

## Wire Wound Type Balun

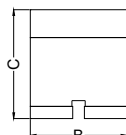
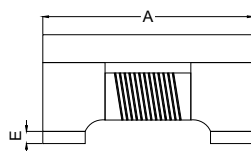
BCM2012F2SF-SERIES

## 1. Features

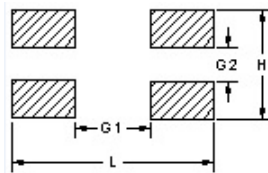
1. Low insertion loss at frequency range.
2. BCM2012F2SF series realizes small size and low profile. 2.0x1.2x1.2 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Operating temperature -40~+125°C (Including self - temperature rise)



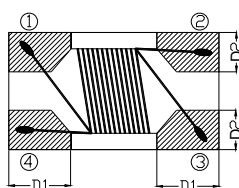
## 2. Dimension



Recommended PC Board Pattern



	BCM2012F2S
L(mm)	2.60
H(mm)	1.40
G1(mm)	1.25
G2(mm)	0.45



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

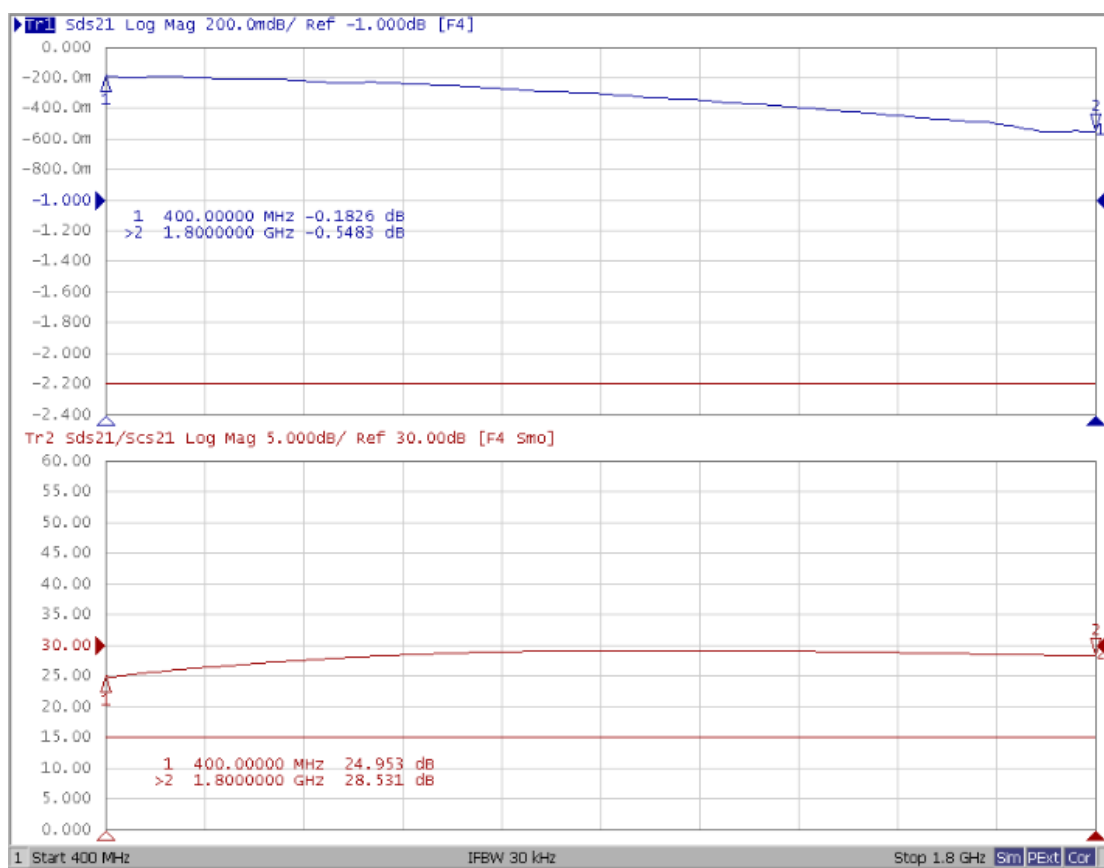
## 4. Specification

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.)

