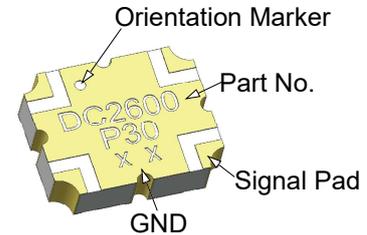


Description

The DC2600P30 is a low profile, high performance 30dB directional coupler. It is designed for WIMAX and LTE band applications. The DC2600P30 is designed particularly for power and frequency detection, as well as for VSWR monitoring, where tightly controlled coupling and low insertion loss is required. It can be used in high power applications up to 200 Watts.

Parts have been subjected to rigorous qualification testing and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish



Features:

- 2300-2900 MHz
- WIMAX and LTE
- High Power
- Very Low Loss
- Tight Coupling
- High Directivity
- Production Friendly
- Lead Free
- Tape and Reel

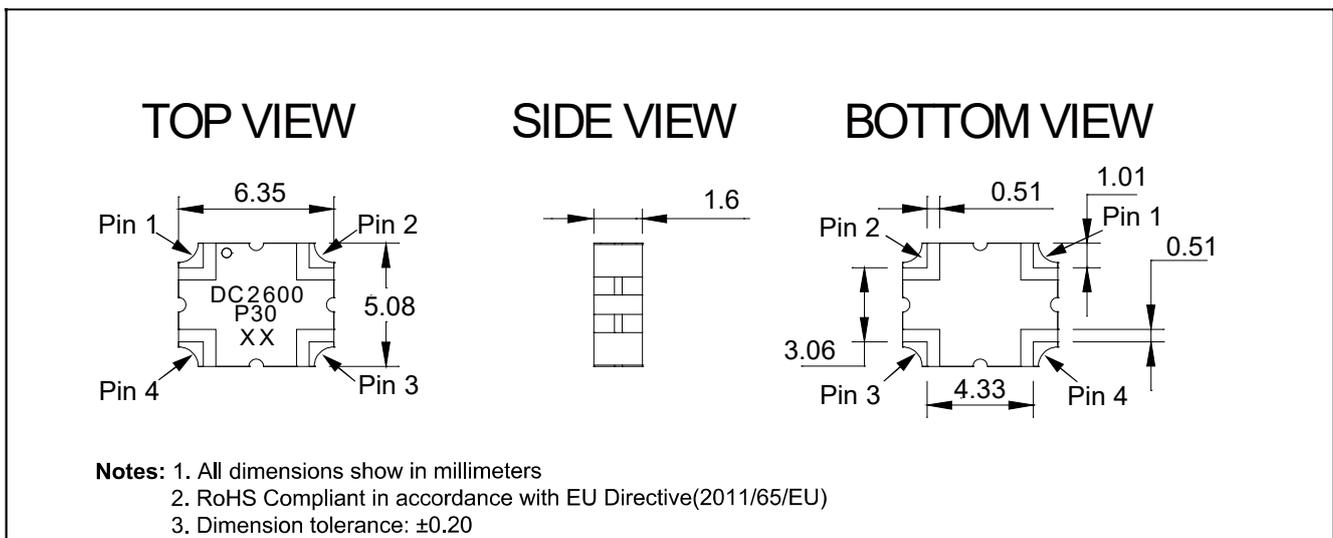
Electrical Specifications

Frequency	Coupling	Directivity	VSWR
<i>MHz</i>	<i>dB</i>	<i>dB Min</i>	<i>Max : 1</i>
2300 - 2900	30.5±1.0	20	1.25
Insertion Loss	Power	Operating Temp.	
<i>dB Max</i>	<i>Avg. CW Watts</i>	<i>°C</i>	
0.15	200	-55 to +95	

Notes:

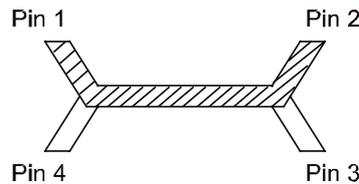
1. All the above data are based on specified demo board.
2. Insertion loss: Thru board loss has been removed.

