

# Specification for Approval

Date: 2015/07/30

Customer : 深圳臺慶

TAI-TECH P/N: WCM4532F2SF-900T20

CUSTOMER P/N: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

QUANTITY: \_\_\_\_\_ pcs

REMARK:		
Customer Approval Feedback		

**西北臺慶科技股份有限公司**  
**TAI-TECH Advanced Electronics Co., Ltd**

西北臺慶科技股份有限公司  
 TAI-TECH Advanced Electronics Co., Ltd  
Headquarter:  
 NO.1 YOU 4TH ROAD, YOUTH INDUSTRIAL DISTRICT, YANG-MEI,  
 TAO-YUAN HSIEN, TAIWAN, R.O.C.  
 TEL: +886-3-4641148 FAX: +886-3-4643565  
 http://www.tai-tech.com.tw  
 E-mail: sales@tai-tech.com.tw

東莞臺慶精密電子有限公司  
 DONGGUAN TAI-TECH ADVANCED ELECTRONICS CO., LTD  
 JITIGANG MANAGEMENT DISTRICT, HUANGJIANG, DONGGUAN,  
 GUANGDONG, CHINA  
 TEL: +86-769-3365488 FAX: +86-769-3366896  
 E-mail: twnwe@pub.dgnet.gd.cn

Office:  
 金亨國際有限公司  
 KAMHENG INTERNATIONAL LIMITED  
 TEL: +86-852-25772033 FAX: +86-852-28817778

臺慶精密電子(昆山)有限公司  
 TAI-TECH ADVANCED ELECTRONICS(KUNSHAN) CO., LTD  
 SHINWHA ROAD, KUNJIA HI-TECH INDUSTRIAL PARK, KUN-SHAN,  
 JIANG-SU, CHINA  
 TEL: +86-512-57619396 FAX: +86-512-57619688  
 E-mail: hui@tai-tech.com.tw

Office:  
 北欣國際有限公司  
 NORTH STAR INTERNATIONAL LIMITED  
 TEL: +86-512-57619396 FAX: +86-512-57619688

Sales Dep.

APPROVED	CHECKED
管哲頌 Eric Kuan	曾詩涵 Angela Tseng

R&D Center

APPROVED	CHECKED	DRAWN
楊祥忠 Mike Yang	林志鴻 Zhi-Hong Lin	孔妍暄 Chloe Kung

**Wire Wound Type Common Mode Filter**

WCM4532F2SF-900T20

<b>ECN HISTORY LIST</b>					
REV	DATE	DESCRIPTION	APPROVED	CHECKED	DRAWN
1.0	15/07/30	新發行	楊祥忠	林志鴻	孔妍暄
備 註					

# Wire Wound Type Common Mode Filter

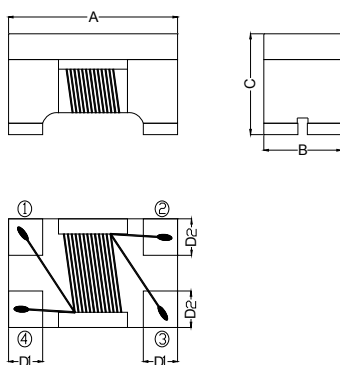
WCM4532F2SF-900T20

## 1. Features

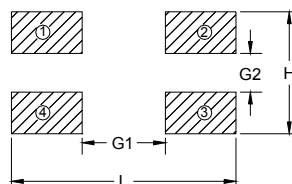
1. High common mode impedance at high frequency cause excellent noise suppression performance.
2. WCM4532F2SF series realizes small size and low profile. 4.5x3.2x2.8 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.



## 2. Dimension



### Recommended PC Board Pattern

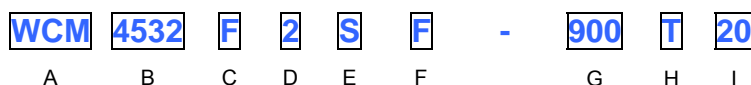


PC board should be designed so that products can prevent damage from mechanical stress when warping the board.  
Products shall be positioned in the sideways direction against the mechanical stress to prevent failure.