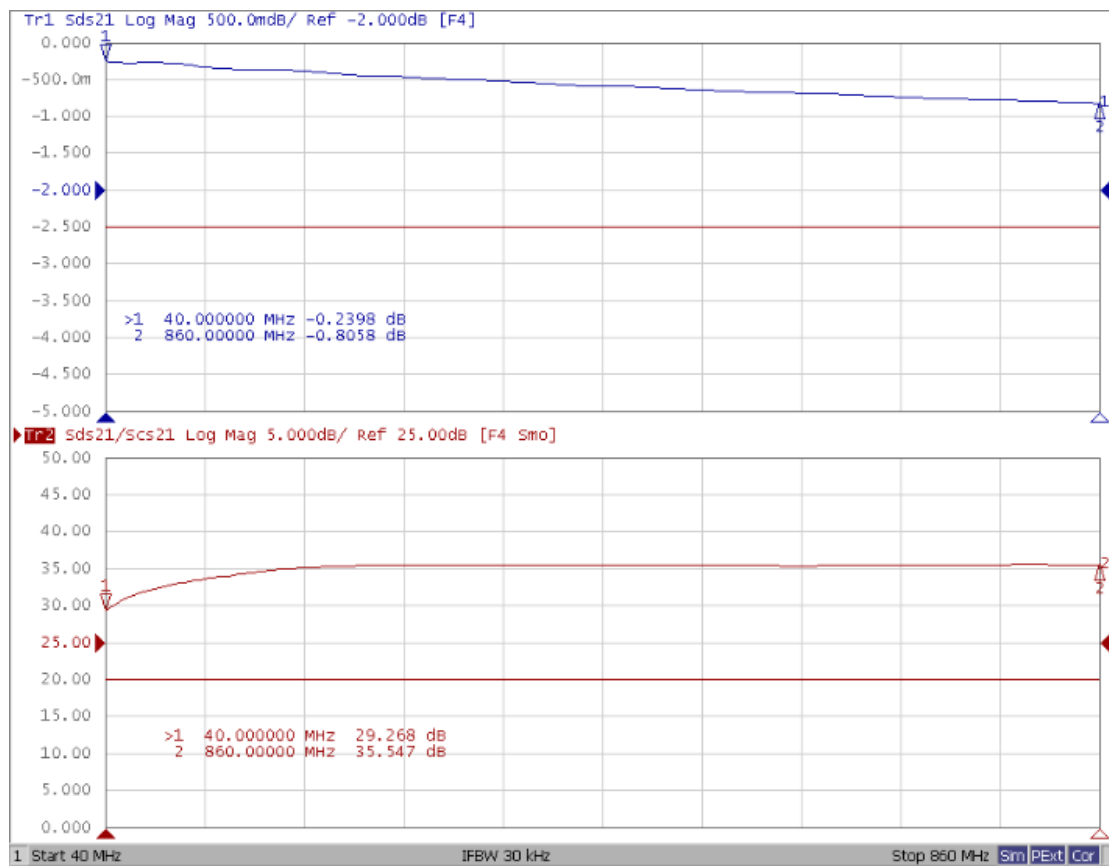
TAI-TECH Part Number	UB/B Impedance ( $\Omega$ )	Test Frequency (MHz)	DC Resistance ( $\Omega$ ) max.	Rated Power (dBm) max.	Rated Volt. (DCV) max.	Withstand Volt. (DCV) max.	IR (M $\Omega$ ) min.	Insertion Loss (dB)max	CMRR (dB)
BCM2012F2SF-75011-MT2	75/75	50~1200	0.77	27	20	50	10	50~870MHz:1.0 870~1200MHz:1.2.	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