Mechanical Outline



Directional Coupler Pin Configuration

The DC2600P30 has an orientation marker to denote Pin 1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:

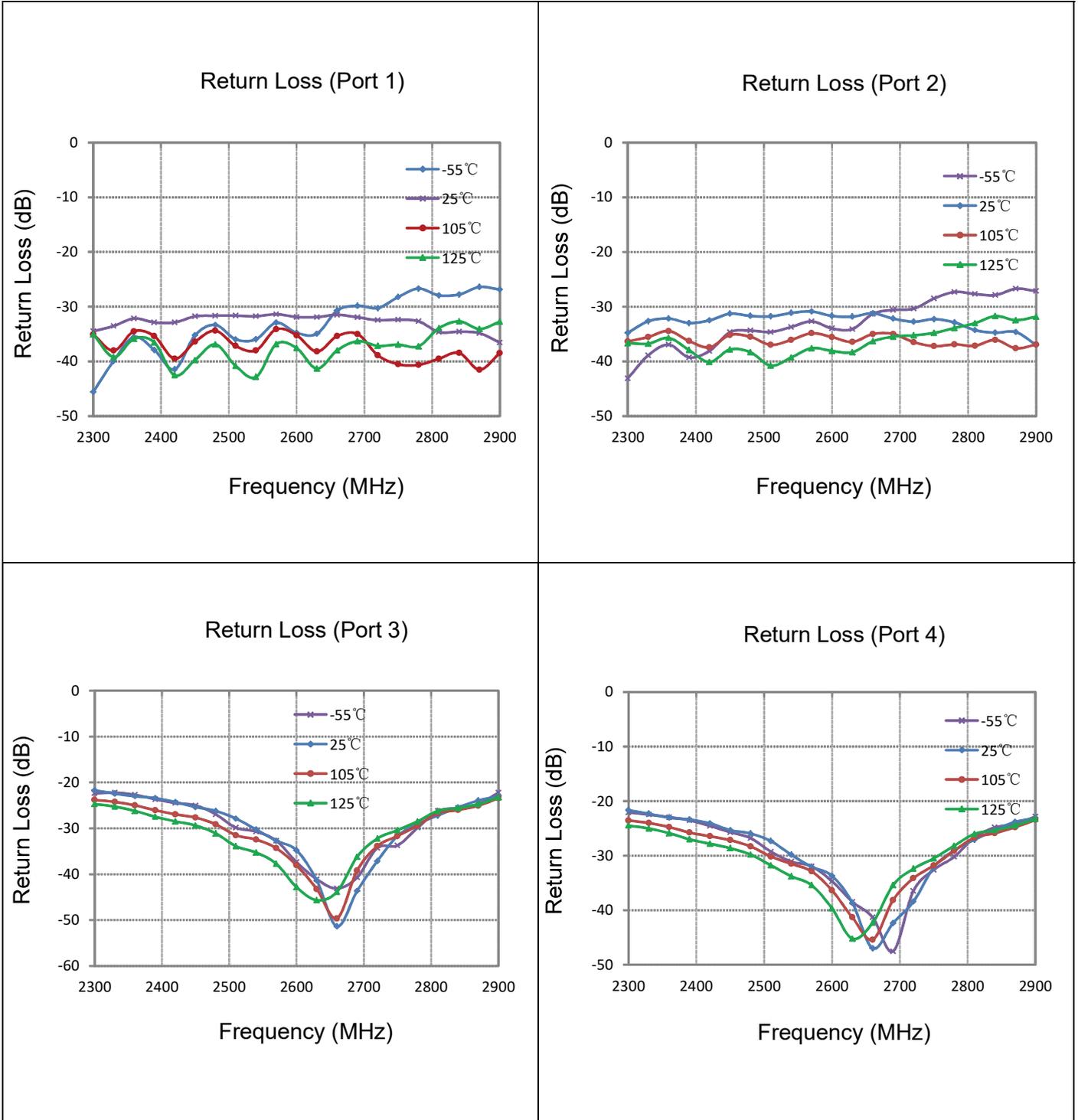


Pin 1	Pin 2	Pin 3	Pin 4
Input	Transmission	Isolate	Coupling
Transmission	Input	Coupling	Isolate