Series	A(mm)	B(mm)	C(mm)	D1(mm)	D2(mm)	L(mm)	H(mm)	G1(mm)	G2(mm)
4532F2SF	4.5±0.2	3.2±0.2	2.8±0.2	1.0±0.1	1.2±0.1	4.8	3.8	2.5	0.7

Units: mm

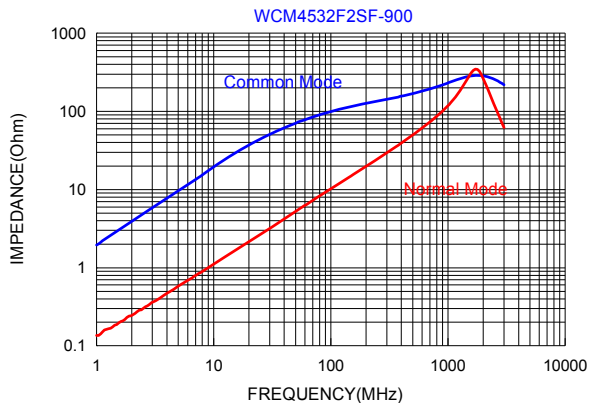
## 3. Part Numbering



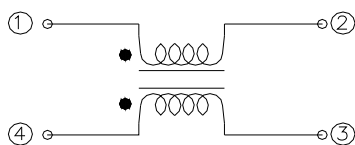
- A: Series  
 B: Dimension  
 C: Material            Ferrite Core  
 D: Number of Lines    2=2 lines  
 E: Type                 S=Shielded , N=Unshielded  
 F: Lead free  
 G: Impedance            900=90Ω  
 H: Packaging             T=Taping and Reel  
 I: Rated Current         20=2000mA

## 4. Specification

TAI-TECH Part Number	Common mode Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.	Rated Volt. (Vdc) max.	Withstand Volt. (Vdc) max.	IR (Ω) min.
WCM4532F2SF-900T20	90±25%	100	0.05	2000	50	125	10M

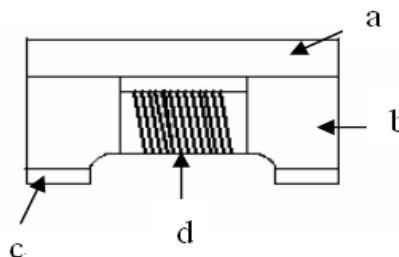


### 5.Schematic Diagram



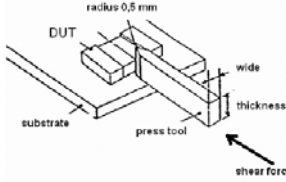
### 6. Materials

No.	Description	Specification
a.	Upper Plate	Ferrite
b.	Core	Ferrite Core
c.	Termination	Tin( Pb Free)
d.	Wire	Enameled Copper Wire



### 7. Reliability and Test Condition

Item	Performance	Test Condition
<b>Electrical Characteristics Test</b>		
Z(common mode)	Refer to standard electrical characteristics list.	Agilent-4291A+ Agilent -16197A
DCR		Agilent-4338B
I.R.		Agilent4339
Operating Temperature	-40°C~+125°C (Including self - temperature rise)	
Storage Temperature(on board)		
Temperature Rise Test	Rated Current < 1A ΔT 20°C Max Rated Current ≥ 1A ΔT 40°C Max	1.Applied the allowed DC current. 2.Temperature measured by digital surface thermometer

Item	Performance	Test Condition								
<b>Mechanical Performance Test</b>										
Solderability Test	More than 95% of terminal electrode should be covered with solder.	Preheat: 150°C ,60sec. ◦ Solder: Sn99.5%-Cu0.5% ◦ Temperature: 245±5°C ◦ Flux for lead free: Rosin. 9.5% ◦ Dip time: 4±1sec ◦ Depth: completely cover the termination								
Solder Heat Resistance	Appearance : No damage. Impedance : within±15% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	<table border="1" data-bbox="1062 660 1425 757"> <thead> <tr> <th>Temperature (°C)</th> <th>Time (s)</th> <th>Temperature ramp/immersion rate and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table> Depth: completely cover the termination	Temperature (°C)	Time (s)	Temperature ramp/immersion rate 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 rate and emersion rate	Number of heat cycles							
260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
Terminal Strength	Appearance : No damage. Impedance : within±15% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification 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. 								
<b>Reliability Test</b>										
Life Test		Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Temperature : 85±2°C Applied current : rated current Duration : 1000±12hrs Measured at room temperature after placing for 24±2 hrs								
Thermal shock	Appearance : No damage. Impedance : within±15% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Step1 : -40±2°C 30±5min Step2 : 25±2°C ≤0.5min Step3 : 105±2°C 30±5min Number of cycles : 500 Measured at room temperature after placing for 24±2 hrs								
Humidity Resistance Test		Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity : 85±2% R.H, Temperature : 85°C ±2°C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs								
Vibration Test		Preconditioning:Run through IR reflow for 2 times.( IPC/JEDEC J-STD-020DClassification Reflow Profiles Oscillation Frequency: 10~2K~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations) ◦								

