

SPECIFICATION FOR APPROVAL

<p>CUSTOMER'S APPROVAL CHOP</p> <p>Approval's condition: _____</p> <p>Approved date: _____</p>
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KINDLY RETURN A SET WITH YOUR COMPANY'S OFFICIAL
STAMP ON APPROVAL OF THIS ITEM

CUSTOMER'S NAME: _____

CUSTOMER'S MODEL NO. : _____

CUSTOMER'S PART NO. : _____

DESCRIPTION: **Dielectric Filter**

Semitel's MODEL NO. : **SE7R5492A685_8.8_Xxx**

VERSION: **C**

DATE: **2021/11/9**

Attachments:

- Product Specification
- Sample Qty. :
- Test Data

Prepared By	Checked By	Approved By
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1. FEATURES

- Small size, Light weight
- SMT package
- Ideal for telecommunication

2. STRUCTURE AND MATERIAL

No.	Part Name	Structure and Material
1	Resonator	Dielectric material
2	In/output Terminal	Ag
3	Ground Base	Ag
4	Shielding case	Ni-Cu Alloy

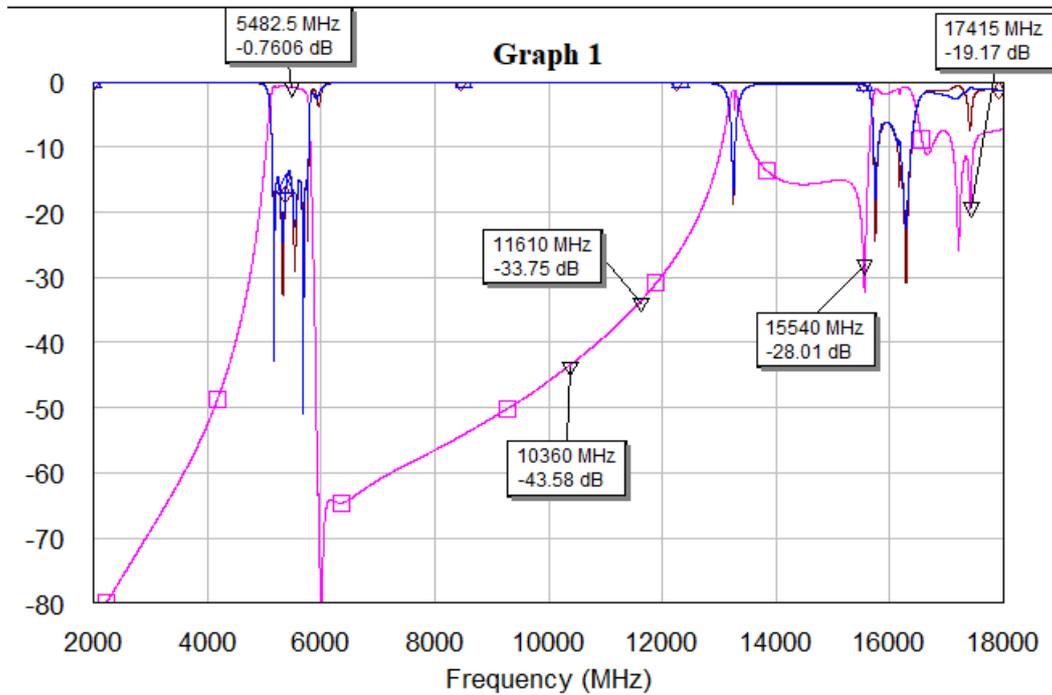
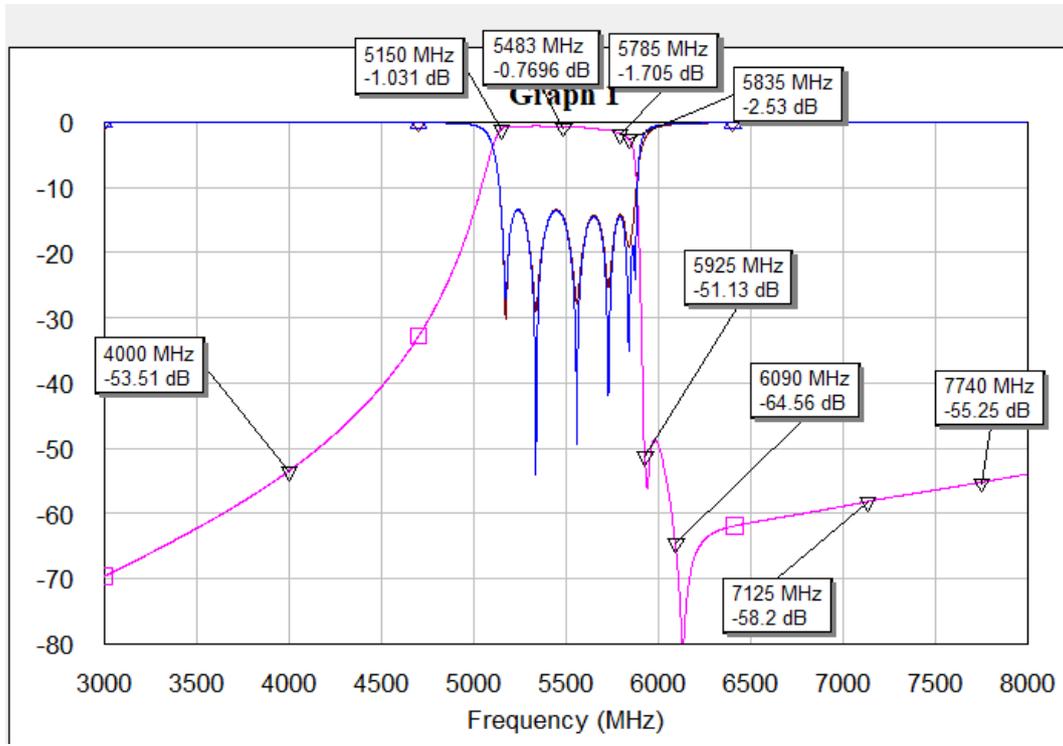
3. SPECIFICATIONS