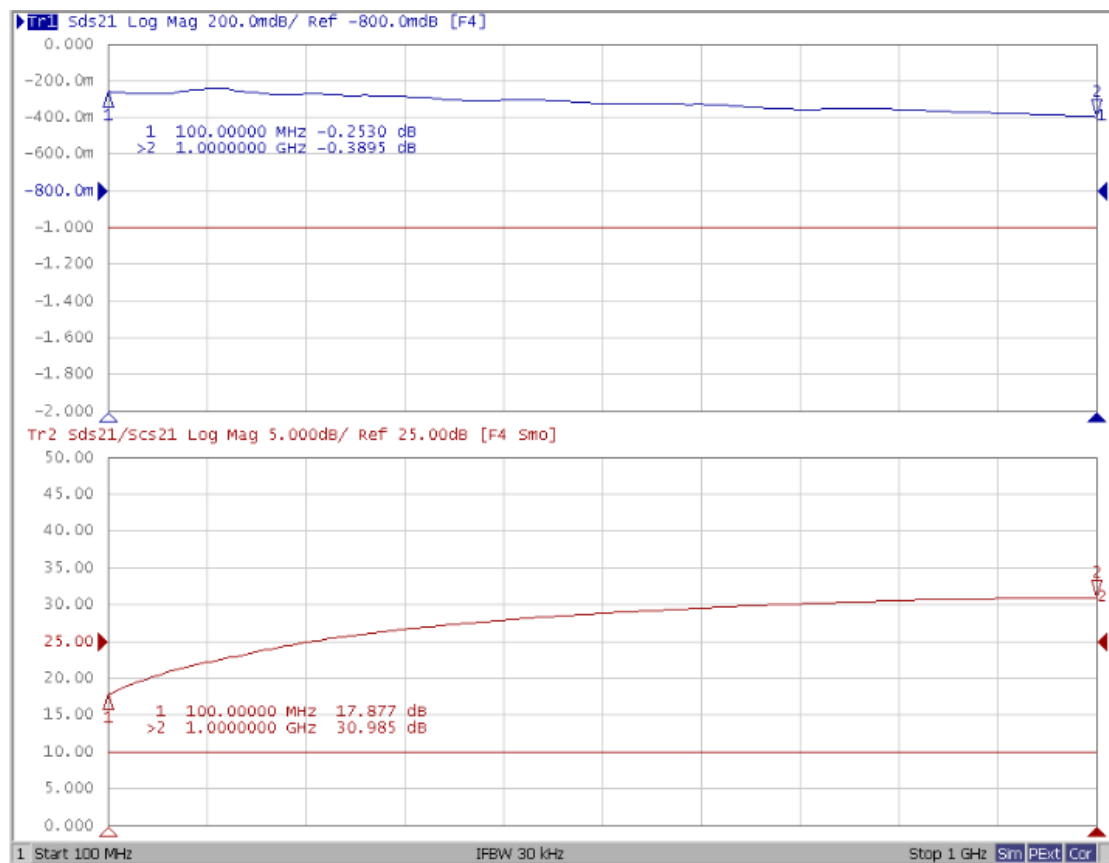
### BCM2012F2SF-50011-TE2



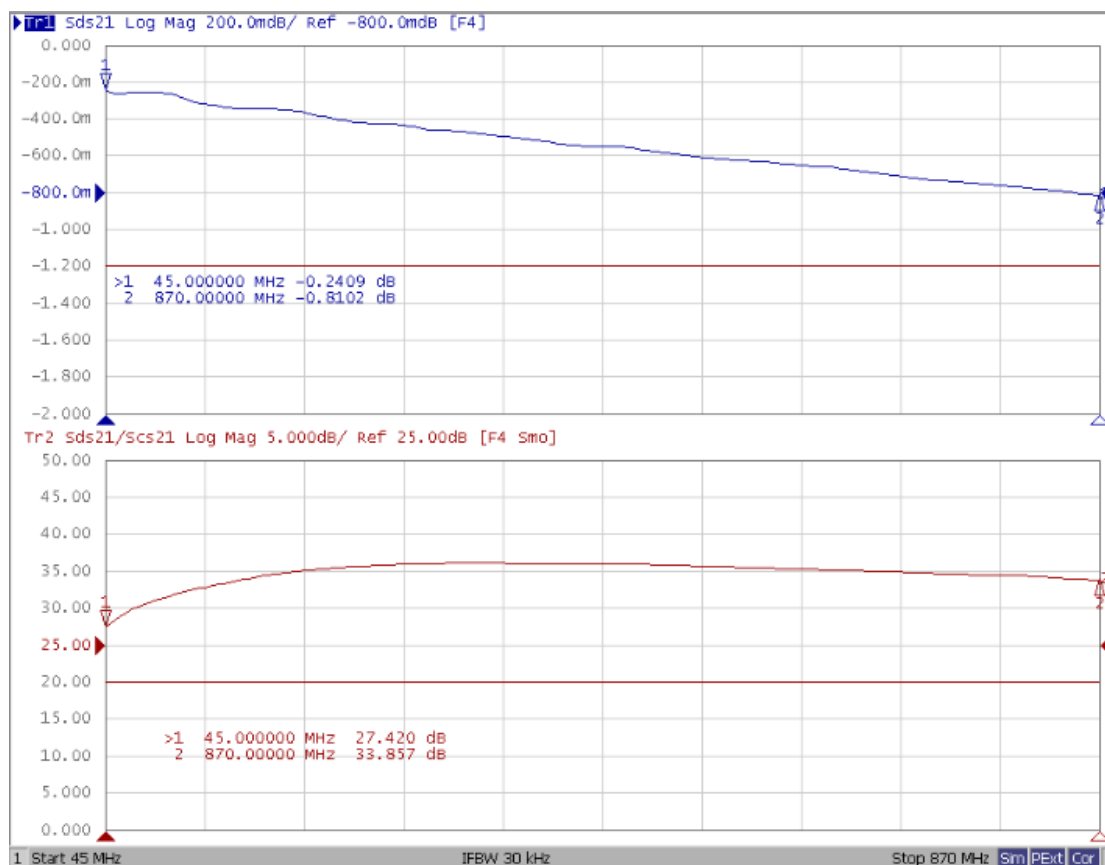
## BCM2012F2SF-50011-T02



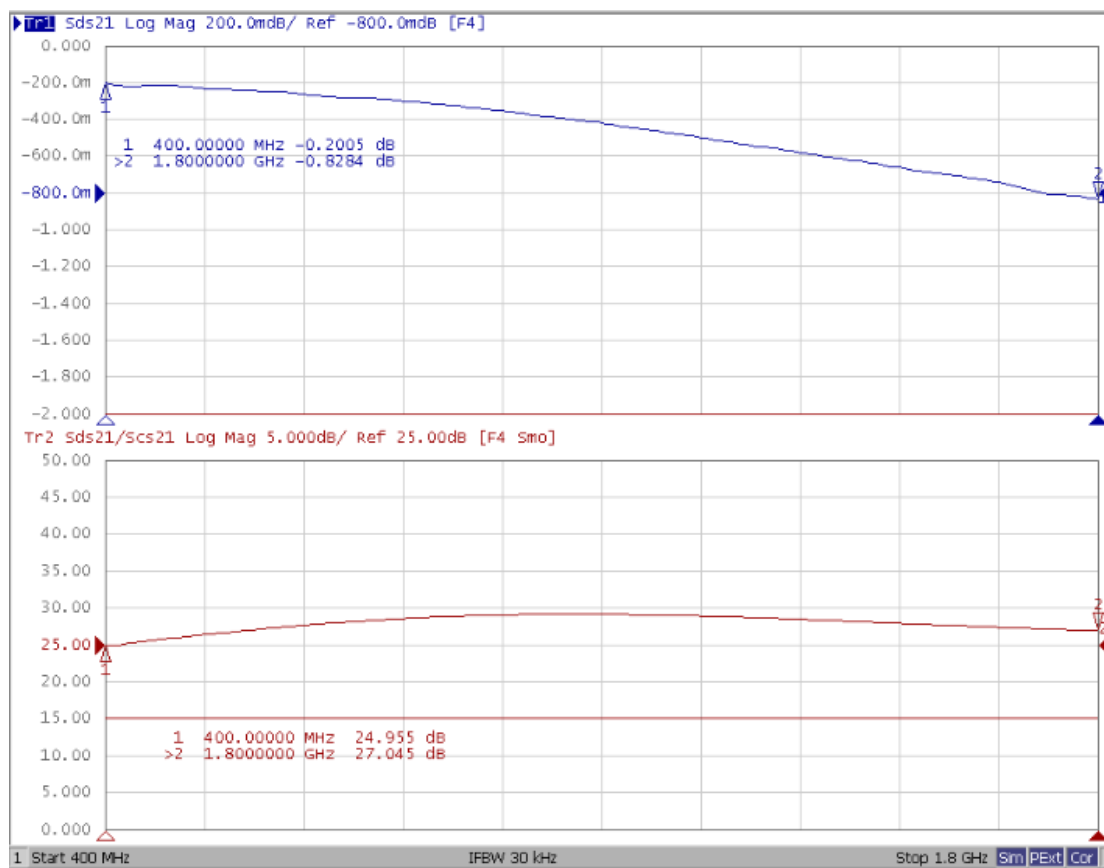
## BCM2012F2SF-50011-MN2



## BCM2012F2SF-50011-ST2



## BCM2012F2SF-75011-TE2



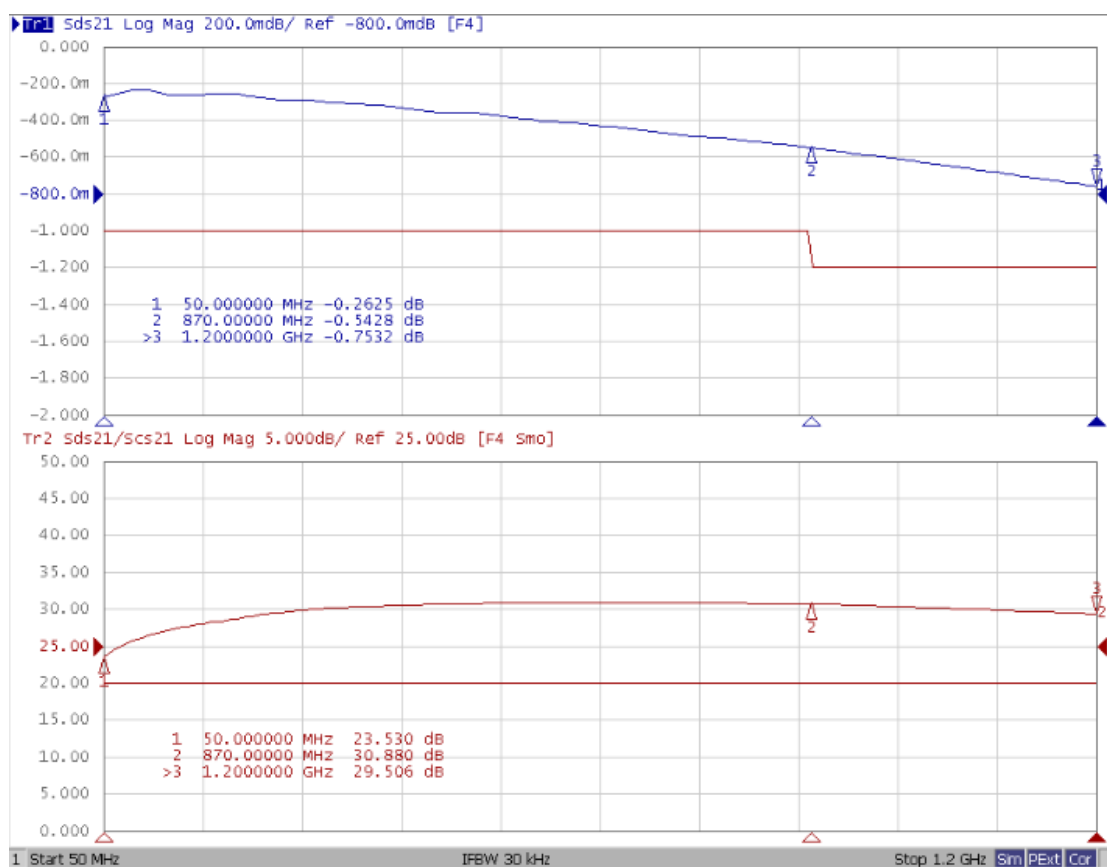
## BCM2012F2SF-75011-T02



## BCM2012F2SF-75011-MS2



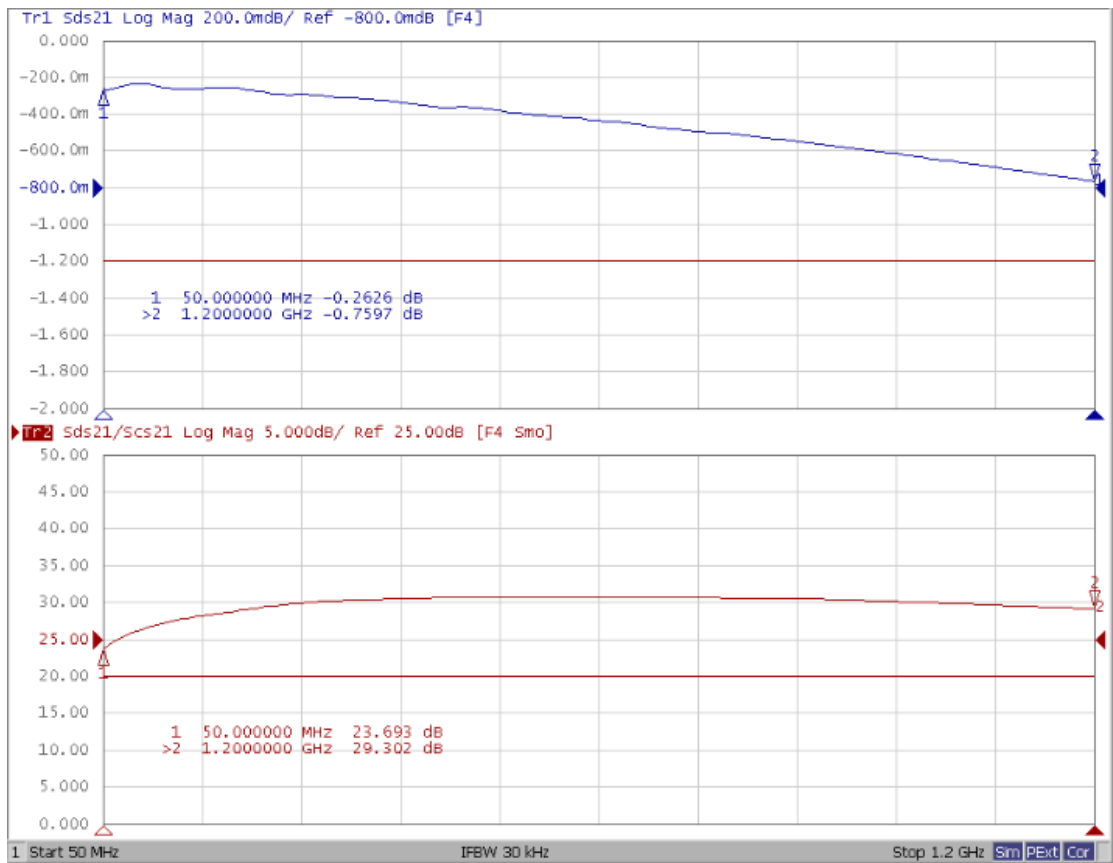
## BCM2012F2SF-75011-MT2



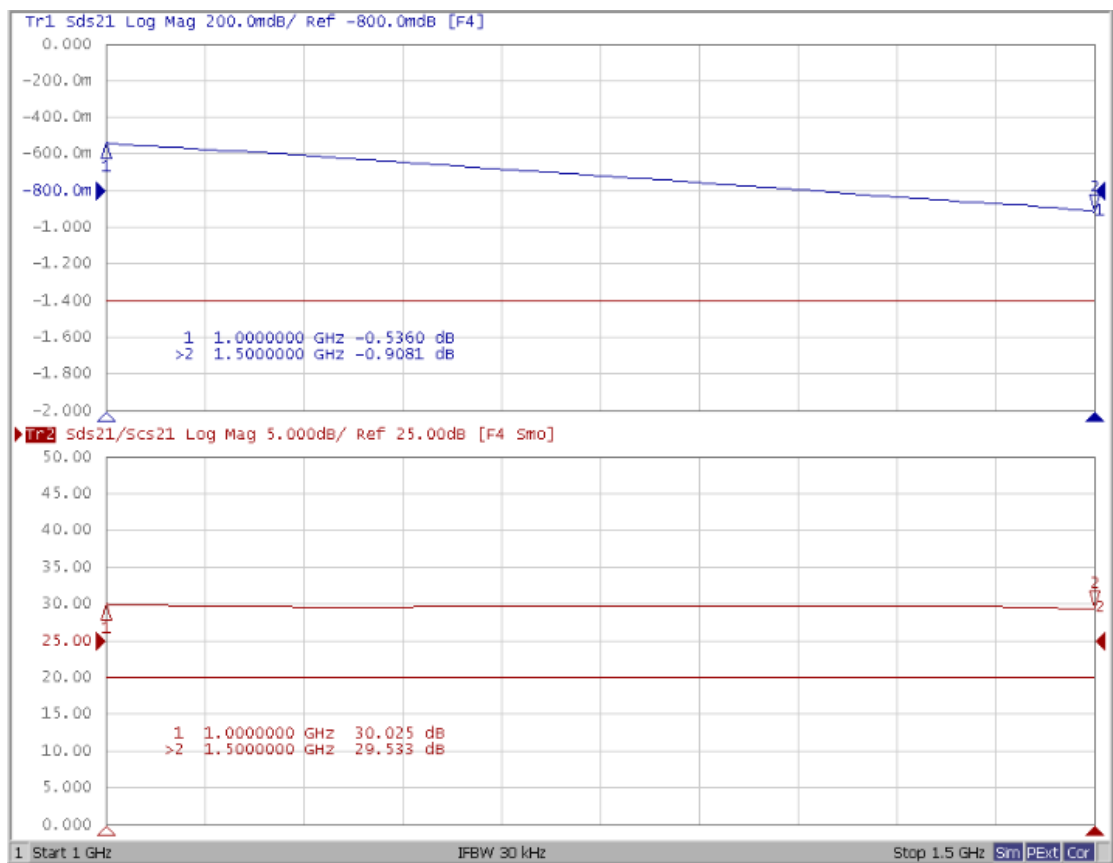
## BCM2012F2SF-75011-SA2

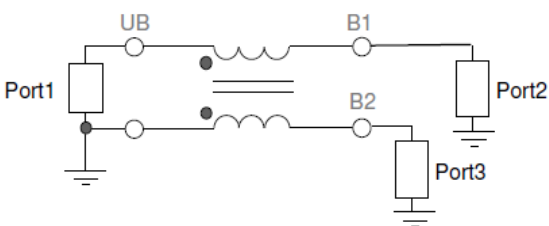