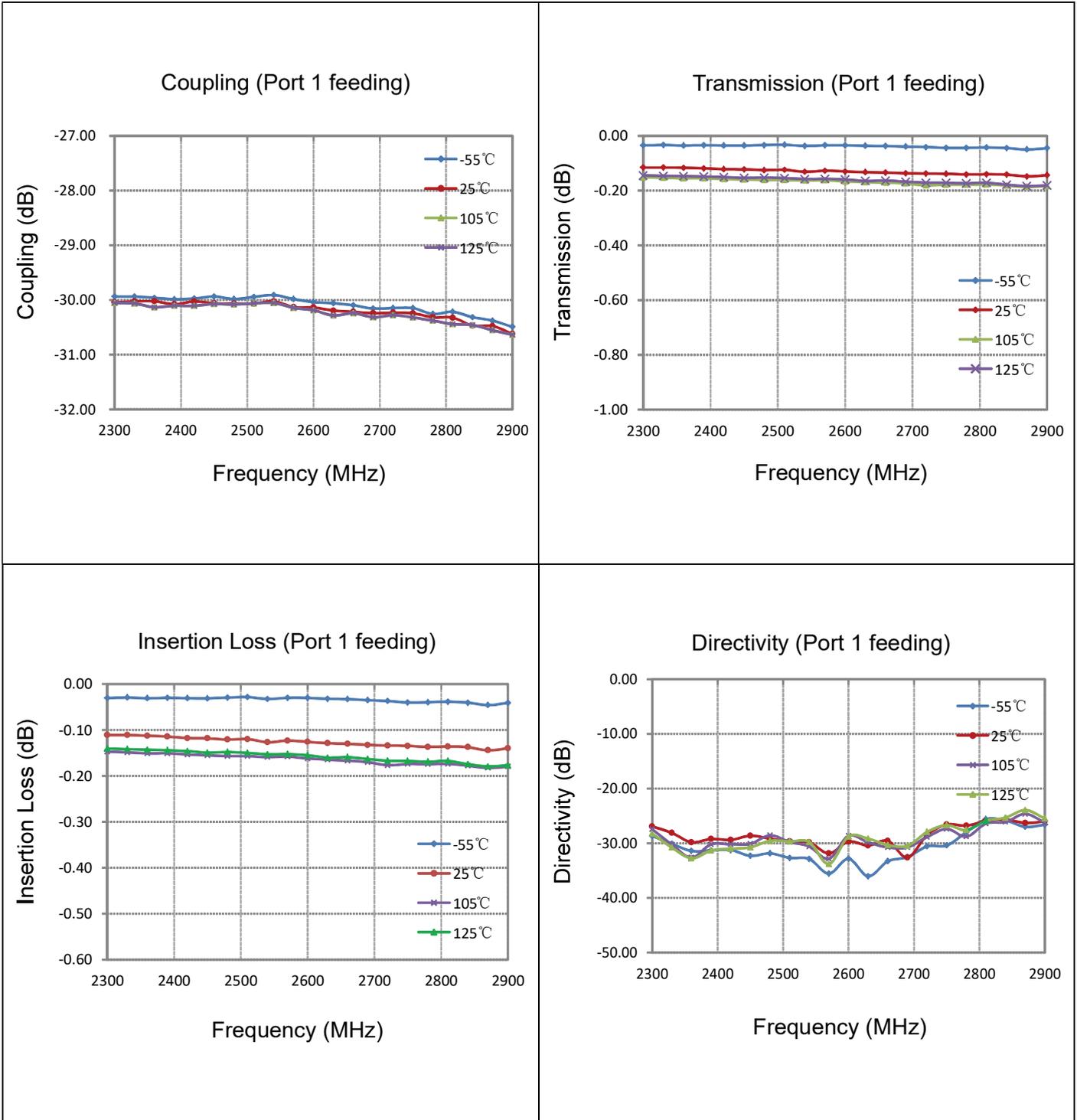
Typical Performance Data (@25°C)