NO.	ITEM	TYP	SPEC	UNIT
1	Center Frequency [fo]		5492.5	MHz
2	Bandwidth [BW]		fo±342.5[5150~5835]	MHz
3	Insertion Loss in BW	1.5	2.5 max.@5150~5785 MHz	dB
		2.5	3.0 max.@5785~5835 MHz	
4	Ripple in BW	1.5	2.0 max.@5150~5785 MHz	dB
		1.5	2.0 max.@5785~5835 MHz	
5	Return Loss in BW	13	10 min.@5150~5835 MHz	dB
6	Attenuation [Absolute Value]	/	50 min. @ DC~2500 MHz	dB
		/	40 min. @ 2500~4000 MHz	
		48	45 min. @ 5925~5990 MHz	
		/	50 min. @ 6090~7125 MHz	
		/	50 min. @ 7125~7740 MHz	
		/	30 min. @10360~11610 MHz	
		28	15 min. @ 15540~17415 MHz	
7	In/Out Impedance		50	Ω

^ All Parameters are measured with 50Ω system at +25°C if not specified.

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4. FREQUENCY RESPONSE



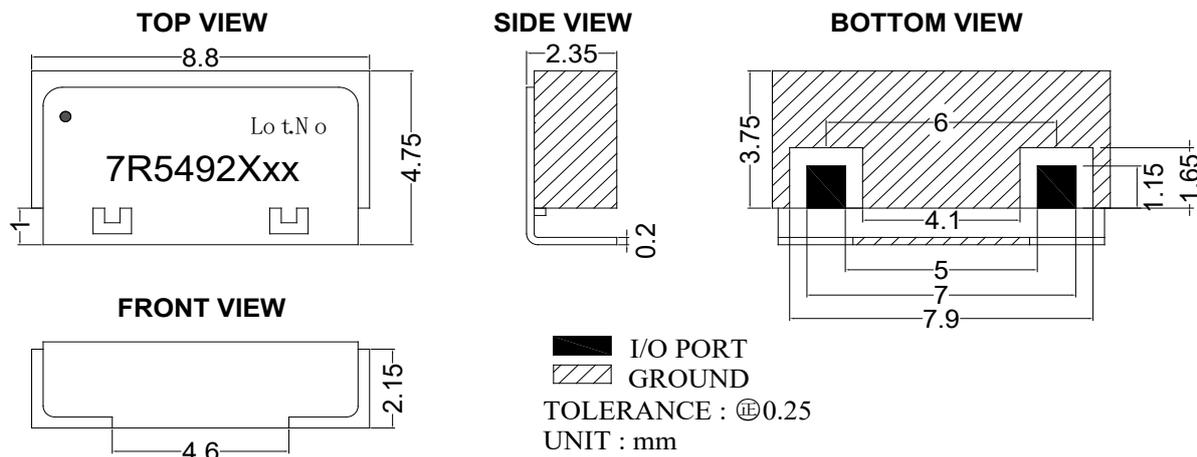
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5. STRUCTURE AND LAYOUTRECOMMENDATION

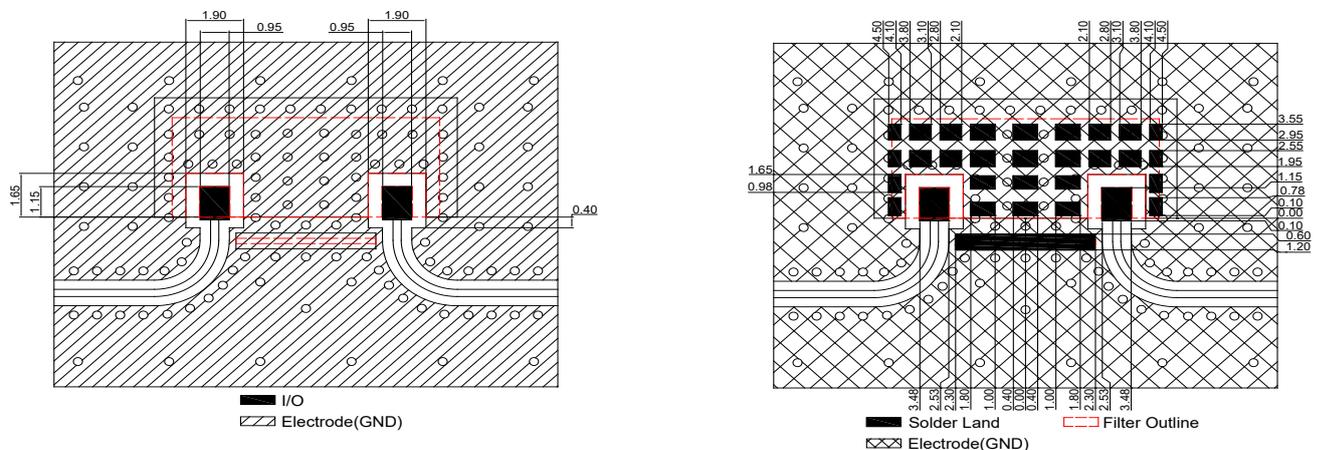
5.1. Filter drawing

5.2 .SE7R5492A685_8.8_Xxx

marking showing 7R5492Xxx(X= A~Z, xx=01~99 mean for project series code.)



