

# Wire Wound Type Balun

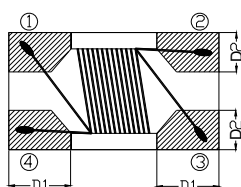
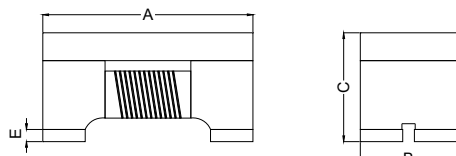
BCM2012F2SF-SERIES

## 1. Features

1. Low insertion loss at frequency range.
2. BCM2012F2SF series realizes small size and low profile. 2.0x1.2x1.2 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Operating temperature -40~+125°C (Including self - temperature rise)



## 2. Dimension



| Series   | A(mm)   | B(mm)   | C(mm)   | D1(mm)   | D2(mm)   | E(mm)    |
|----------|---------|---------|---------|----------|----------|----------|
| 2012F2SF | 2.0±0.2 | 1.2±0.2 | 1.2±0.2 | 0.50±0.1 | 0.51±0.1 | 0.15±0.1 |

## 3. Part Numbering

|     |      |   |   |   |   |   |     |    |   |     |
|-----|------|---|---|---|---|---|-----|----|---|-----|
| BCM | 2012 | F | 2 | S | F | - | 750 | 11 | - | 122 |
| A   | B    | C | D | E | F |   | G   | H  |   | I   |

- A: Series  
 B: Dimension  
 C: Material                      Ferrite Core  
 D: Number of Lines        2=2 lines  
 E: Type                            S=Shielded , N=Unshielded  
 F: Lead free  
 G: Impedance Match    750= 75 ohm  
 H: Turns Rate                11=1 : 1  
 I: Control S/N                Internal code