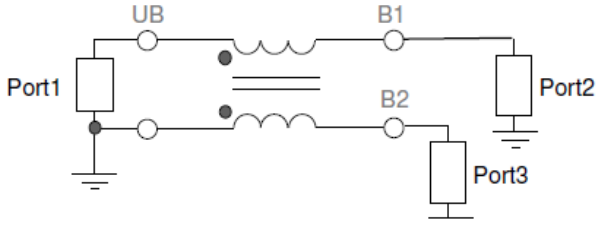


## BCM2012F2SF-75011-SB2



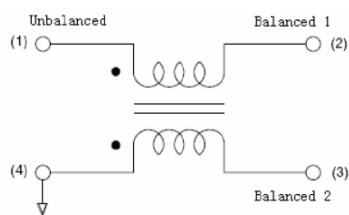
## BCM2012F2SF-75011-122



ITEM	Definition and Measurement Method
Insertion Loss	<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> 
CMRR	<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> 

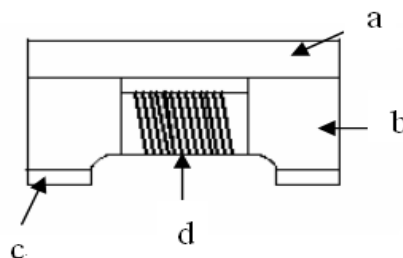


## 5. Schematic Diagram



## 6. Materials

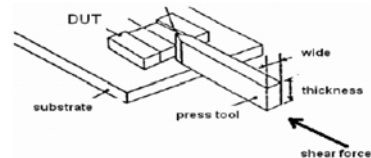
No.	Description	Specification
a.	Upper Plate	Ferrite
b.	Core	Ferrite Core
c.	Termination	Ag/Ni/Sn
d.	Wire	Enameled Copper Wire



## 7. Reliability and Test Condition (BCM2012)

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	-40~+125°C (on board)	
<b>Electrical Performance Test</b>		
Z(common mode)	Refer to standard electrical characteristics list.	Keysight E4991B + Keysight 16197A
DCR		Agilent-34420A Agilent-4338B
I.R.		Chroma 19073
Temperature Rise Test	Rated Current $\Delta T$ 40°C Max	1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer

Reliability Test		
Life Test	<p>Appearance : No damage.          Impedance : within <math>\pm 15\%</math> of initial value          RDC : within <math>\pm 15\%</math> of initial value and shall not exceed the specification value</p>	<p>Preconditioning: Run through reflow for 3 times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles)          Temperature : <math>125\pm 2^{\circ}\text{C}</math>          Applied current : rated current          Duration : <math>1000\pm 12</math>hrs          Measured at room temperature after placing for 24 hrs.</p>
Load Humidity		<p>Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles)          Humidity : <math>85\pm 2\%</math> R.H,          Temperature : <math>85^{\circ}\text{C}\pm 2^{\circ}\text{C}</math>          Duration : 1000hrs Min. Bead : with 100% rated current          Inductance: with 10% rated current          Measured at room temperature after placing for 24 hrs.</p>
Moisture Resistance		<p>Preconditioning: Run through reflow for 3 times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles)          1. Baked at <math>50^{\circ}\text{C}</math> for 25hrs, measured at room temperature after placing for 4 hrs.          2. Raise temperature to <math>65\pm 2^{\circ}\text{C}</math> 90-100%RH in 2.5hrs, and keep 3 hours, cool down to <math>25^{\circ}\text{C}</math> in 2.5hrs.          3. Raise temperature to <math>65\pm 2^{\circ}\text{C}</math> 90-100%RH in 2.5hrs, and keep 3 hours, cool down to <math>25^{\circ}\text{C}</math> in 2.5hrs,keep at <math>25^{\circ}\text{C}</math> for 2 hrs then keep at <math>-10^{\circ}\text{C}</math> for 3 hrs          4. Keep at <math>25^{\circ}\text{C}</math> 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.</p>
Thermal shock		<p>Preconditioning: Run through reflow for 3 times.( IPC/JEDECJ-STD-020E Classification Reflow Profiles)          Condition for 1 cycle          Step1 : <math>-40\pm 2^{\circ}\text{C}</math> 30<math>\pm</math>5min          Step2 : <math>125\pm 2^{\circ}\text{C}</math> <math>\leq 0.5</math>min          Step3 : <math>125\pm 2^{\circ}\text{C}</math> 30<math>\pm</math>5min          Number of cycles : 500          Measured at room temperature after placing for 24 hrs.</p>
Vibration		<p>Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minute          Equipment : Vibration checker          Total Amplitude:10g          Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).</p>

Item	Performance	Test Condition														
Bending	Appearance : No damage. Impedance : within±15% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.														
Shock		<table><tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></table> <p>3 shocks in each direction along 3 perpendicular axes. (18 shocks).</p>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec												
SMD	50	11	Half-sine	11.3												
Lead	50	11	Half-sine	11.3												
Solderability	More than 95% of the terminal electrode should be covered with solder.	a. Method B, 4 hrs @155°C dry heat @235°C±5°C Testing Time :5 +0/-0.5 seconds b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C Testing Time :30 +0/-0.5 seconds														
Resistance to Soldering Heat	Appearance : No damage. Impedance : within±15% of initial value RDC : within ±15% of initial value and shall not exceed the specification value e	Depth: completely cover the termination <table><tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1						
Temperature(°C)		Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles												
260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1													
Terminal Strength		Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 														

# Wire Wound Type Balun

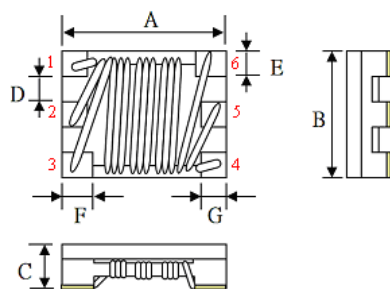
BCM3225F3SF-SERIES-P

## 1. Features

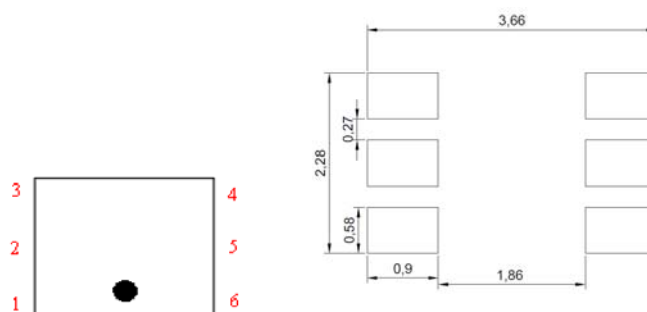
1. Low insertion loss at frequency range.
2. BCM3225F3SF series realizes small size and low profile.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Operating temperature-25~+85°C (Including self - temperature rise)



## 2. Dimension



Recommended PC Board Pattern



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

BCM	3225	F	3	S	F	-	750	34	-	1R5	-	CT1	-	P
A	B	C	D	E	F		G	H		I		J		K

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

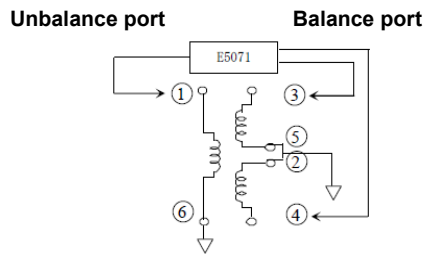
## 4. Specification

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	0.10	180±2	0.70	500	10	10
	5~200MHz	1.5	10	0.50	180±5				
BCM3225F3SF-75032-CT1-P	5~100MHz	2.0	5.0	1.00	180±10	0.70	300	10	10
BCM3225F3SF-75034-CT1-P	1~100MHz	2.0	5.0	0.10	180±10	0.70	300	10	10
BCM3225F3SF-75034-1R5-CT1-P	1~100MHz	2.0	5.0	0.10	180±10	1.50	300	10	10

## 5. Test Equipment

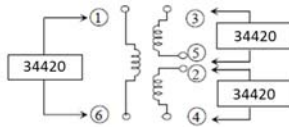
(1) Amplitude Balance / Phase Balance / Insertion Loss / Return Loss

Measured by using E5071C Network Analyzer



(2) DC resistance

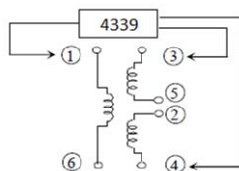
Measured by using 34420A milli ohm meter.