5.3. RECOMMENDED PC BOARD PATTERN

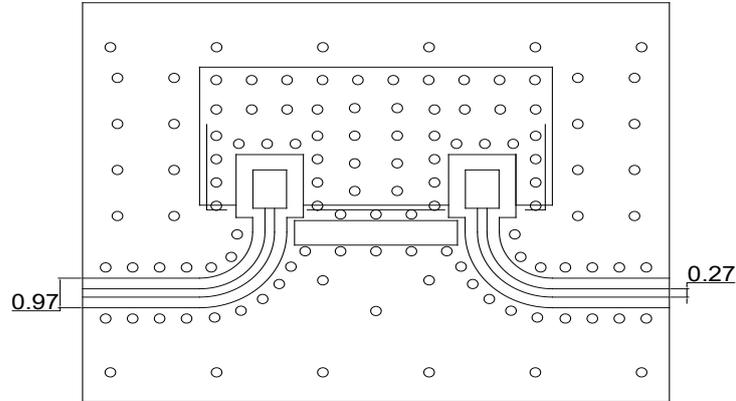


5.3.1 NOTES

- The recommendation of steel mesh thickness: 0.1mm.
- The recommendation of soldering paste: ALPHA CVP-390.

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5.4. EVB (Test PCB) CHARACTERISTICS



6-layer stack up

#	Name	Material	Type	Weight	Thickness	Dk	Df
	Top Overlay		Overlay				
	Top Solder	Solder Resist	Solder Mask		0.4mil	3.5	
1	Top Layer		Signal	1oz	1.4mil		
	Dielectric 1	PP-021	Prepreg		5.2mil	4.7	0.02
2	Layer 1	CF-004	Signal	1/2oz	0.7mil		
	Dielectric 2	FR4	Core		16.9mil	4.2	0.02
3	Layer 2	CF-004	Signal	1/2oz	0.7mil		
	Dielectric 3	PP-021	Prepreg		5mil	4.7	0.02
4	Layer 3	CF-004	Signal	1/2oz	0.7mil		
	Dielectric 4	Core-009	Core		16.9mil	4.5	0.02
5	Layer 4	CF-004	Signal	1/2oz	0.7mil		
	Dielectric 5	PP-021	Prepreg		5.2mil	4.7	0.02
6	Bottom Layer		Signal	1oz	1.4mil		
	Bottom Solder	Solder Resist	Solder Mask		0.4mil	3.5	
	Bottom Overlay		Overlay				

6. RELIABILITY

6.1. Absolute maximum rating :

Operation Temperature Range	-40~+115°C
Storage Temperature Range	-40~+115°C
Storage Humidity	80%RH or less
Average Input RF Power	1.5 W

6.2. Reliability:

The filter shall withstand the following test condition

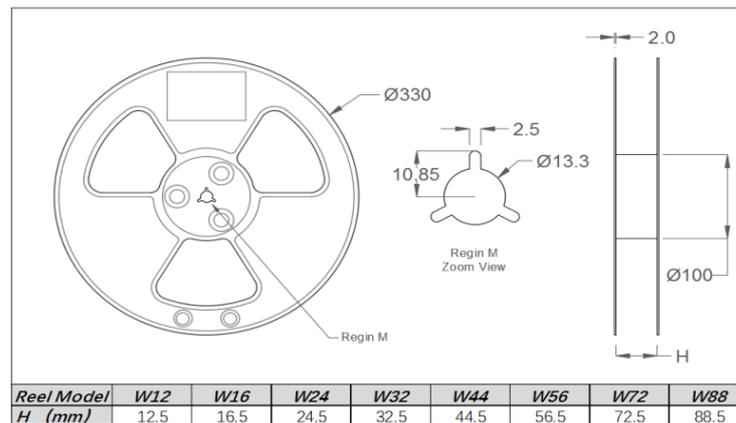
No.	Test	Test Condition
1	Thermal Shock Resistance Test:	After the unit is applied to thermal shock -40°C~+100°C for 2 hours soak at each temperature with transition time less than 10 seconds for 350 cycles and then be left for more than 1 hour at 25±5°C in less than 65% relative humidity.

