



# **SPECIFICATION**

## **OF PRODUCTS**

PRODUCT NAME : DIELECTRIC CERAMIC FILTER

PART NUMBER : ECS-DCF-109

Approved by	Checked by	Drawn by
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### **ECS Inc. International**

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## ECS Inc. International

<b>Part Number Sheet</b>	
<b>Customer</b>	
<b>Supplier P/N</b>	ECS-DCF-109
<b>Customer P/N</b>	

<b>Customer's Approval Certificate</b>	
<b>Checked &amp; Approval by</b>	
<b>Date</b>	

Version	Reason Of Modification	Modification	Drawn	Checked	Approval	Date

**Please return this copy after signing as a certification of your approval.**



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## 1. SCOPE

This specification shall cover the characteristics of the dielectric ceramic filter with the type ECS-DCF-109.

## 2. PART NO.

PART NUMBER
ECS-DCF-109
CUSTOMER PART NO

## 3. OUTLINE DIMENSIONS AND MARK

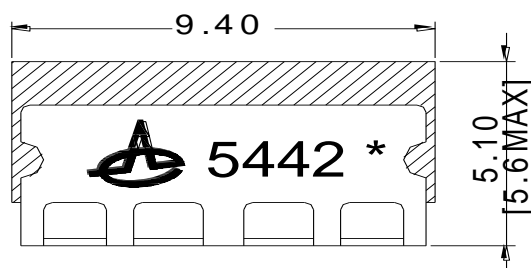
3.1 Appearance: No visible damage and dirt.

3.2 Construction: SMD dielectric ceramic Monoblock.

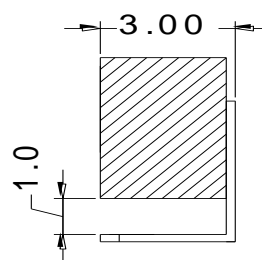
3.3 The products conform to the RoHS directive and national environment protection law.

3.4 Dimensions and mark

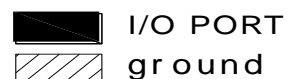
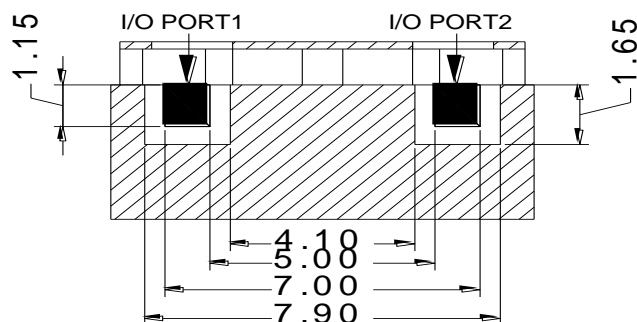
### TOP VIEW



### SIDE VIEW



### BOTTOM VIEW



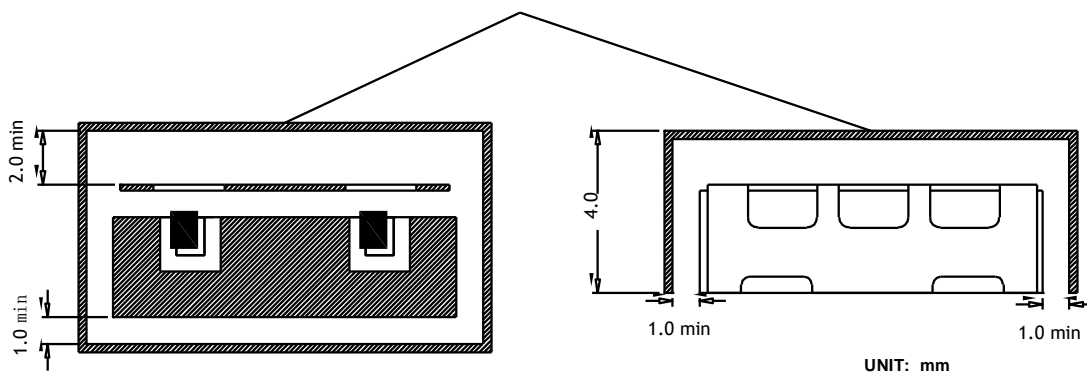
TOLERANCE :  $\pm 0.20$   
UNIT: mm  
\*:EIAJ MONTH CODE

This diagram provides a detailed cross-sectional view of the solder land and electrode structure. It shows two identical units side-by-side. The central black square represents the I/O solder land. Below it are the electrodes, which have a hatched pattern. Dimensions are provided for various layers and gaps:

