2850 MHz RF Ceramic Filter
IFW28501

1. Features

- RF Ceramic Bandpass Filter
- Usable bandwidth 110 MHz at Fc 2850 MHz
- RoHS Compliant

RoHS/RoHS2 (2015/863/EU) Compliant

2. Preliminary Electrical Specifications

		Minimum	Typical	Maximum
Center Frequency (Fc)	MHz		2850	
Insertion Loss [1)]	dB	-	1.7	2.0
Ripple (2795 - 2905 MHz)	dB	-	0.4	0.5
Return Loss (2795 - 2905 MHz)	dB	15	16	-
Attenuation (DC - 1100 MHz)	dBc	70	75	-
Attenuation (1101 - 2100 MHz)	dBc	60	65	-
Attenuation (2101 – 2300 MHz)	dBc	45	50	-
Attenuation (2301 – 2580 MHz)	dBc	30	35	-
Attenuation (2581 – 2630 MHz)	dBc	20	25	-
Attenuation (3050 – 3200 MHz)	dBc	15	20	-
Attenuation (3201 – 3500 MHz)	dBc	30	35	-
Attenuation (3501 – 6000 MHz)	dBc	50	53	-
Input/Output Impedance	Ohm	-	50	-
Operating Temperature Range	℃	-40		+85
Power handling(CW)	dBm			30
Power handling(Instantaneous Peak)	dBm			33 (1% duty cycle, 1us pulsewidth)

1) Insertion Loss at Center frequency

* All specifications are based on simulation data and ITF reserves the right to amend the specification once sample filters are produced.

* Actual electrical characteristics may vary due to user's PCB layout and parasitic.

* Ref. Meas Data.