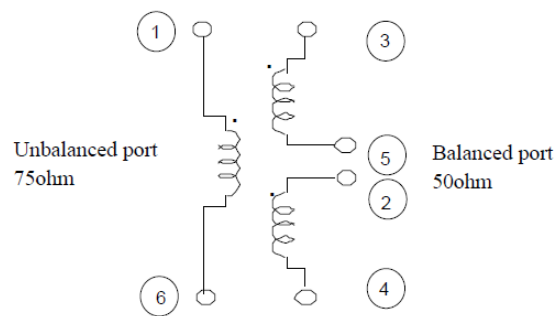
(3) Insulation resistance

Measured by using 4339B high resistance meter

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

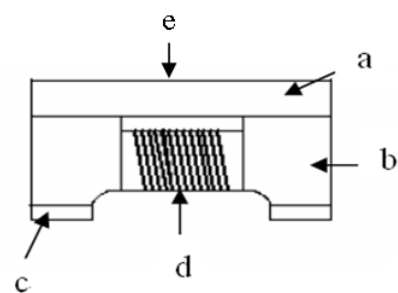


## 6. Schematic Diagram



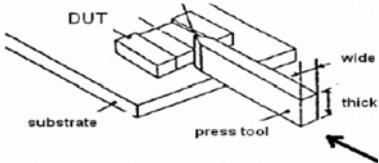
## 7. Materials

No.	Description	Specification
a.	Upper Plate	Ferrite
b.	Core	Ferrite Core
c.	Termination	Ag/Ni/Sn
d.	Wire	Enameled Copper Wire
e.	INK	Black



## 8. Reliability and Test Condition (BCM3225)

Item	Performance	Test Condition
Operating temperature	-25~+85℃ (Including self - temperature rise)	
Storage temperature	-25~+85℃ (on board)	
<b>Electrical Performance Test</b>		
Temperature Rise Test	Rated Current $\Delta T$ 40℃ Max	1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer
<b>Reliability Test</b>		
Life Test	Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Insertion Loss : within Specification RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : 85 $\pm$ 2℃ Applied current : rated current Duration : 1000 $\pm$ 12hrs Measured at room temperature after placing for 24 hrs.
Load Humidity		Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : 85 $\pm$ 3%R.H, Temperature : 85℃ $\pm$ 2℃ Duration : 1000hrs Min. Bead : with 100% rated current , Inductance: with 10% rated current Measured at room temperature after placing for 24 hrs.
Moisture Resistance		Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles) 1. Baked at 50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65 $\pm$ 2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65 $\pm$ 2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs, keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1 : -25 $\pm$ 2℃ 30 $\pm$ 5min Step2 : 85 $\pm$ 2℃ $\leq$ 0.5min Step3 : 85 $\pm$ 2℃ 30 $\pm$ 5min Number of cycles : 500 Measured at room temperature after placing for 24 hrs.
Vibration		Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minute Equipment : Vibration checker Total Amplitude:10g Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)

Item	Performance	Test Condition															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance : No damage. Impedance : within±15% of initial value Insertion Loss : within Specification RDC : within ±15% of initial value and shall not exceed the specification value	<table><tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></table> <p>3 shocks in each direction along 3 perpendicular axes. (18 shocks).</p>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solderability	More than 95% of the terminal electrode should be covered with solder.	a. Method B, 4 hrs @155°C dry heat @235°C±5°C Testing Time :5 +0/-0.5 seconds b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C Testing Time :30 +0/-0.5 seconds															
Resistance to Soldering Heat		Depth: completely cover the termination <table><tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
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Terminal Strength	Appearance : No damage. Impedance : within±15% of initial value Insertion Loss : within Specification RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through reflow for 3 times.( IPC/JEDEC J-STD-020E Classification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the componen being tested. 															



## 9. Soldering and Mounting

### 9-1. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

#### 9-1.1 Soldering Reflow:

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1&1.2 (J-STD-020E)

#### 9-1.2 Soldering Iron:

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended. (Figure 2.)

- Preheat circuit and products to 150°C
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Fig.1 Soldering Reflow

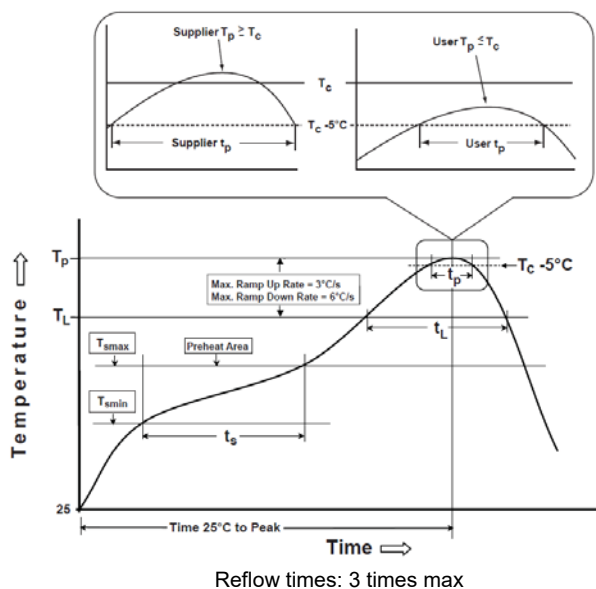
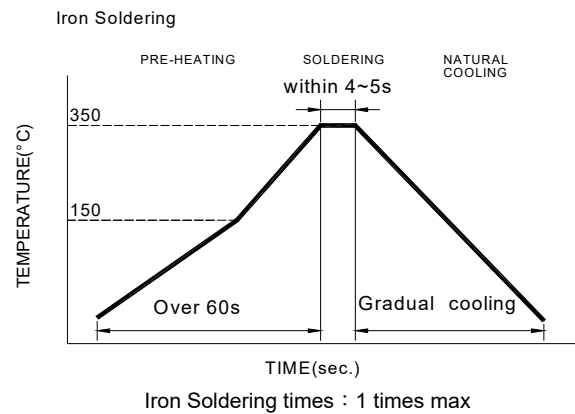