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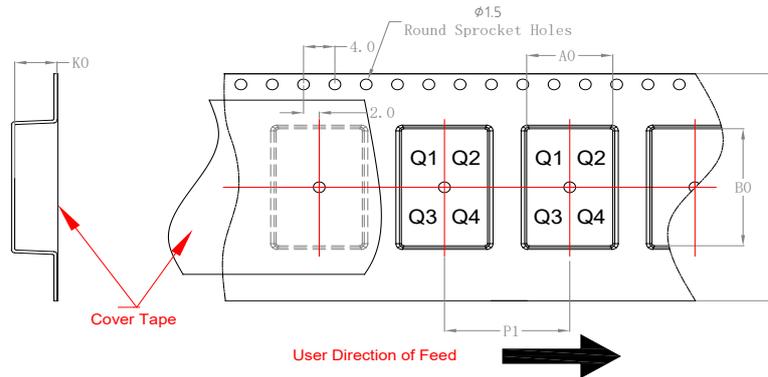
2	Low Temperature Storage Test :-40°C	Unit shall be subjected to the above condition for 500 hours and then be left for more than 2 hours at room temperature.
3	High Temperature Storage Test:+100°C	Unit shall be subjected to the above condition for 500 hours and then be left for more than 2 hours at room temperature.
4	Vibration Resistance Test	The vibration frequency shall be varied within 10-500 Hz with the amplitude of 1.5mm for 20 minutes. Devices are applied to vibration in each of three mutually perpendicular planes for 2 hours.
5	Humidity Resistance Test	Unit shall be subjected to the 60±2°C, 95% relative humidity for 500 hours and then be left for more than 2 hours at 25±5°C in less than 65% relative humidity.
6	Bending Resist Test	Weld the product to the center part of the PCB with the thickness 1.6±0.2mm as the illustration shows, and keep exerting force arrow-ward on it at speed of :1mm/S , and hold for 5±1S at the position of 1.5mm
7	Adhesion Test	The device is subjected to be soldered on test PCB. Then apply 0.5Kg(5N) of force for 10±1 seconds in the direction of arrow. (the soldering should be done by reflow and be conducted with care so that the soldering is uniform and free of defect by stress such as heat shock) .
8	Mechanical Shock Resistance Test	A half sine wave shock with a maximum acceleration of 30 G's and duration of 11 msec. Unit is applied in six directions at right angles to each other by three shocks in each direction.

7. PACKAGING

7.1. Reel and Carrier tape (1850pcs/Reel)

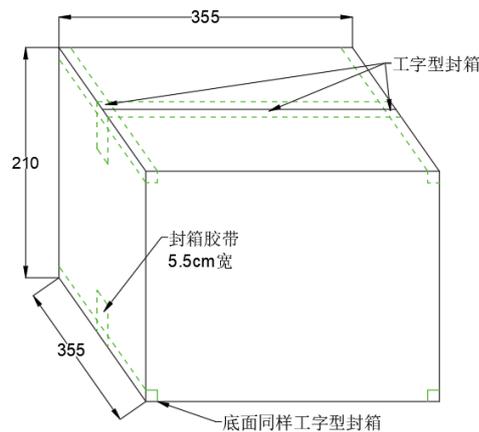


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Package Dimension (mm)							
Device	Reel No.	W	A0	B0	K0	P1	Mark Quadrant
SE7R5492A685_8.8_Xxx(7R5492Xxx)	W24	24	5.4	9.2	2.8	12	Q3