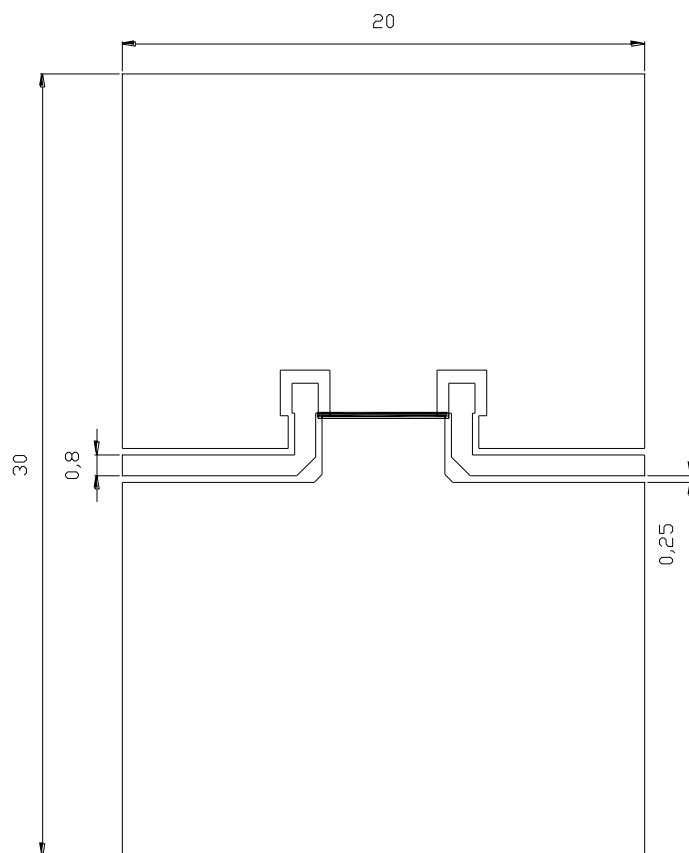
- Vertical dimensions (from top to bottom):** 1.65, 1.15, .00, and .10.
- Horizontal dimensions (from left to right):** 0.05, 0.50, 1.50, 1.95, 6.05, 6.50, 7.50, and 7.95.

The legend indicates that the black area is the I/O (Solder land) and the hatched areas represent the Electrode.