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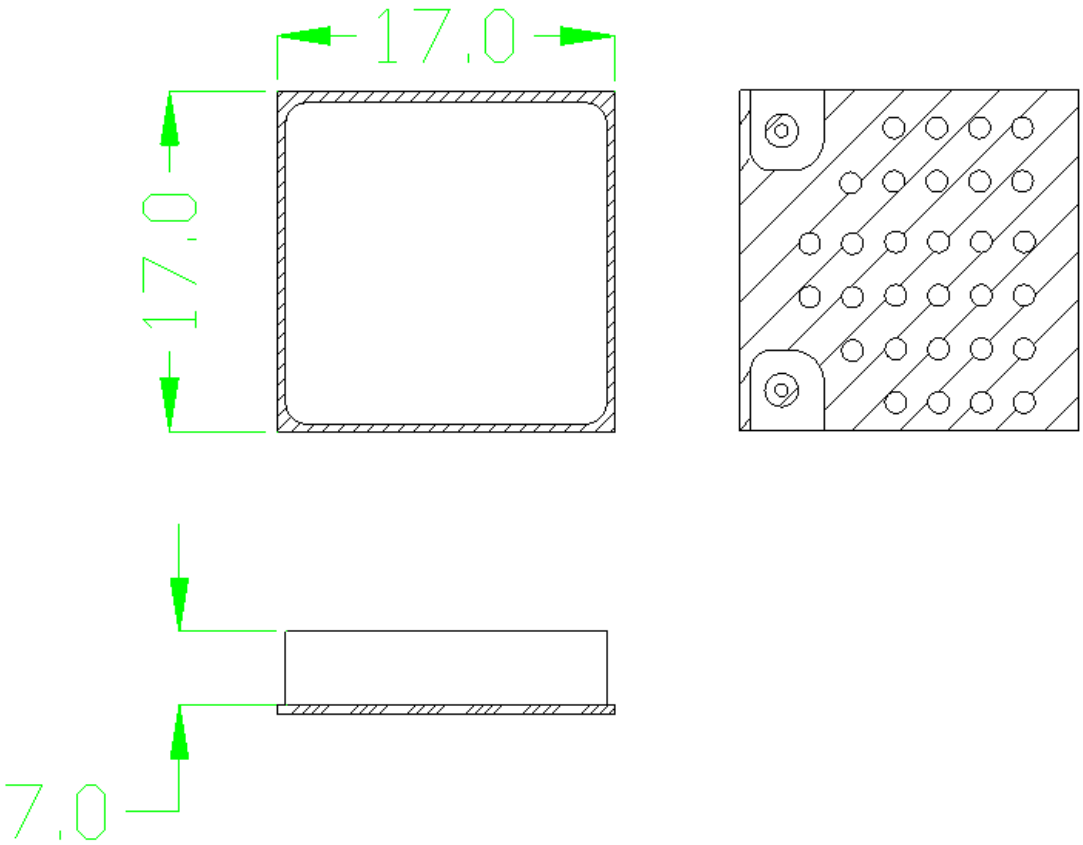
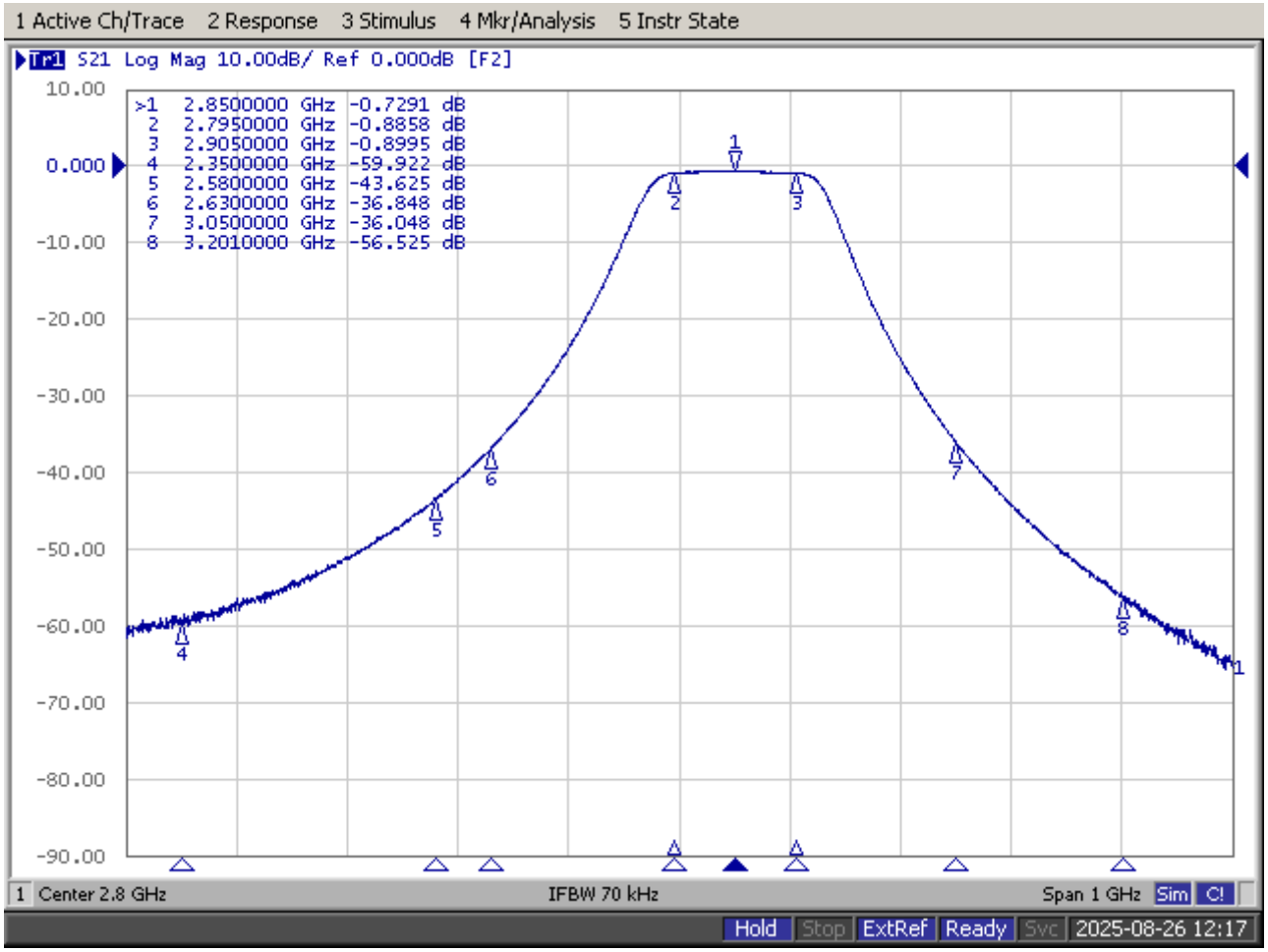
3. Dimension (17.0 × 17.0 × 7.0 mm)