Frequency (MHz)	Coupling (dB)	Transmission (dB)	Insertion Loss (dB)	Directivity (dB)	Return Loss(dB)			
					S11	S22	S33	S44
2300	-29.94	-0.03	-0.11	-26.91	-34.47	-34.76	-21.71	-21.67
2330	-29.94	-0.03	-0.11	-28.10	-33.53	-32.64	-22.42	-22.32
2360	-29.96	-0.04	-0.11	-29.80	-32.15	-32.16	-23.01	-23.03
2390	-29.99	-0.03	-0.11	-29.21	-32.87	-32.97	-23.43	-23.39
2420	-29.97	-0.04	-0.12	-29.38	-32.86	-32.49	-24.27	-24.06
2450	-29.94	-0.04	-0.12	-28.62	-31.78	-31.28	-25.37	-25.31
2480	-29.98	-0.03	-0.12	-29.16	-31.65	-31.67	-26.21	-25.94
2510	-29.94	-0.03	-0.12	-29.62	-31.63	-31.75	-27.88	-27.33
2540	-29.91	-0.04	-0.13	-29.83	-31.75	-31.13	-30.25	-29.84
2570	-29.98	-0.03	-0.12	-31.84	-31.38	-30.87	-32.72	-32.04
2600	-30.04	-0.03	-0.13	-29.70	-31.87	-31.67	-34.77	-33.71
2630	-30.06	-0.04	-0.13	-30.39	-31.91	-31.81	-41.31	-38.64
2660	-30.10	-0.04	-0.13	-29.56	-31.48	-31.20	-51.37	-46.98
2690	-30.16	-0.04	-0.13	-32.61	-31.95	-32.17	-43.65	-42.36
2720	-30.15	-0.04	-0.13	-28.50	-32.45	-32.73	-37.14	-38.42
2750	-30.15	-0.04	-0.13	-26.57	-32.38	-32.28	-31.69	-32.15
2780	-30.26	-0.04	-0.14	-26.78	-32.67	-32.86	-29.05	-29.04
2810	-30.22	-0.04	-0.14	-25.90	-34.62	-34.27	-27.19	-27.06
2840	-30.32	-0.04	-0.14	-25.66	-34.57	-34.75	-25.45	-25.31
2870	-30.38	-0.05	-0.14	-26.28	-34.86	-34.62	-23.94	-23.80
2900	-30.49	-0.04	-0.14	-26.01	-36.57	-37.00	-22.99	-23.11

Typical Performance (-55°C, 25°C, 105°C, 125°C: 2300-2900 MHz)



Typical Performance (-55°C, 25°C, 105°C, 125°C: 2300-2900 MHz)



Description of Measured Specifications

Parameter	Description
VSWR	Voltage standing wave ratio, the impedance match to $50\ \Omega$, the ideal value is 1:1.
Return Loss	Loss of signal power resulting from the reflection caused by discontinuity of transmission line.
Insertion Loss	The input power divided by sum of power at the coupling port & transmission port.
Coupling	The input power divided by the power at coupling port.
Transmission	The input power divided by the power at transmission port.
Directivity	The power at the coupling port divided by the power at the isolated.