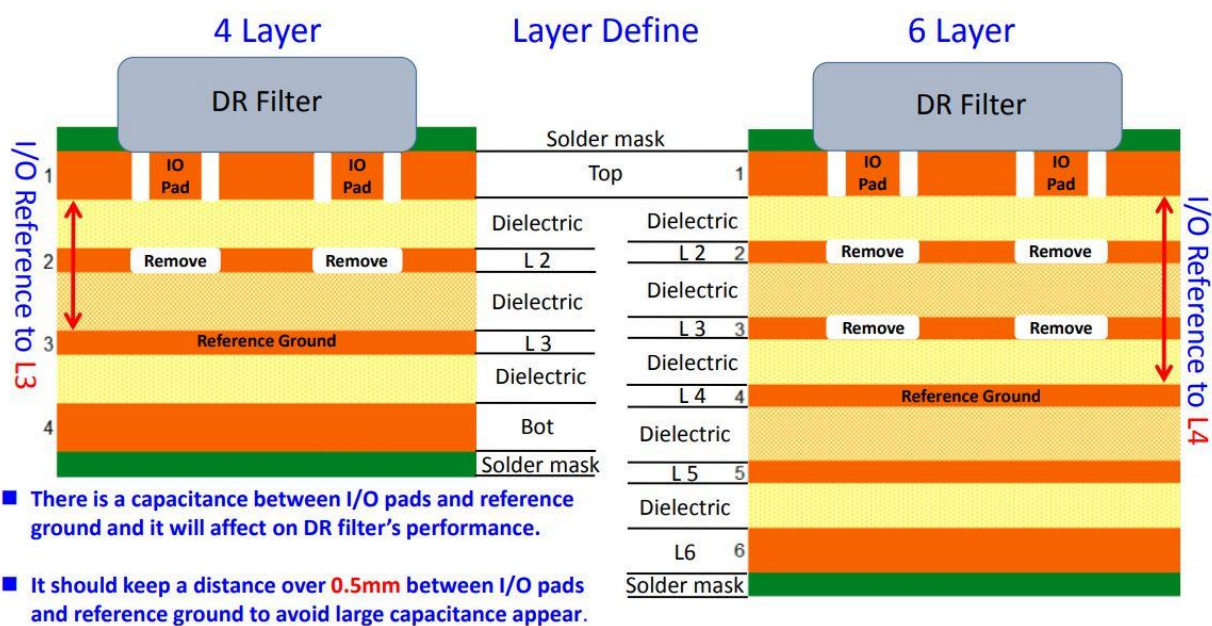
## shielding case



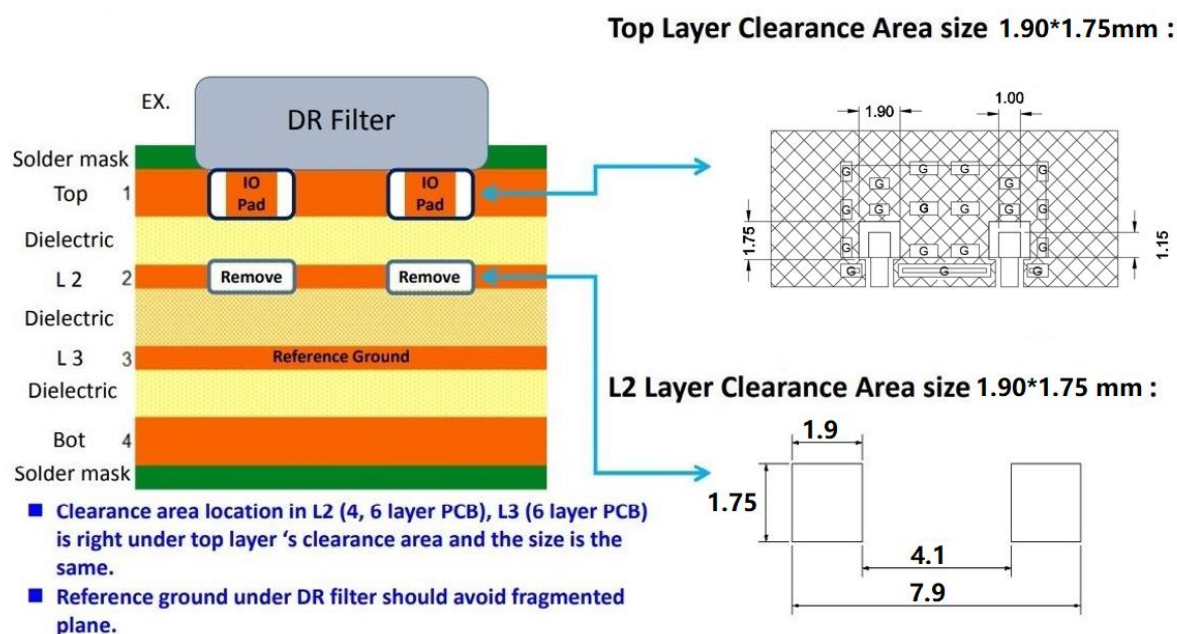
## 3.7 EVB CHARACTERISTICS



## 3.8 Reference Layer of Multiple Layer Stack up



## 3.9 Clearance Area



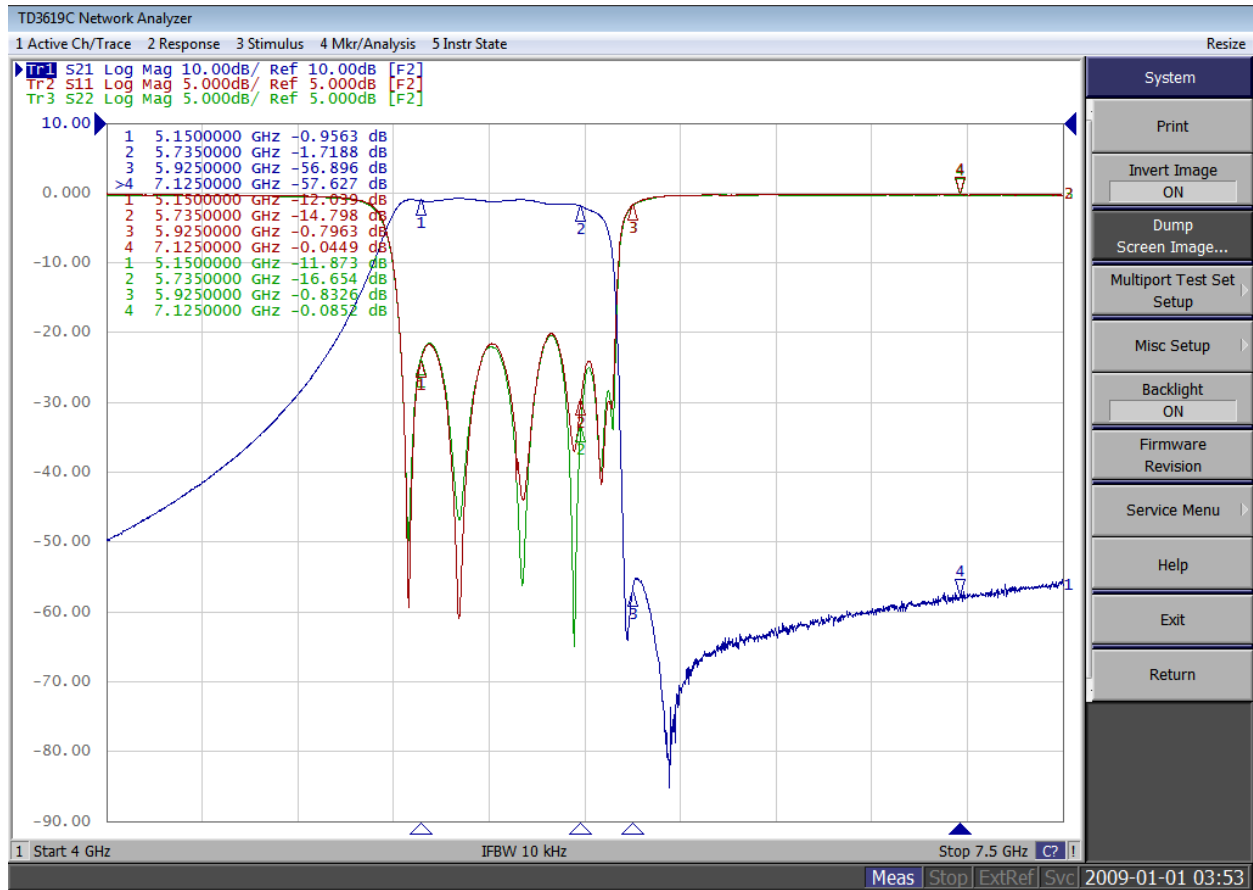
## 4.1 RATING

Items	Requirement
Withstand DC Voltage	50V (1min max)
Insulation Resistance MΩ min.	100 (10V, 1min±5s)
Storage temperature	-40 ~ 85°C
Operation Temperature Range °C	-40 ~ 85°C

## 4.2 ELECTRICAL SPECIFICATIONS

Items	Requirement
Center frequency MHz	5442.5
Bandwidth [BW] MHz	5150-5735
Insertion Loss in BW dB max	2.2
Ripple in BW dB max	2.0
SWR in BW Ratio max.	2.0
Attenuation[Absolute Value] dB min	50.0 @ 0-2500 MHz 40.0 @ 2500-4000 MHz 50.0 @ 5925-7125 MHz
Input Power W max.	1
In/Out Impedance ohm	50