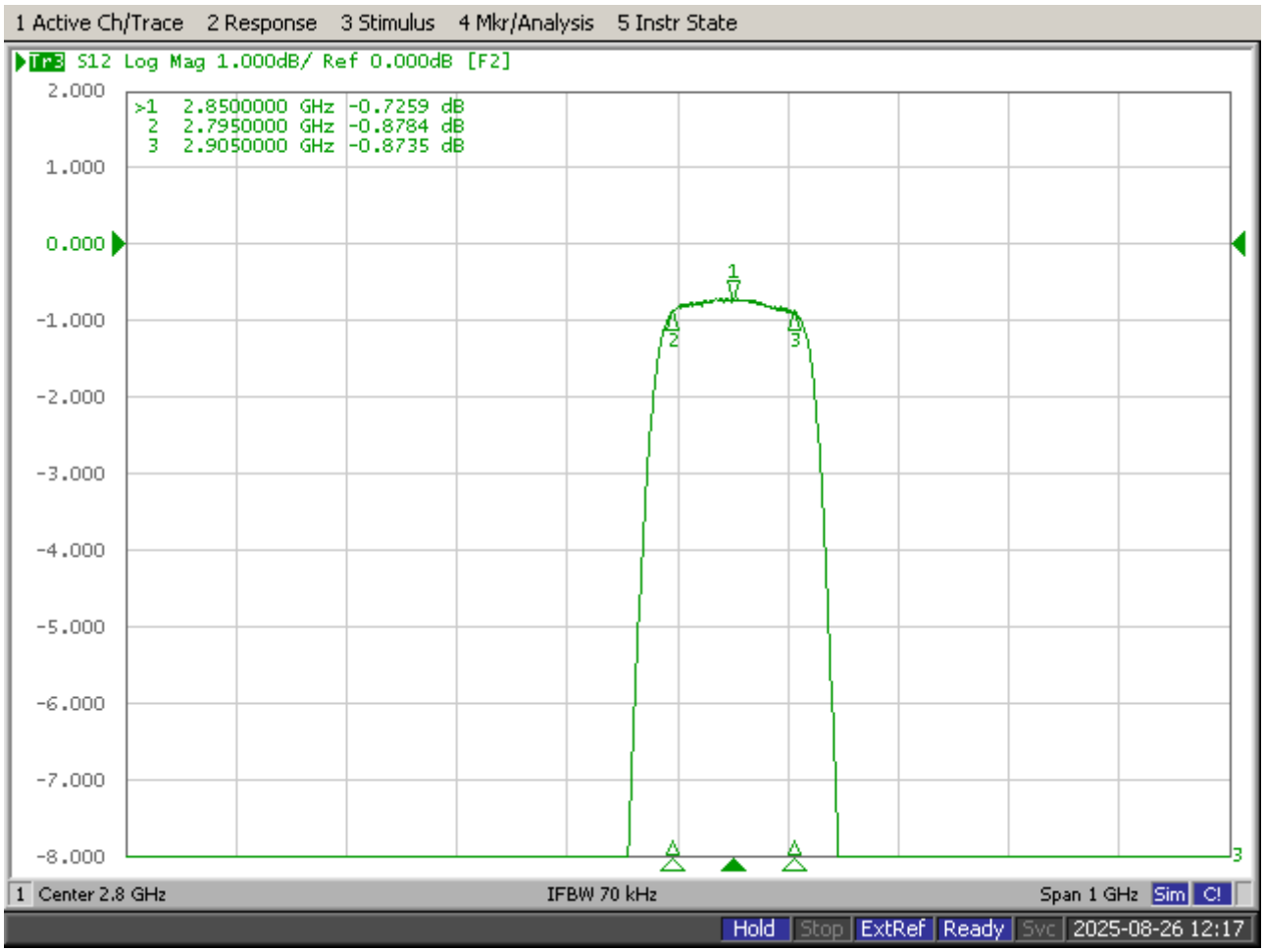


4. Frequency Response (Measurement Data)

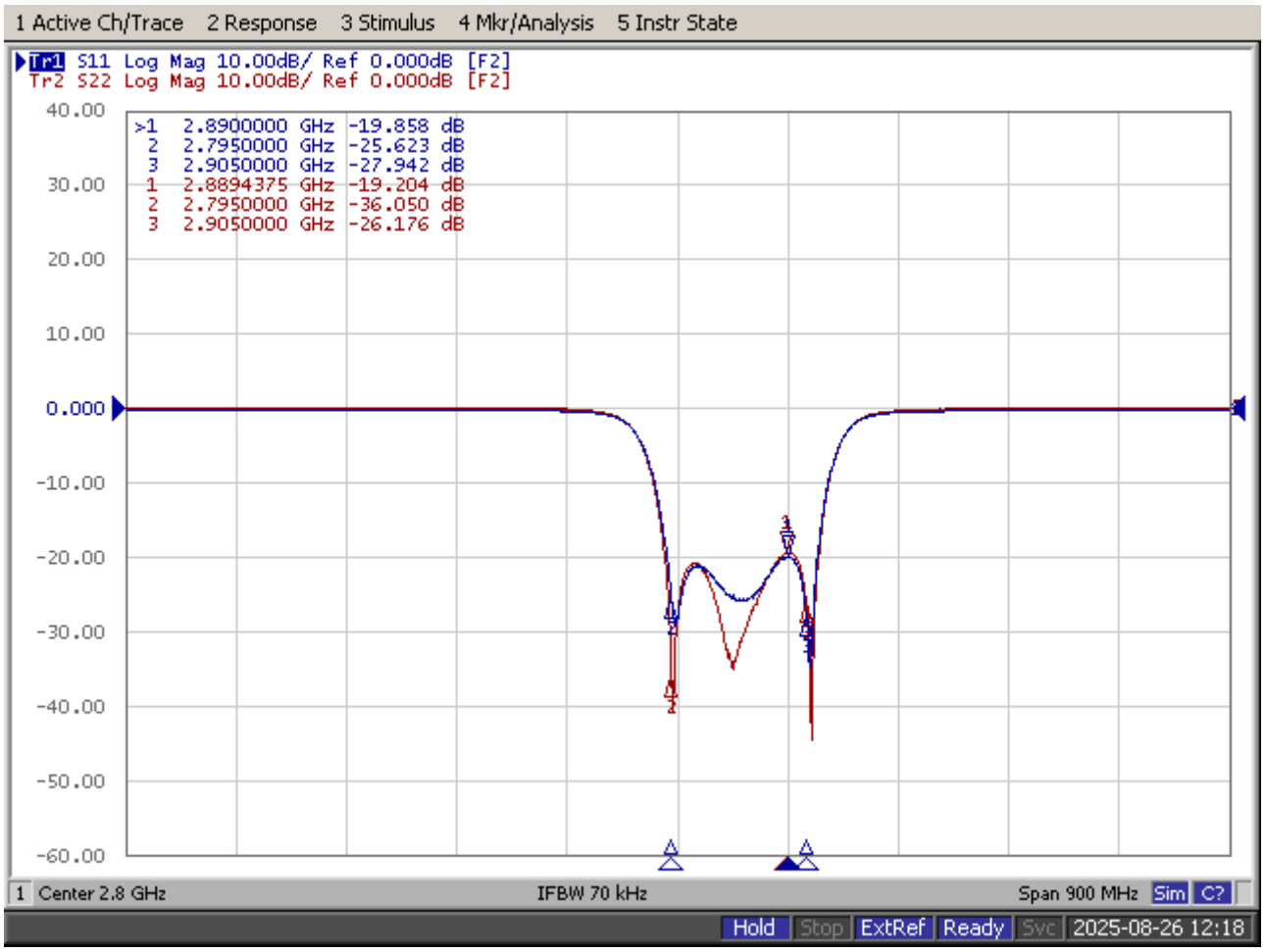
- Insertion loss(S21) & Attenuation



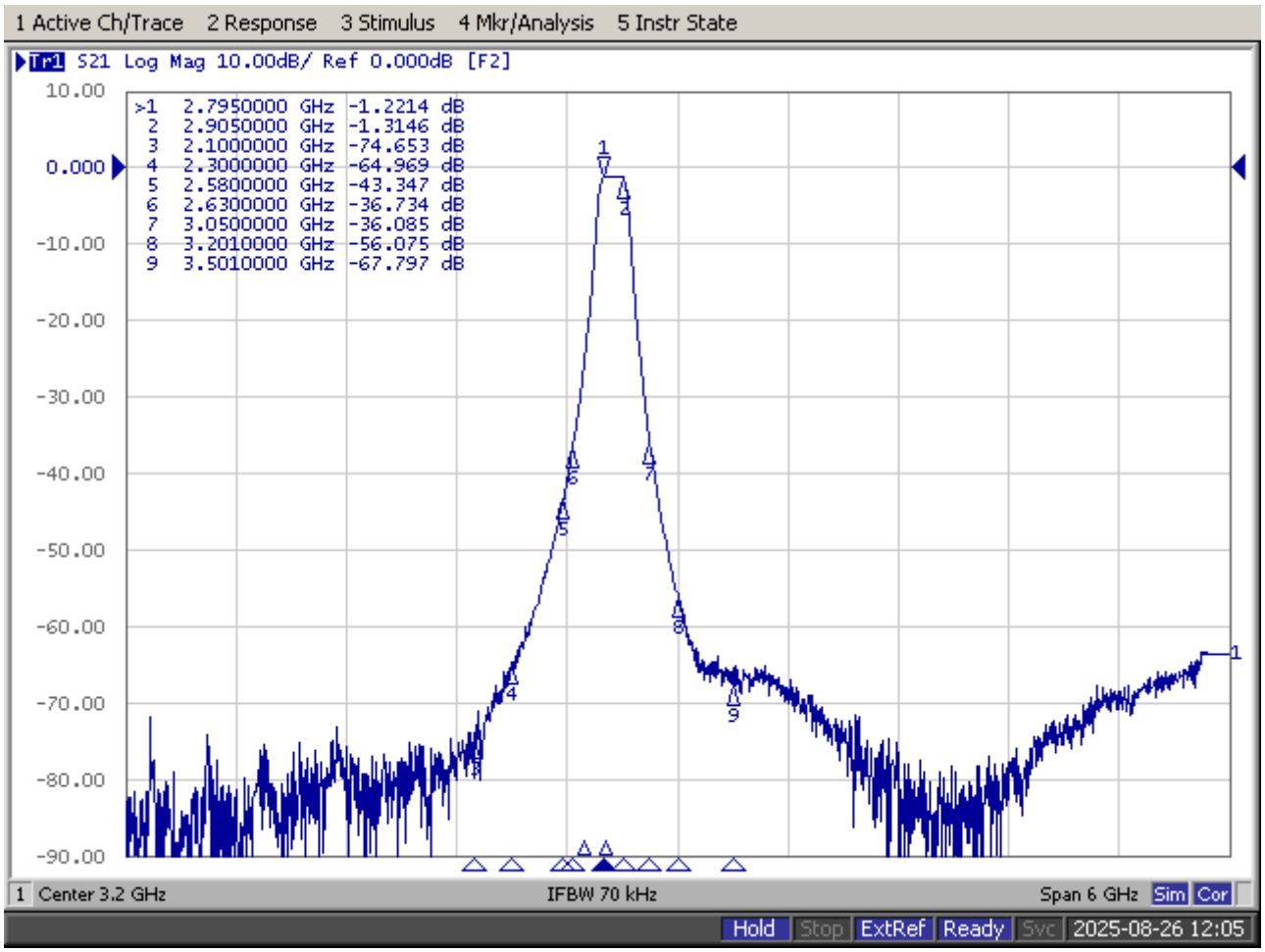
- Ripple


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr3 S12 Log Mag 1.000dB/ Ref 0.000dB [F2]