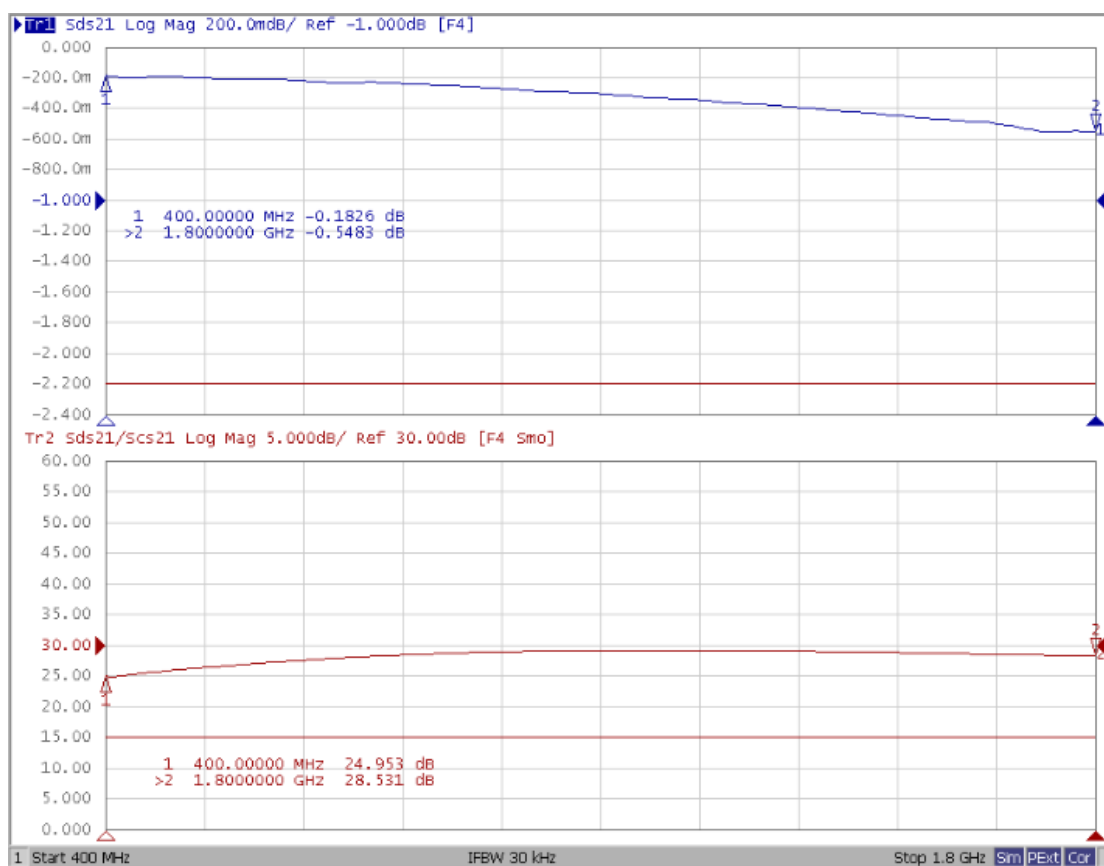
## 4. Specification

| TAI-TECH Part Number  | UB/B Impedance (Ω) | Test Frequency (MHz) | DC Resistance (Ω) max. | Rated Power (dBm) max. | Rated Volt. (DCV) max. | Withstand Volt. (DCV) max. | IR (MΩ) min. | Insertion Loss (dB)max | CMRR (dB) |
|-----------------------|--------------------|----------------------|------------------------|------------------------|------------------------|----------------------------|--------------|------------------------|-----------|
| BCM2012F2SF-50011-TE2 | 50/50              | 400~1800             | 0.50                   | 27                     | 20                     | 125                        | 10           | 2.2                    | 15(typ.)  |
| BCM2012F2SF-50011-T02 | 50/50              | 40~ 860              | 1.00                   | 27                     | 20                     | 125                        | 10           | 2.5                    | 20(typ.)  |
| BCM2012F2SF-50011-MN2 | 50/50              | 100~1000             | 0.35                   | 27                     | 20                     | 50                         | 10           | 1.0                    | 10(min.)  |
| BCM2012F2SF-50011-ST2 | 50/50              | 45~870               | 1.00                   | 27                     | 20                     | 50                         | 10           | 1.2                    | 20(min.)  |
| BCM2012F2SF-75011-TE2 | 75/75              | 400~1800             | 0.50                   | 27                     | 20                     | 125                        | 10           | 2.0                    | 15(typ.)  |
| BCM2012F2SF-75011-T02 | 75/75              | 50~1200              | 0.70                   | 27                     | 20                     | 125                        | 10           | 1.2                    | 20(typ.)  |