7.2. Outer Carton (5 Inner Vacuum bag /Outer Carton)

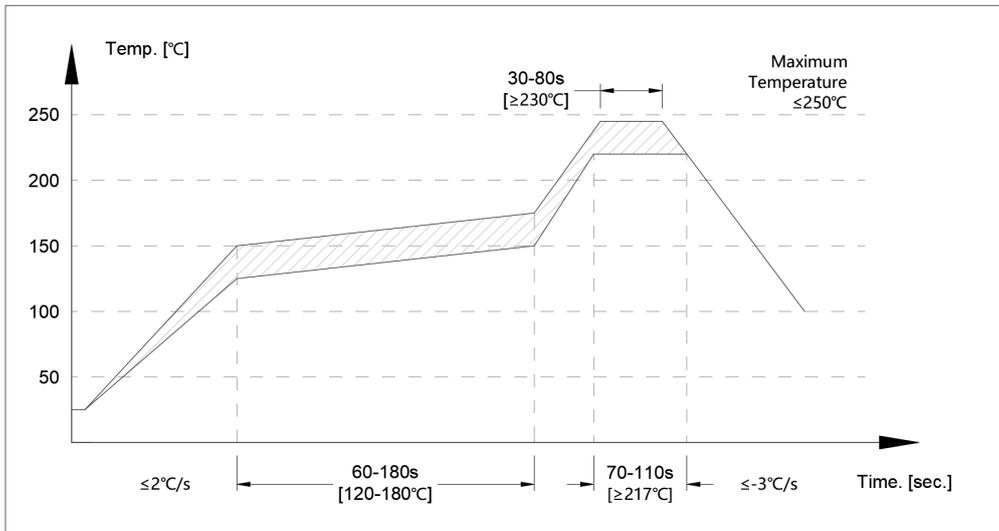


8. RECOMMENDED SOLDERING CONDITION

8.1. Reflow condition

- Pb-Free reflow condition is shown in the graph below.
- SAC305 solder paste is recommended.
- The temperature shown in the graph is the surface temperature of the filter body.

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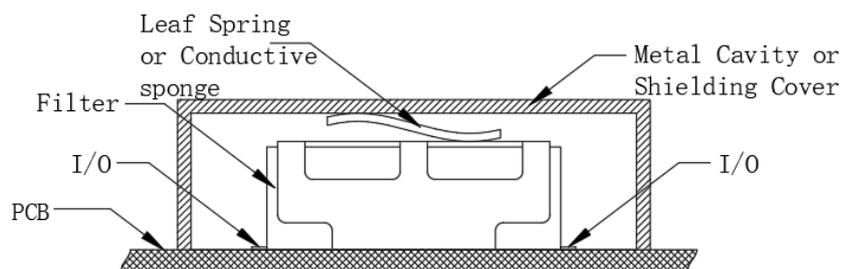


8.2. Notes

- Soldering Iron is prohibited for installation or repairing of the filter.
- Use the hot gas repair station for removing and replacing the filter, do not exceed 250°C (filter surface temperature) during rework.

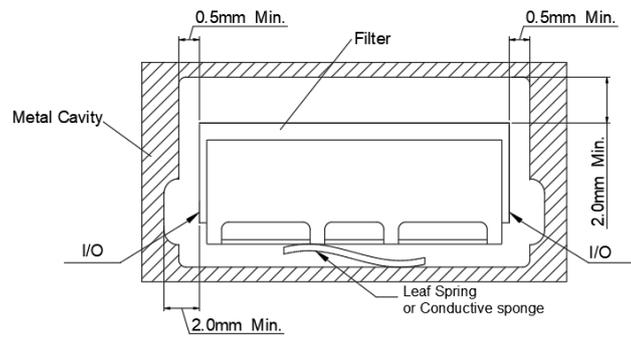
9. NOTES

- 9.1. This product is RoHS 2.0/HSF compliant.
- 9.2. Moisture Sensitivity Level: MSL-2.
- 9.3. The dielectric ceramic filter belongs to brittle products, it is necessary to avoid extreme heat and cold.
- 9.4. The solder area under the filter should be divided into smaller patches with narrow strips of resist area. This is to help the evacuation of the gasses generated from the solder paste during reflow process.
- 9.5. The filter will be tested on EVB with 50Ω impedance, the performance should completely satisfy the specification requirements.
- 9.6. When the surface-mount filter is installed in metal cavity, to achieve best performance of the filter, it is recommended that the filter top is in contact with the metal housing with conductive spring or conductive sponge.



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9.7. Illustration of the position when the filter is installed in the metal cavity.



9.8. Ensure the PCB transmission-line at the filter In/Out is well-grounded with metal vias, it is recommended to use mid-layer strip-line to achieve best port isolation and filter attenuation; micro-strip transmission line laid on the opposite side of the filter is also recommended.

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