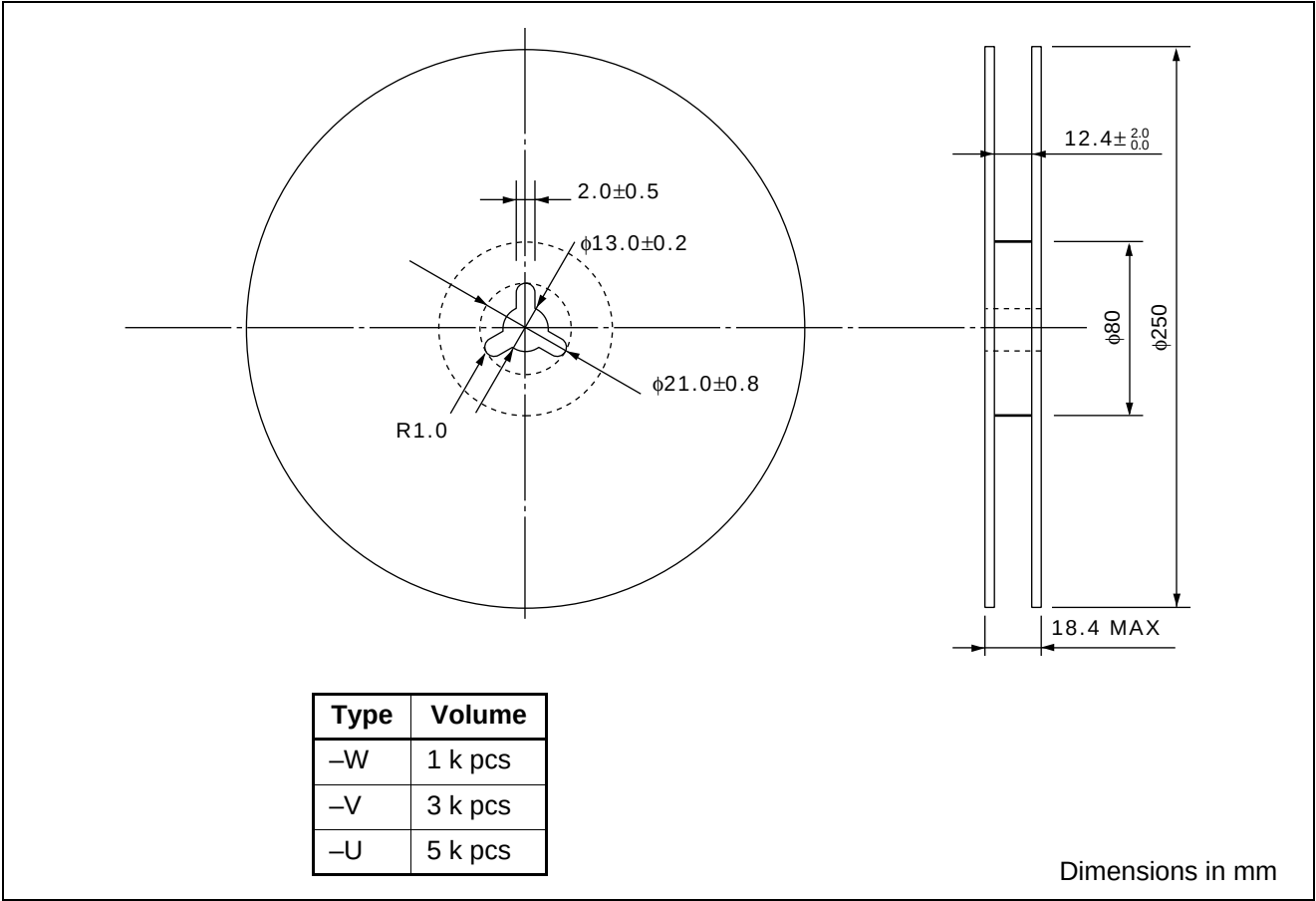
Dimensions in mm

\* : Two types of package are available.  
One of them has this castration, the other one doesn't have it.