| BCM2012F2SF-75011-MS2 | 75/75              | 1000~1500            | 0.59                   | 27                     | 20                     | 50                         | 10           | 1.4                    | 20(min.)  |

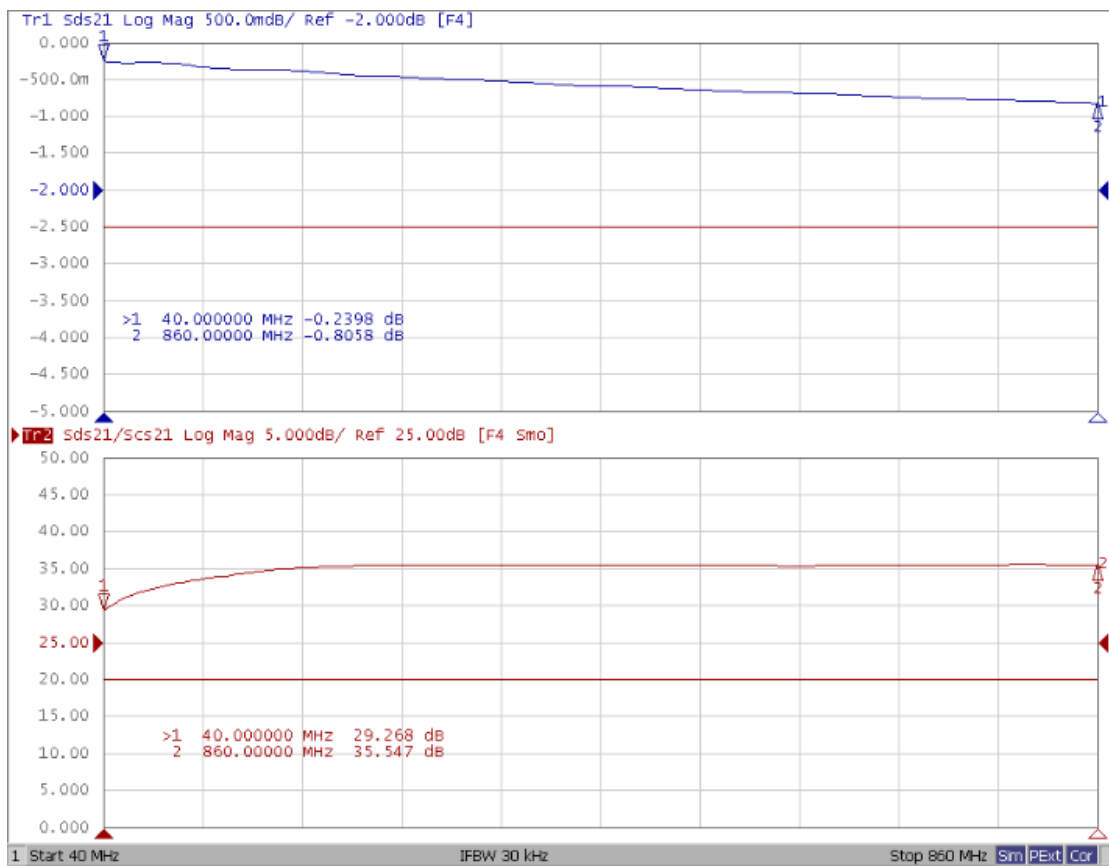
| TAI-TECH Part Number  | UB/B Impedance ( $\Omega$ ) | Test Frequency (MHz) | DC Resistance ( $\Omega$ ) max. | Rated Power (dBm) max. | Rated Volt. (DCV) max. | Withstand Volt. (DCV) max. | IR ( $M\Omega$ ) min. | Insertion Loss (dB)max            | CMRR (dB) |
|-----------------------|-----------------------------|----------------------|---------------------------------|------------------------|------------------------|----------------------------|-----------------------|-----------------------------------|-----------|
| BCM2012F2SF-75011-MT2 | 75/75                       | 50~1200              | 0.77                            | 27                     | 20                     | 50                         | 10                    | 50~870MHz:1.0<br>870~1200MHz:1.2. | 20(min.)  |
| BCM2012F2SF-75011-SA2 | 75/75                       | 45~870               | 0.88                            | 27                     | 20                     | 50                         | 10                    | 1.0                               | 20(min.)  |
| BCM2012F2SF-75011-SB2 | 75/75                       | 50~1200              | 0.70                            | 27                     | 20                     | 50                         | 10                    | 1.2                               | 20(min.)  |
| BCM2012F2SF-75011-122 | 75/75                       | 1000~1500            | 0.59                            | 27                     | 20                     | 50                         | 10                    | 1.4                               | 20(min.)  |