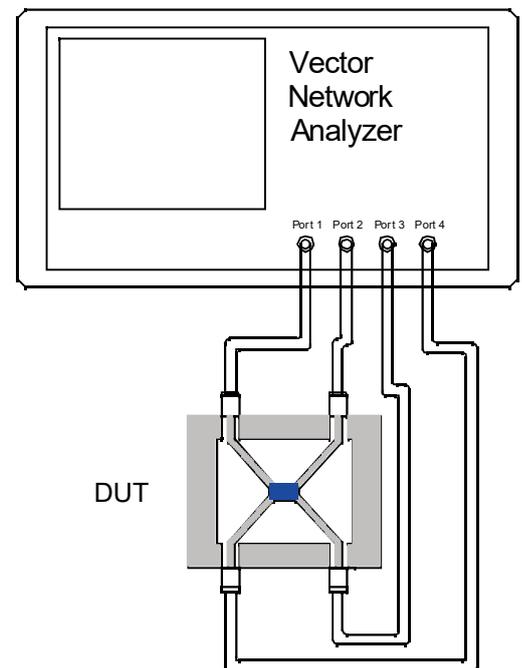
Test Method

1. Calibrating your vector network analyzer.
2. Connect the VNA 4 Port to DUT respectively.
3. Measure the data of coupling through port 1 to port 4(S41).
4. Measure the data of transmission through port 1 to port 2(S21).
5. Measure the data of isolation through port 1 to port 3(S31).
6. Measure the data of return loss port 1, port 2, port 3 & port 4.
7. According to the above data to calculate insertion loss, directivity.

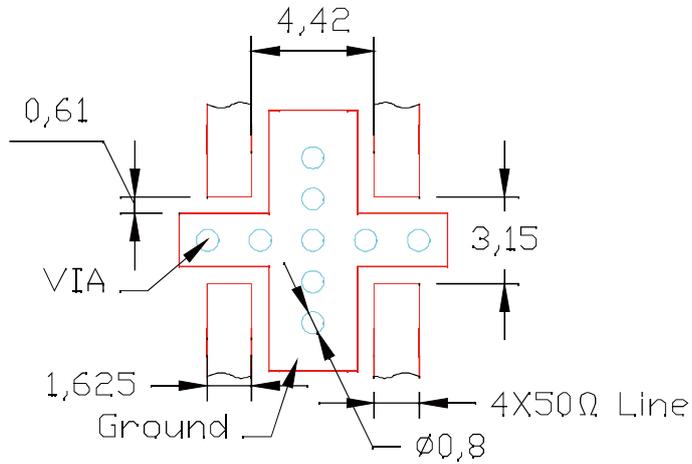
Note:

1. When calculating insertion loss at room temperature, coupling & transmission data both need remove demo board loss. Please see demo board loss data below the table :

Frequency Range(MHz)	Demo Board Loss (dB) @25°C
470-860	0.06~0.10
800-1000	0.10~0.15
1200-1700	0.15~0.20
1700-2000	0.20~0.25
2000-2300	0.20~0.25
2300-2700	0.25~0.30