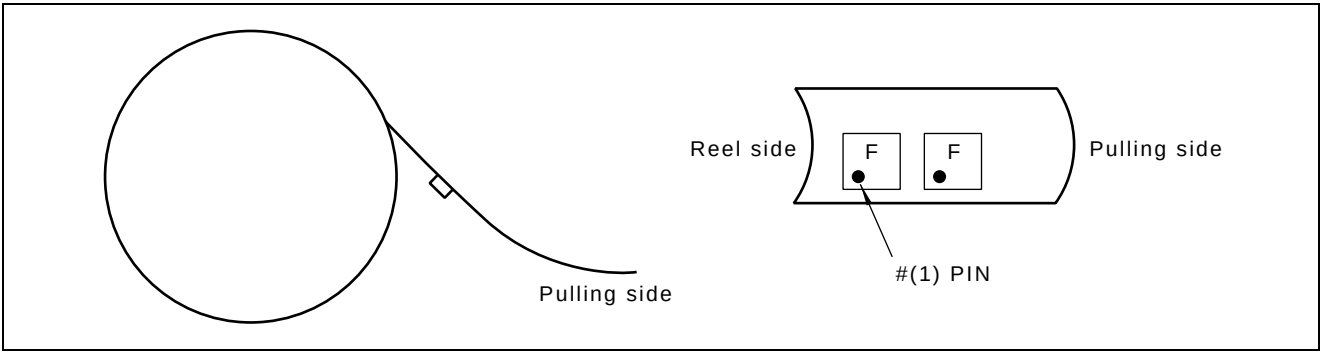
# F6 Series (L2 type)

■ PACKING: Reel type

(1) Reel dimensions



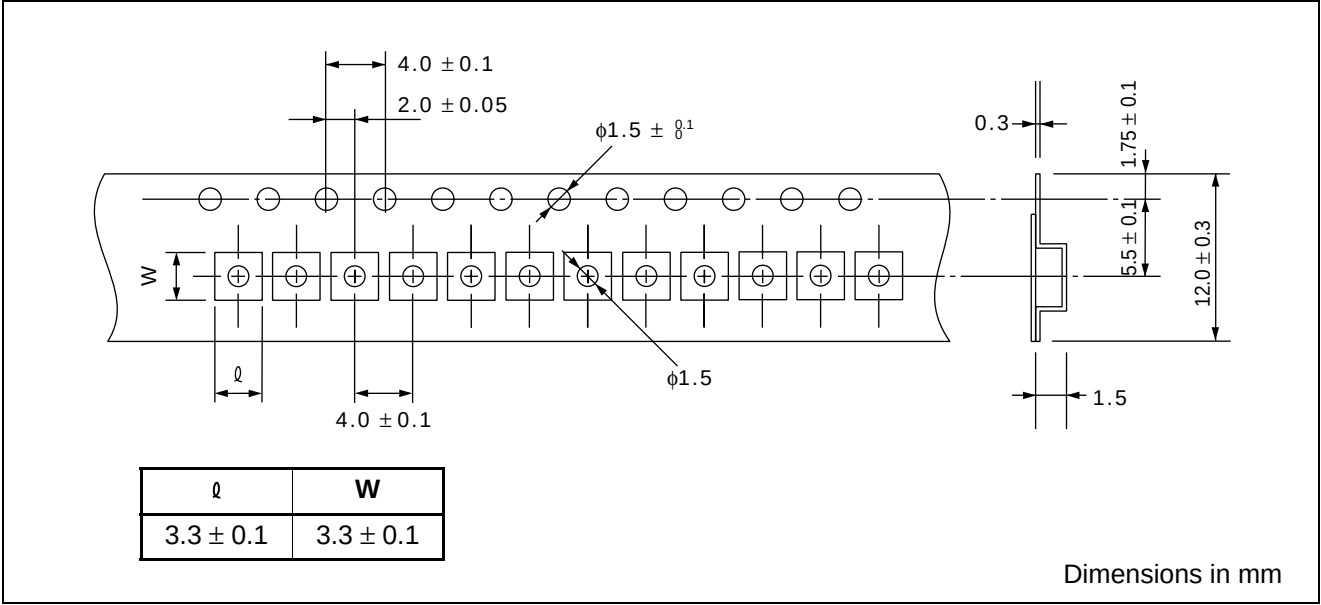
(2) Packing style





# F6 Series (L2 type)

## (3) Tape dimensions



# F6 Series (L2 type)

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