## Insertion Loss & CMRR

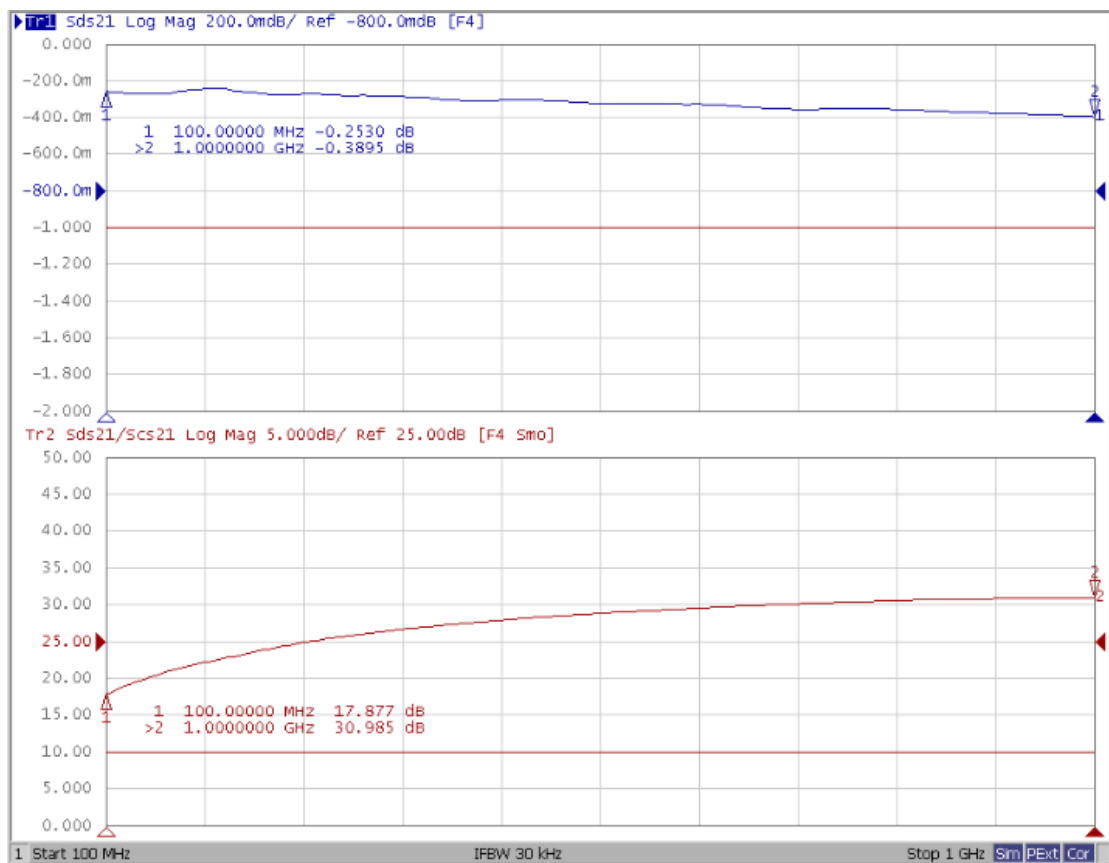
BCM2012F2SF-50011-TE2



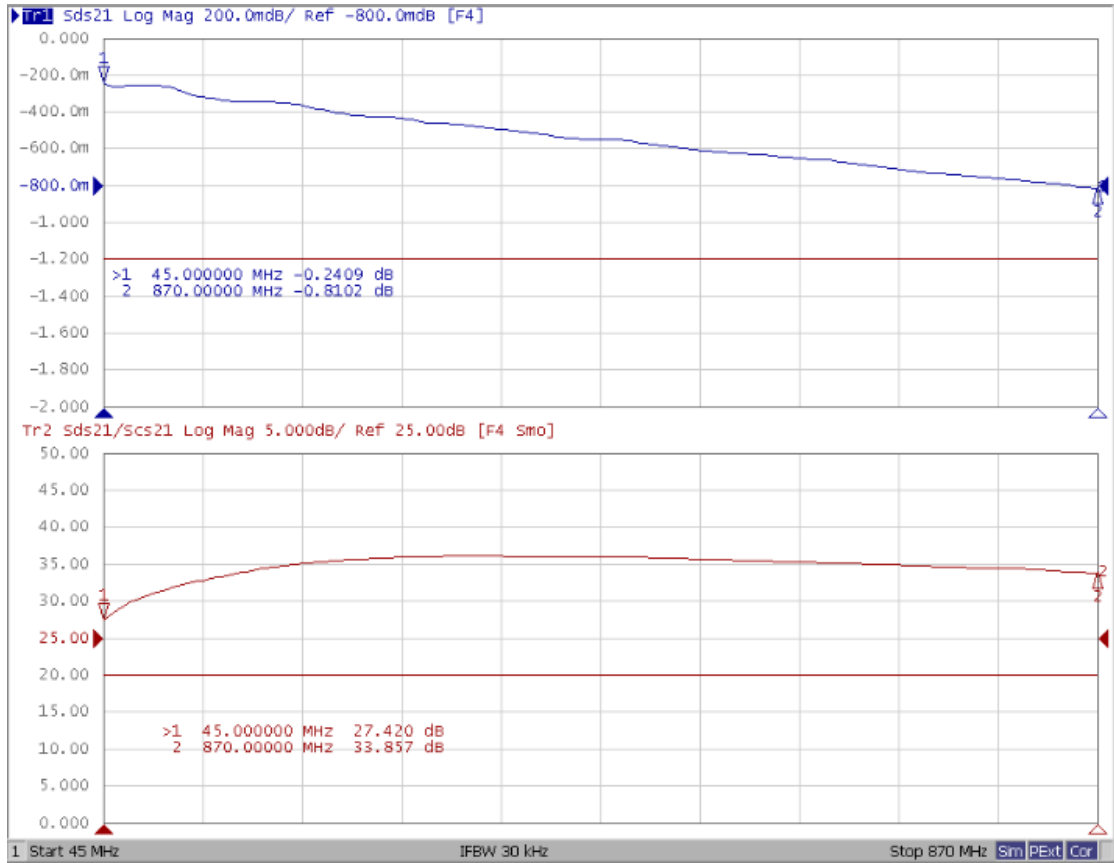
### BCM2012F2SF-50011-T02



### BCM2012F2SF-50011-MN2



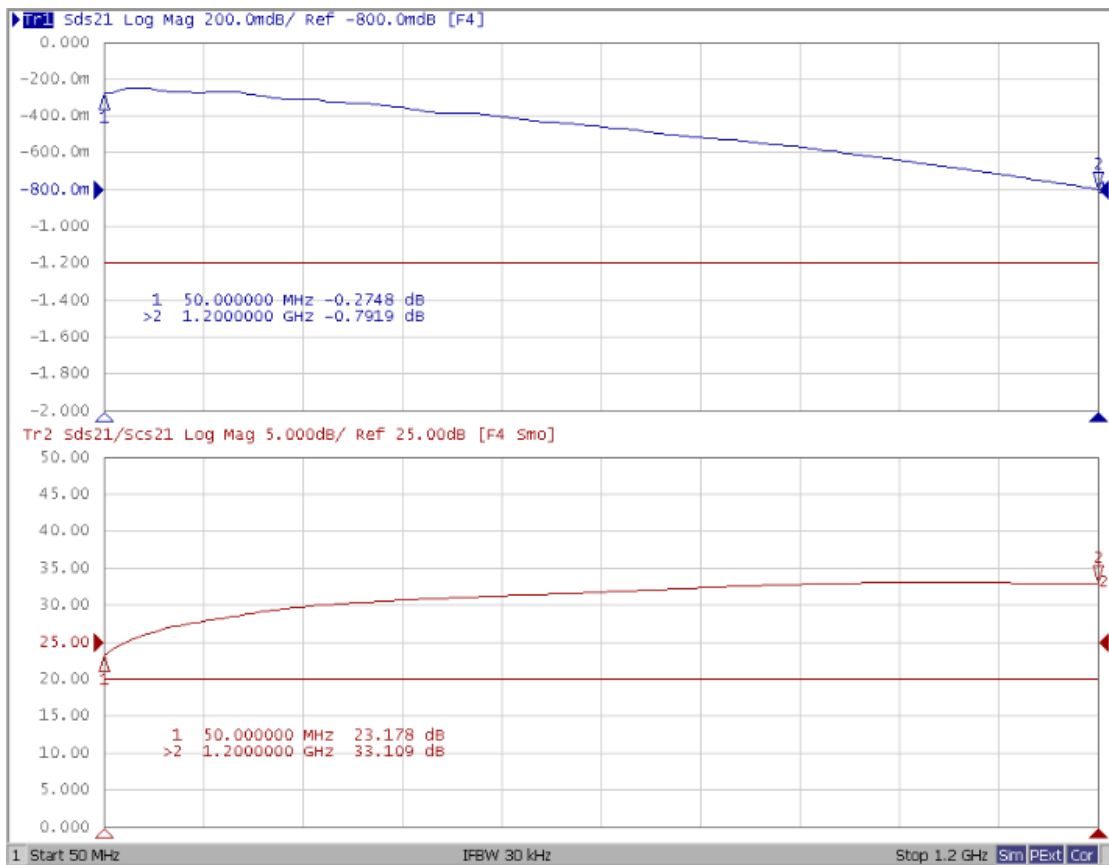
### BCM2012F2SF-50011-ST2



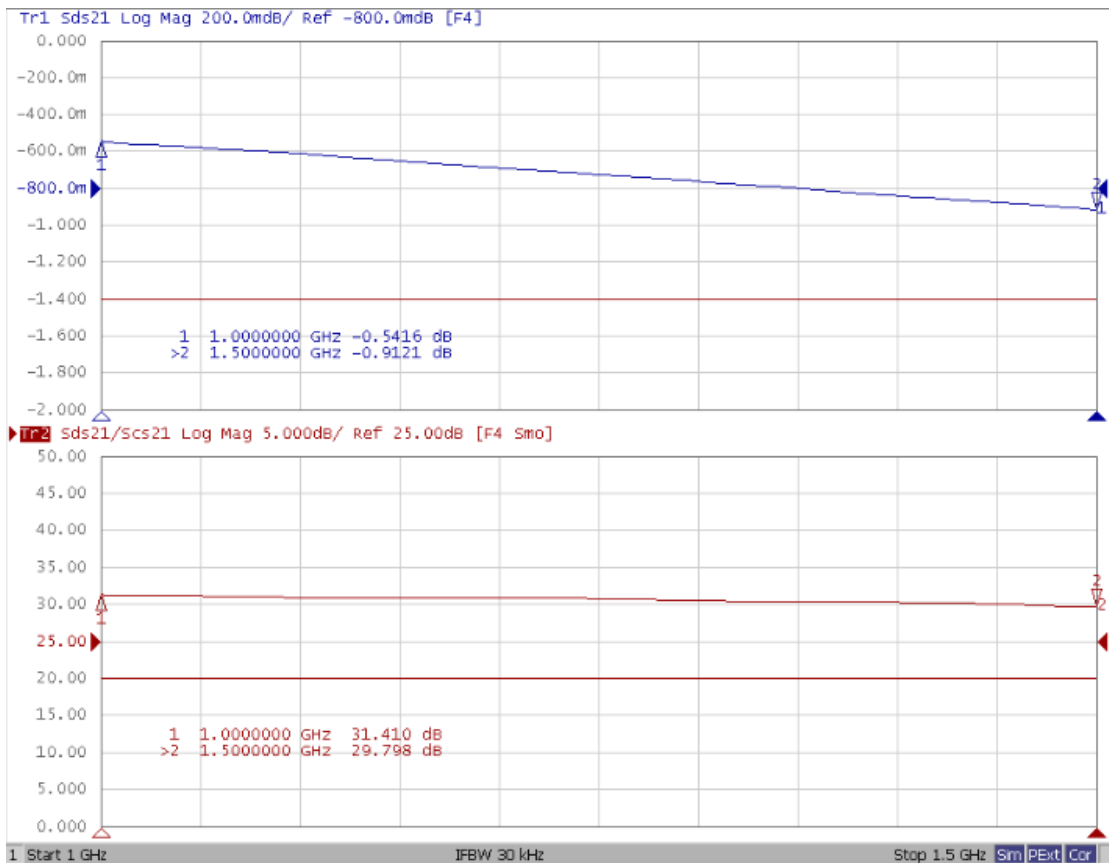
### BCM2012F2SF-75011-TE2



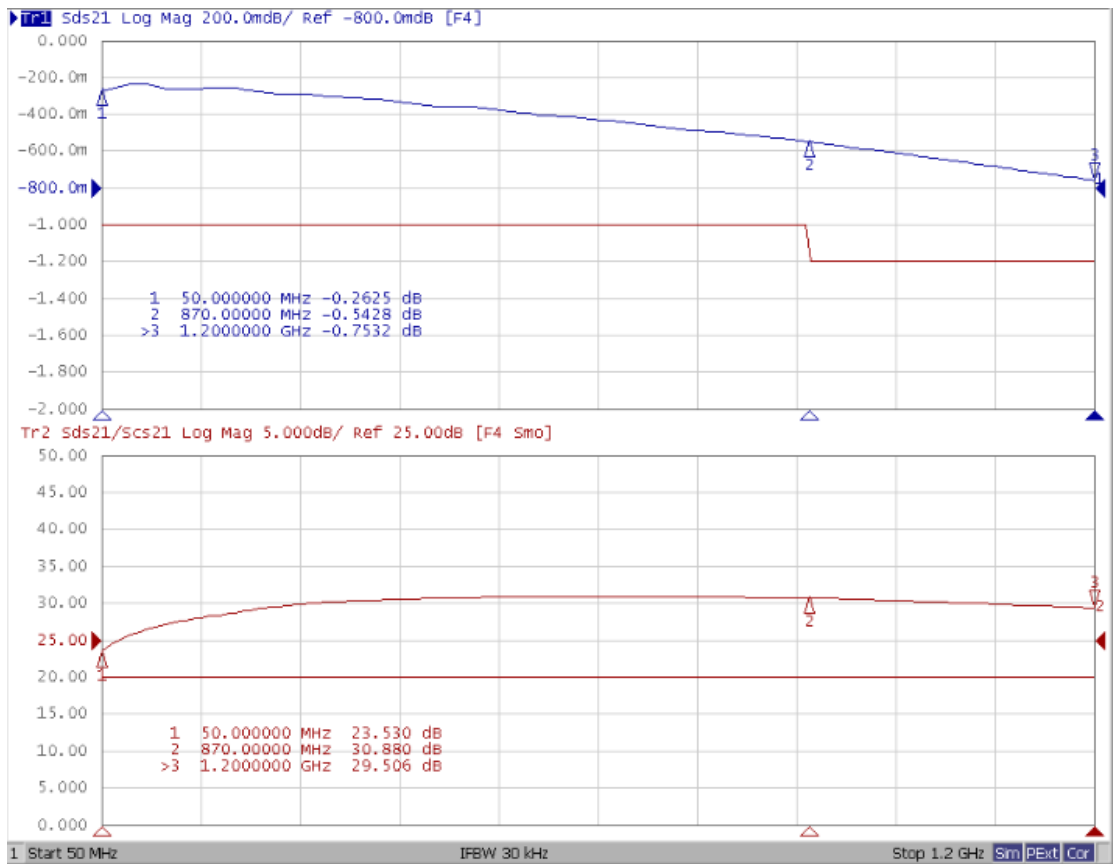
BCM2012F2SF-75011-T02



BCM2012F2SF-75011-MS2



### BCM2012F2SF-75011-MT2



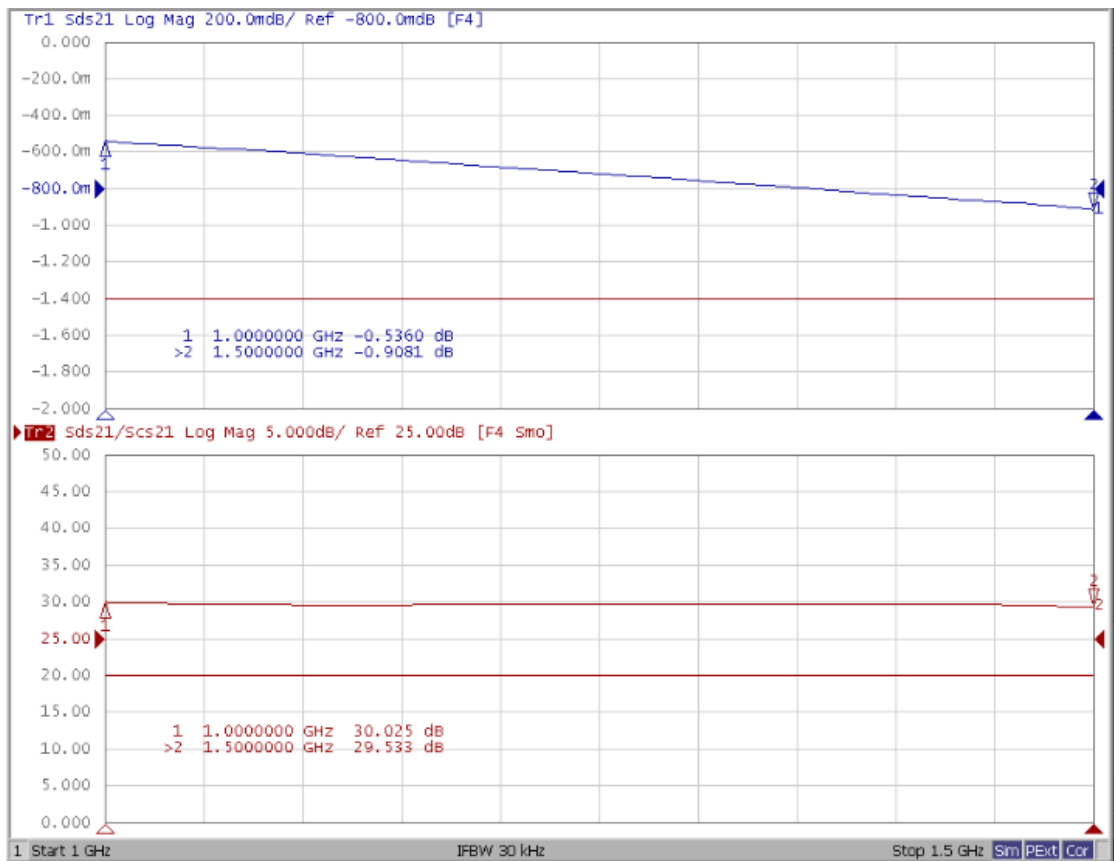