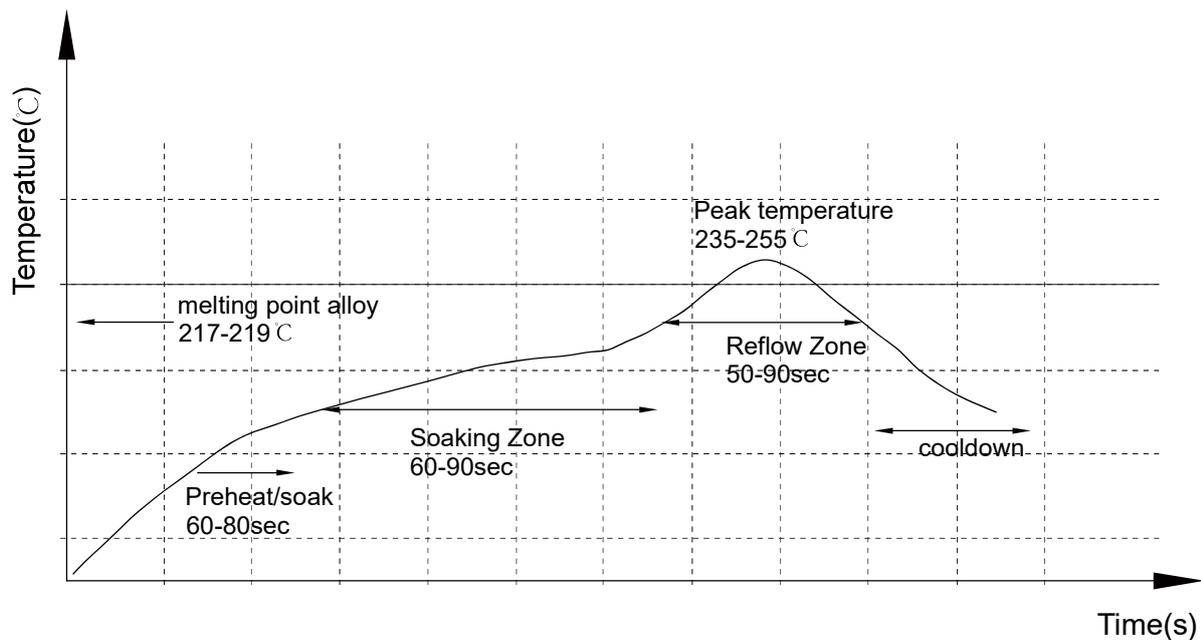
Recommended PCB Layout



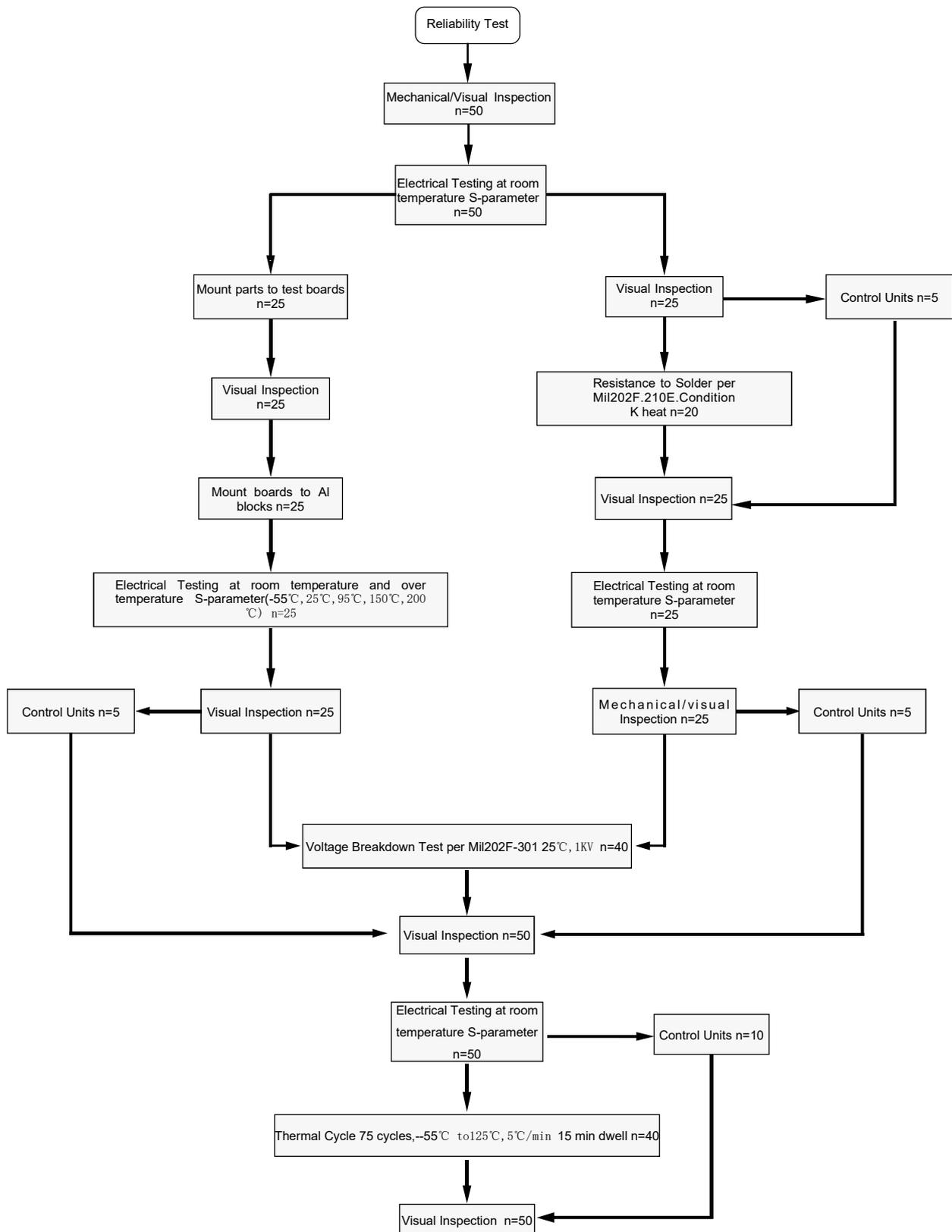
NOTE:

1. 50Ω line width is shown above designing from RO4350B dielectric thickness 0.762mm; copper 1 OZ
2. Bottom side of the PCB is continuous ground plane.
3. All dimensions shown in mm.