### 4.3 CHARACTERISTIC CURVE



## 5 ENVIRONMENTAL TESTS

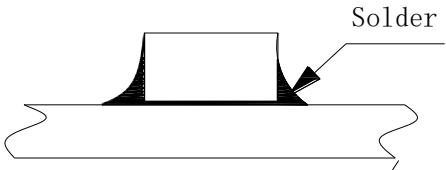
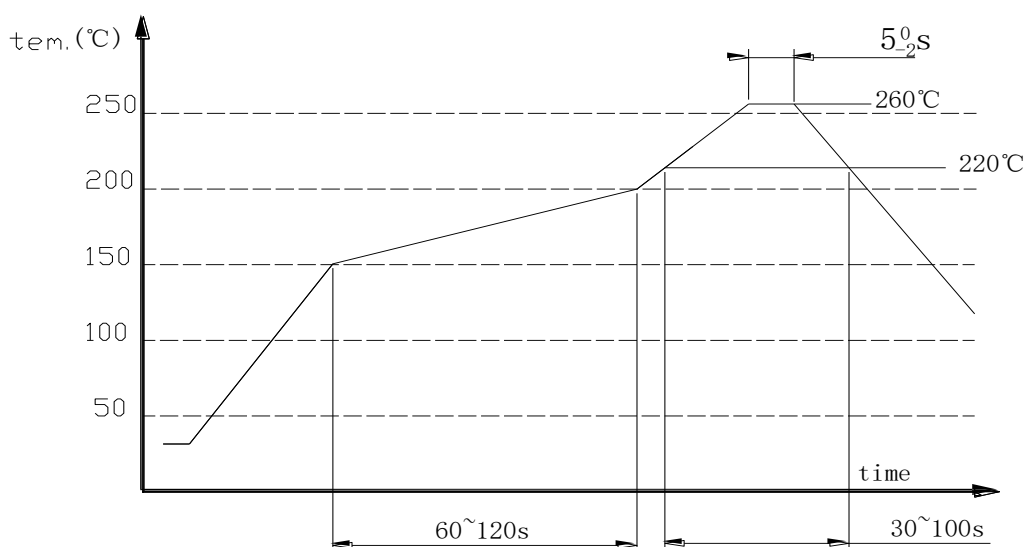
No.	Item	Test Condition	Remark
5.1	Humidity Test	The device is subjected to 90%~95% relative humidity $40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 96h~98h, then dry out at $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity for 2h~4h. After drying out the device shall satisfy the specification in table 1.	It shall fulfill the specifications in Table 1.
5.2	High Temperature Exposure	The device shall satisfy the specification in table 1 after leaving at $85^{\circ}\text{C}$ for 16h, provided it would be measured after 2h~4h leaving in $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity.	It shall fulfill the specifications in Table 1.
5.3	Low Temperature	The device shall satisfy the specification in table 1 after leaving at $-40^{\circ}\text{C}$ for 16h, provided it would be measured after 2h~4h leaving in $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and less than 65% relative humidity.	It shall fulfill the specifications in Table 1.
5.4	Temperature Cycle	Subject the device to $-25^{\circ}\text{C}$ for 30 min. followed by a high temperature of $85^{\circ}\text{C}$ for 30 min cycling shall be repeated 5 times. At the room temperature for 1h~4h prior to the measurement.	It shall fulfill the specifications in Table 1.
5.5	Vibration	Subject the device to vibration for 2h each in x、y and z axis with the amplitude of 1.5mm, the frequency shall be varied uniformly between the limits of 10Hz~55Hz.	It shall fulfill the specifications in Table 1.
5.6	Soldering Test	The device should be satisfied after preheating at $120^{\circ}\text{C}\sim 150^{\circ}\text{C}$ for 60seconds and dipping in soldering Sn an $260^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for $10\pm 1$ seconds.	Mechanical damage shall not occur.
5.7	Solder Ability	Dipped in $260^{\circ}\text{C}\pm 5^{\circ}\text{C}$ solder bath for $3\text{s}\pm 0.5\text{ s}$ with rosin flux (25wt% ethanol solution.)	The terminals shall be at least 95% covered by solder.
5.8	Terminal Pressure Strength	 <p>The device is subjected to be soldered to be soldered on test PCB .Then apply 5N of force for <math>10\text{s}\pm 1\text{s}</math> in the direction of the arrow.</p>	Mechanical damage such as breaks shall not occur.



Table 1

Item	Characteristics after test
Insertion Loss Change dB max	±0.3
Ripple Change dB max	±0.3
Return loss. dB max	±2.0
Attenuation Change dB max	±4.0
Note: The limits in the above table are referenced to the initial measurements.	

## 6. Recommended soldering conditions



Phase	Profile features	Pb-Free Assembly
PREHEAT	-Temperature Min -Temperature Max -Time form	150°C 200°C 60-120 seconds
RAMP-UP	Avg. Ramp-up Rate 200°C to 260°C)	3°C/second(max)
REFLOW	-Temperature -Total Time above 220°C	220°C 30-100 seconds
PEAK	-Temperature -Time	260°C 3-5 seconds
RAMP-DOWN	Rate	2-6°C/second
Time from 25°C to Peak Temperature		8 minutes max
Composition of solder paste		Ag3.0/Cu0.5/ Sn



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### 7. OTHER

#### 7.1 Caution

7.1.1 Don't apply excess mechanical stress to the component and terminals at soldering. Do not use this product with bend.

7.1.2 Do not clean or wash the component for it is not hermetically sealed.

7.1.3 Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.

7.1.4 This specification mentions the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in your application circuit

7.1.5 Expire date (Shelf life) of the products is six months after delivery under the conditions of a sealed and an unopened package. Please use the products within six months after delivery. If you store the products for a long time (more than six months), use carefully because the products may be degraded in the solderability or rusty. Please confirm solderability and characteristics for the products regularly.

7.1.6 Please contact us before using the product as automobile electronic component.

#### 7.2 Notice

7.2.1 Please return one of these specifications after your signature of acceptance.

# Mouser Electronics

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