Fig.2 Iron soldering temperature profiles



**Table (1.1): Reflow Profiles**

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min( $T_{smin}$ ) -Temperature Max( $T_{smax}$ ) -Time( $t_s$ )from( $T_{smin}$ to $T_{smax}$ )	150°C 200°C 60-120seconds
Ramp-up rate( $T_L$ to $T_p$ )	3°C /second max.
Liquidus temperature( $T_L$ ) Time( $t_L$ )maintained above $T_L$	217°C 60-150 seconds
Classification temperature( $T_c$ )	See Table (1.2)
Time( $t_p$ ) at $T_c - 5^\circ\text{C}$ ( $T_p$ should be equal to or less than $T_c$ .)	< 30 seconds
Ramp-down rate( $T_p$ to $T_L$ )	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

$T_p$ : maximum peak package body temperature,  $T_c$ : the classification temperature.

For user (customer)  $T_p$  should be equal to or less than  $T_c$ .

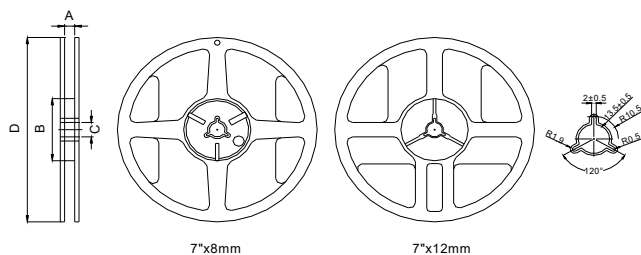
**Table (1.2) Package Thickness/Volume and Classification Temperature ( $T_c$ )**

	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E .

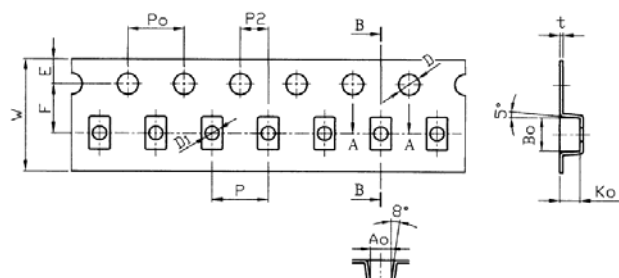
## 10. Packaging Information

### 10-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60.0±2.0	13.5±0.5	178.0±2.0

### 10-2. Tape Dimension / 8mm

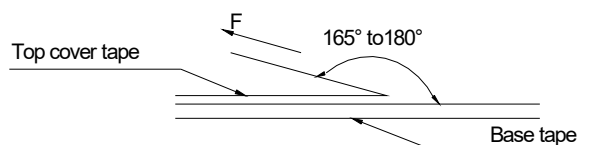


Series	W(mm)	P(mm)	E(mm)	F(mm)	P2(mm)	D(mm)	D1(mm)	P0(mm)	A0(mm)	B0(mm)	K0(mm)	t(mm)
BCM2012F2S	8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10/-0.00	1.00±0.10	4.00±0.10	1.50±0.10	2.35±0.10	1.45±0.10	0.28±0.05

### 10-3. Packaging Quantity

Chip size	Chip/Reel	Inner Box	Middle Box	Carton
BCM2012F2S	2000	10000	50000	100000

### 10-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

#### Application Notice

##### • Storage Conditions(component level)

To maintain the solderability of terminal electrodes:

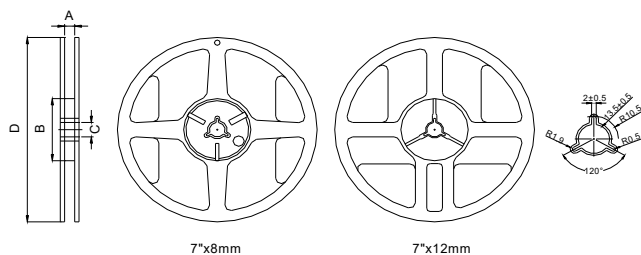
1. TAI-TECH products meet IPC/JEDEC J-STD-020E standard-MSL, level 1.
2. Temperature and humidity conditions: Less than 40°C and 60% RH.
3. Recommended products should be used within 12 months form the time of delivery.
4. The packaging material should be kept where no chlorine or sulfur exists in the air.

##### • Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

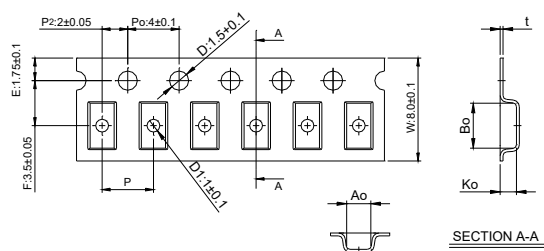
## 10. Packaging Information

### 10-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60.0±2.0	13.5±0.5	178.0±2.0

### 10-2. Tape Dimension / 8mm

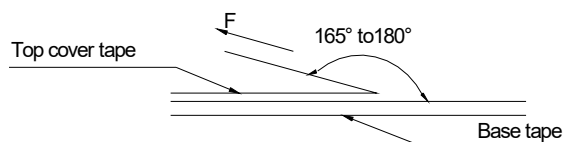


Series	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
BCM3225F3S	3.42±0.1	2.77±0.1	1.55±0.1	4.0±0.1	0.22±0.05

### 10-3. Packaging Quantity

Chip size	Chip/Reel	Inner Box	Middle Box	Carton
BCM3225F3S	2000	10000	50000	100000

### 10-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

#### Application Notice

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