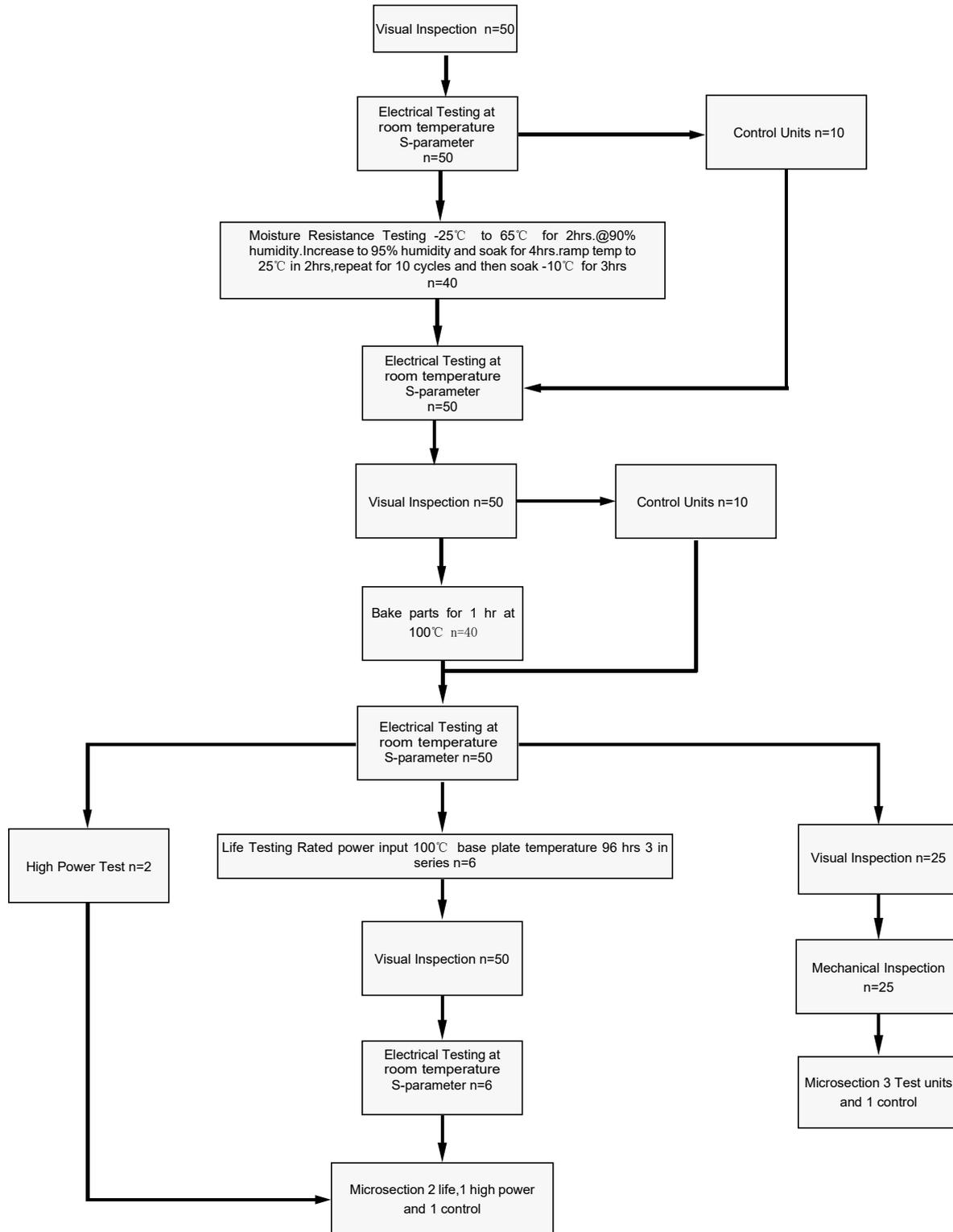
Reflow Profile



Reliability Test Flow

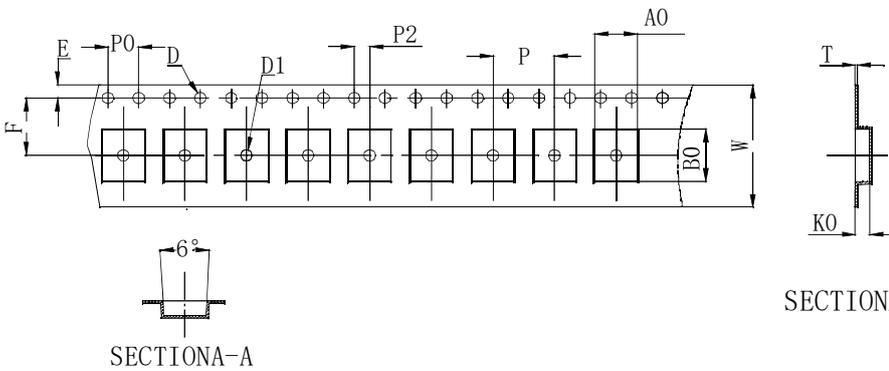


Reliability Test Flow



Tape and Reel Drawing

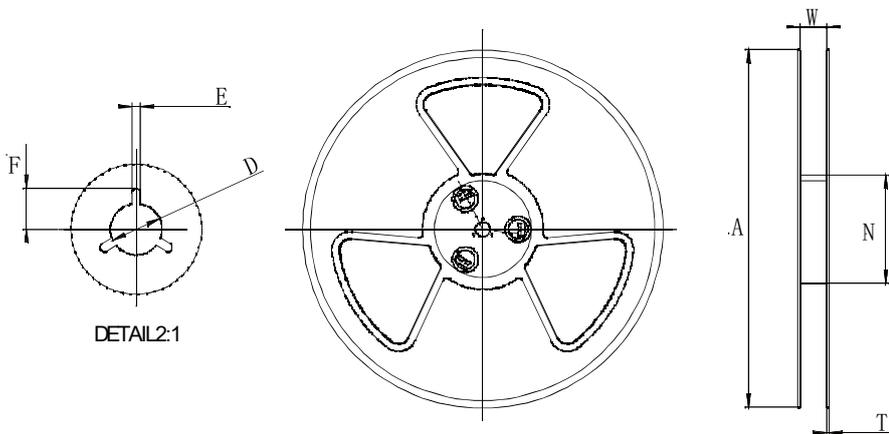
Feeding Direction



Notice:

- A. 10 Sprocket hole pitch cumulative tolerance is 0.2mm.
- B. Carrier camber shall be not more than 1mm per 100mm through a length of 250mm.
- C. All dimensions meet EIA-418-B requirements.
- D. A0 & B0 measured as indicated.
- E. K0 measured from a place on the inside bottom of the pocket to top surface of carrier.
- F. Material: PE 100
- G. Thickness: 0.30±0.05mm
- H. 1000 units (maximum) / T&R

ITEM	W	A0	B0	K0	P	F	E	D	D1	P0	P2	T	7"
DIM(mm)	16.0	5.50	6.80	2.30	8.00	7.50	1.75	1.50	1.50	4.00	2.00	0.30	P/R
TOLE	+0.30 -0.30	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.00	+0.10 -0.00	+0.10 -0.10	+0.10 -0.10	+0.05 -0.05	1000pcs



Symbol	Dimensions	
	(mm)	(inch)
W	16.5±0.4	0.65
A	177±0.5	7.0
N	63±0.3	2.48
T	1.8±0.2	0.071
E	2.1±0.3	0.083
F	10.75±0.3	0.423
D	13.5+0.5/-0.2	0.531