>1 2.8500000 GHz -0.7259 dB
2 2.7950000 GHz -0.8784 dB
3 2.9050000 GHz -0.8735 dB
2.000
1.000
0.000
-1.000
-2.000
-3.000
-4.000
-5.000
-6.000
-7.000
-8.000
1 Center 2.8 GHz
IFBW 70 kHz
Span 1 GHz
Sim
Hold
Stop
ExtRef
Ready
Svc
2025-08-26 12:17

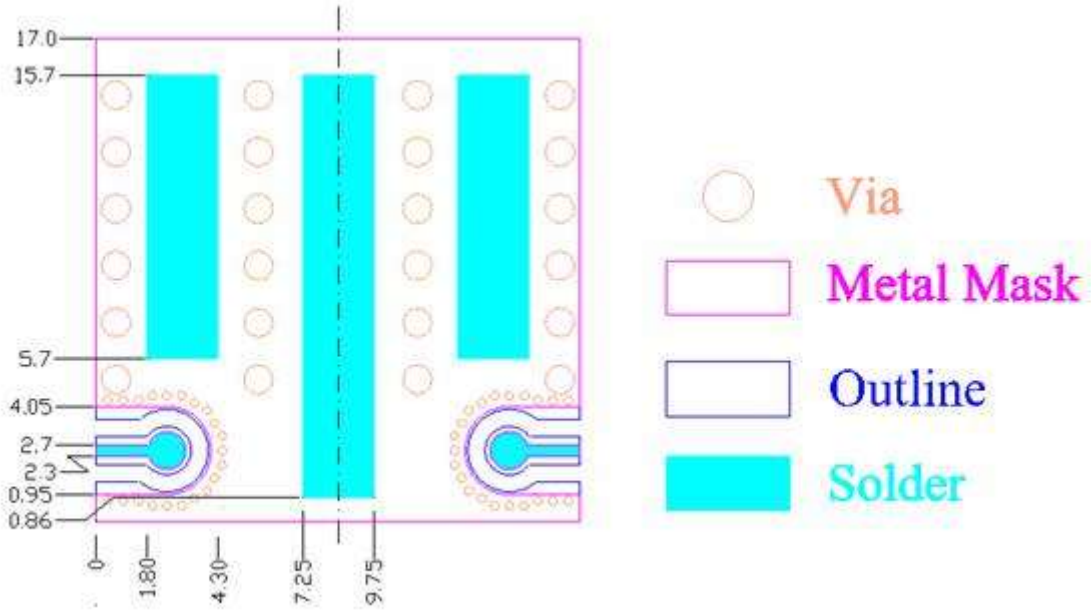
- **Return Loss(S11 & S22)**



- **Wideband**


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S21 Log Mag 10.00dB/ Ref 0.000dB [F2]
>1 2.7950000 GHz -1.2214 dB
2 2.9050000 GHz -1.3146 dB
3 2.1000000 GHz -74.653 dB
4 2.3000000 GHz -64.969 dB
5 2.5800000 GHz -43.347 dB
6 2.6300000 GHz -36.734 dB
7 3.0500000 GHz -36.085 dB
8 3.2010000 GHz -56.075 dB
9 3.5010000 GHz -67.797 dB
10.00
0.000
-10.00
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
1 Center 3.2 GHz
IFBW 70 kHz
Span 6 GHz
Sim
Cor
Hold
Stop
ExtRef
Ready
Svc
2025-08-26 12:05