## 8. Soldering and Mounting

### 8-1. Soldering

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

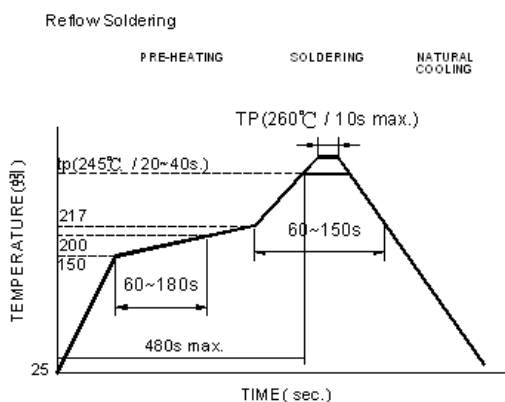
#### 8-1.1 Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

#### 8-1.2 Soldering Iron(Figure 2):

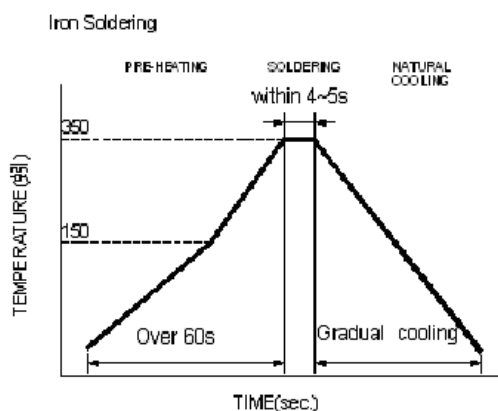
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- 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
- 355°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5 sec.



Reflow times: 3 times max.

Fig.1

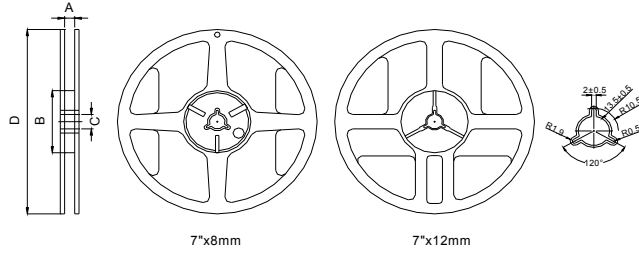


Iron Soldering times: 1 times max.

Fig.2

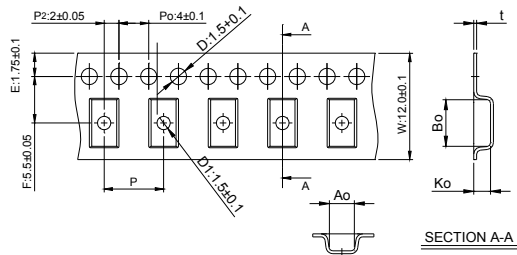
### 9.Packaging Information

#### 9-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x12mm	13.5±0.5	60±2	13.5±0.5	178±2

#### 9-2. Tape Dimension / 12mm

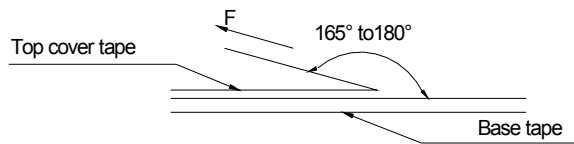


Series	size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
WCM4532F2S	4532	4.90±0.1	3.60±0.1	3.00±0.1	8.0±0.1	0.26±0.05

#### 9-3. Packaging Quantity

Chip size	Chip/Reel	Inner Box	Middle Box	Carton
WCM4532F2S	500	2500	12500	25000

#### 9-4. 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-020D 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.