### BCM2012F2SF-75011-SA2

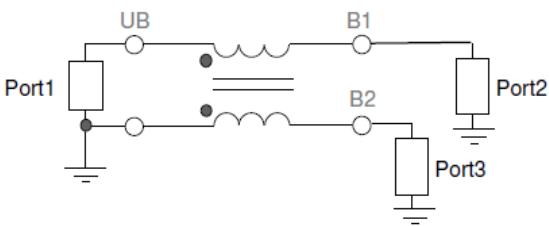
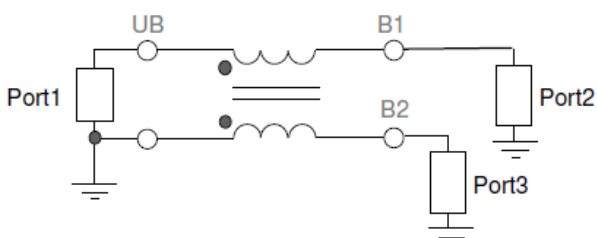


### BCM2012F2SF-75011-SB2



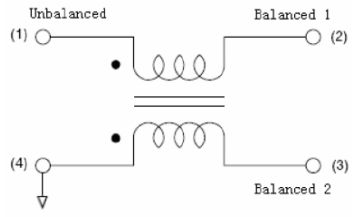
### BCM2012F2SF-75011-122



| ITEM                  | Definition and Measurement Method  |
|-----------------------|--|
| <p>Insertion Loss</p> | <p>Insertion Loss is measured with Vector Network Analyzer (VNA) .</p> <p>Insertion Loss is Sds21 mag extracted from the following circuit. Parasitics and loss factors caused by the test board have to be removed by “De-embedding” computation.</p> <p><math>IL[dB] = 20\log_{10}(S_{ds21})</math></p> <p>Where</p> <p>Sds21 is S-parameter of single mode stimulus - Differential mode response</p>   |
| <p>CMRR</p>           | <p>Common Mode Rejection Ratio (CMRR) is a function of both amplitude imbalance and phase imbalance. If a differential VNA is not available, CMRR can be computed based on single ended measurement.</p> <p><math>CMRR[dB] = 20\log_{10}(S_{ds21}/S_{cs21}) = 20\log_{10}\{(S_{21}+S_{31})/(S_{21}-S_{31})\}</math></p> <p>Where</p> <p>Sds21 is S-parameter of single mode stimulus - Differential mode response</p> <p>Scs21 is S-parameter of single mode stimulus - Common mode response</p> <p>Measurement setup for the single ended measurement is as follows. It is assumed that the single-ended S-parameters are obtained with proper matched-load termination at each port. Parasitics and loss factors caused by the test board have to be removed by “De-embedding” computation.</p>  |