5. Footprint


17.0
15.7
5.7
4.05
2.7
2.3
0.95
0.86
0
1.80
4.30
7.25
9.75
Via
Metal Mask
Outline
Solder

A. Ground Design

- Maintain Ground Plane Continuity:
  Ensure continuous ground planes to minimize electrical noise and EMI.
- Ground Via Placement Around Critical Signal Paths:
  Provide a sufficient number of ground vias adjacent to critical signal paths to ensure stable grounding.
- Recommended Via Diameter:
  Use vias with a diameter of 0.3–0.5 mm, adjusted according to the substrate thickness.
- Exclusion of Ground Vias from Solder Mask Openings:
  Do not include ground vias within solder mask openings.
- Ground Pattern Dimensioning:
  Design the ground pattern to be 100-200 μm smaller than the bottom ground pattern of the DUT to prevent alignment issues or excessive contact.

B. Input and Output Port Design

- Optimize Signal Routing Around Ports:
  Design signal paths near the ports for proper impedance matching and to minimize transmission losses.
- Via and Solder Mask Treatment:
  Decisions on whether to remove or retain vias and solder masks near ports should be based on customer specifications.
- Adjustment of Trace Widths and Spacing:
  Optimize the trace width and spacing according to the design criteria and substrate characteristics.
- Transmission Line and Pad Dimensioning:
  When designing transmission lines or pads, implement them at 100-200 μm smaller than the bottom signal pattern of the DUT to compensate for potential misalignments.

Note:

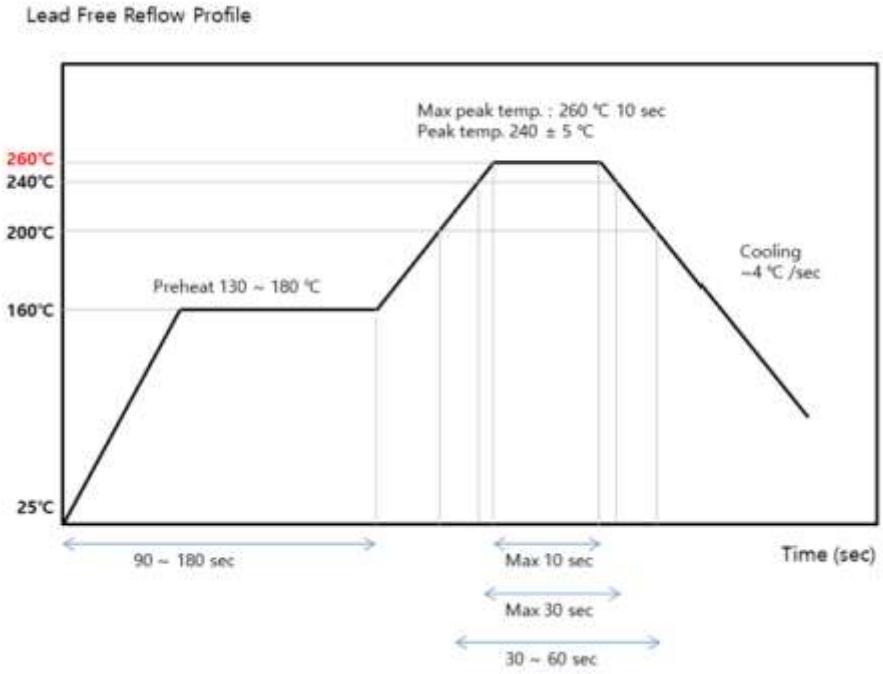
These guidelines should be further refined according to customer specifications and **ITF's** design recommendations.

6. Reflow profile

-Pre- Heating 155±25℃ (90 ~120 sec.)

- Heating 200±5℃ (30~60sec.)

- Max Peak Temperature 260℃ (10sec. Max)



7. Product Picture & EVB