## 5. Schematic Diagram



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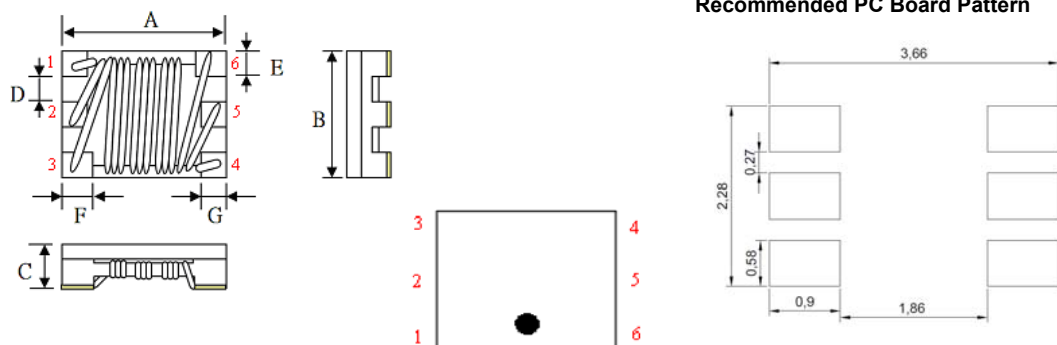
BCM3225F3SF-SERIES

## 1. Features

1. Low insertion loss at frequency range.
2. BCM3225F3SF series realizes small size and low profile.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Operating temperature-25~+85°C (Including self - temperature rise)



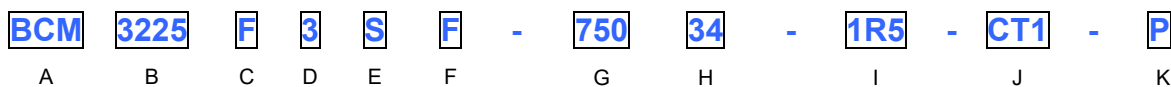
## 2. Dimension



| Series   | A(mm)   | B(mm)   | C(mm)   | D(mm)    | E(mm)    | F(mm)    | G(mm)    |
|----------|---------|---------|---------|----------|----------|----------|----------|
| 3225F3SF | 3.2±0.2 | 2.5±0.2 | 2.3±0.1 | 0.25±0.1 | 0.67±0.1 | 0.60±0.1 | 0.50±0.1 |

Units: mm

## 3. Part Numbering



- A: Series  
 B: Dimension  
 C: Material Ferrite Core  
 D: Number of Lines 3=3 lines  
 E: Type S=Shielded , N=Unshielded  
 F: Lead free  
 G: Impedance Match 750= 75 ohm  
 H: Turns Rate 34=3 : 4  
 I: DCR 1R5=1.5 (Ω)  
 J: Control S/N Internal code  
 K: Point Black

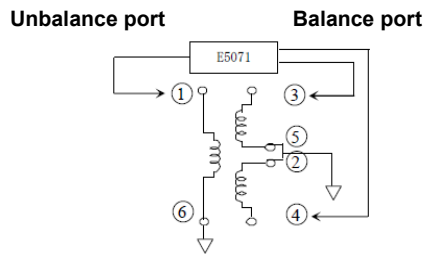
## 4. Specification

| TAI-TECH Part Number        | Frequency Range | Insertion Loss Sds21(dB)max | Return Loss Sss11(dB)min. | Amplitude Balance (dB)max. | Phase Balance (deg) | DC Resistance (Ω) max.(1line) | Rated Current DC(mA)max. (1-6,5-3/2-4) | Rated Volt. (DCV) max. | IR (MΩ) min. |
|-----------------------------|-----------------|-----------------------------|---------------------------|----------------------------|---------------------|-------------------------------|--|------------------------|--------------|
| BCM3225F3SF-75011-CT1-P     | 5~65MHz         | 0.8                         | 15                        | 0.1                        | 180±2               | 0.70                          | 500                                    | 10                     | 10           |
|                             | 5~200MHz        | 1.5                         | 10                        | 0.5                        | 180±5               |                               |  |                        |              |
| BCM3225F2SF-75032-CT1-P     | 5~100MHz        | 2.0                         | 5.0                       | 1.0                        | 180±10              | 0.70                          | 300                                    | 10                     | 10           |
| BCM3225F2SF-75034-CT1-P     | 1~100MHz        | 2.0                         | 5.0                       | 0.1                        | 180±10              | 0.70                          | 300                                    | 10                     | 10           |
| BCM3225F3SF-75034-1R5-CT1-P | 1~100MHz        | 2.0                         | 5.0                       | 0.1                        | 180±10              | 1.50                          | 300                                    | 10                     | 10           |

## 5. Test Equipment

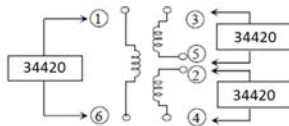
(1) Amplitude Balance / Phase Balance / Insertion Loss / Return Loss

Measured by using E5071C Network Analyzer



(2) DC resistance

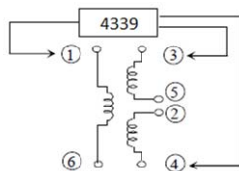
Measured by using 34420A milli ohm meter.



(3) Insulation resistance

Measured by using 4339B high resistance meter

Measurement voltage : 10V , Measurement time : 60sec.



## 6. Schematic Diagram

