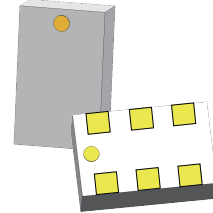


Description

The PD15T03A is a low profile, sub-miniature Wilkinson power divider in an easy to use surface mount package. The PD15T03A is ideal for high volume manufacturing and delivers higher performances than traditional printed and lumped element solutions. The PD15T03A is matched to 50 Ω and has a height profile of 0.5 mm which is ideal for high level integrations in the following markets: DVB-S, DVB-H (USA), GSM, DCS, PCS, CDMA, 3G and GPS. The PD15T03A does not include the resistive element and therefore, requires an external resistor for operation. The PD15T03A is available on tape and reel for high volume manufacturing pick and place.



Features:

- 950-2150 MHz
- 10dB Isolation (output ports)
- High Return Loss
- 0.5mm Height Profile
- 50 Ω Input / 50 Ω Outputs
- Low Insertion Loss
- Surface Mountable
- Tape & Reel
- Non-conductive Surface
- RoHS Compliant
- External resistor required
- Halogen Free

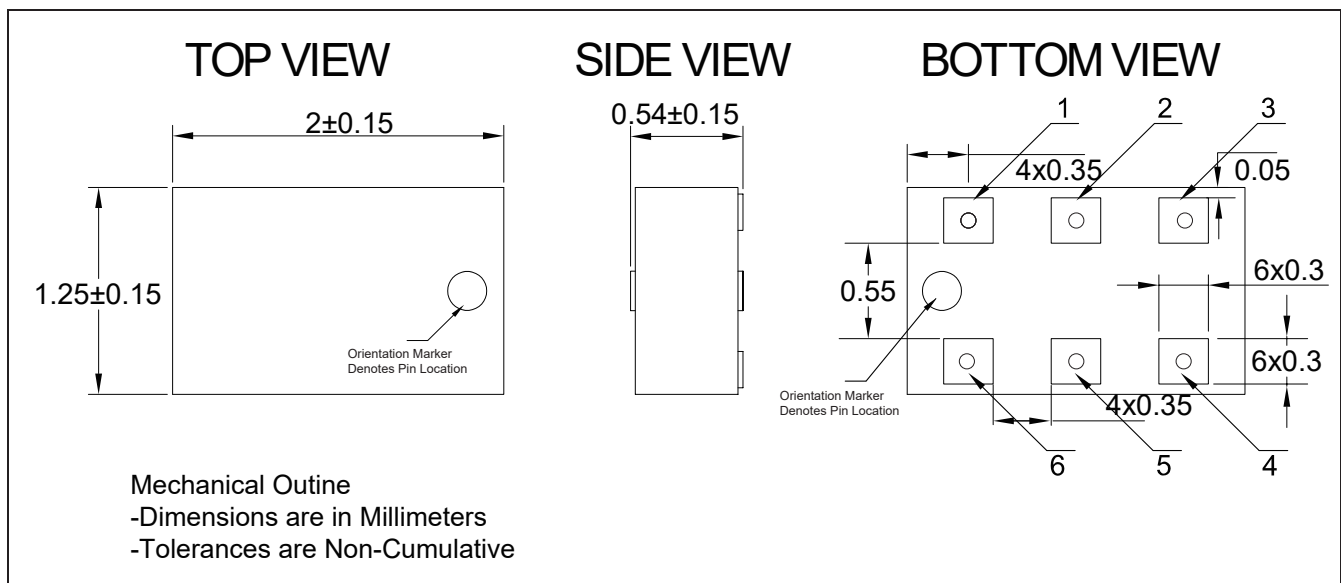
Electrical Specifications

Frequency	Isolation	Insertion Loss	Return LOSS
MHz	dB Min	dB Max	Min (dB) Input/Output
950-2150	9	0.65	10.5/13
Amplitude Balance	Phase Balance	Power	Operating Temp.
dB Max	Degrees	Avg. CW Watts at 105°C	°C
± 0.30	± 3.0	2	-55 to +85

Notes:

1. All the above data are based on specified demo board.
2. Insertion loss: Thru board loss has been removed.
3. The part cannot be used near the shielding case.

Mechanical Outline



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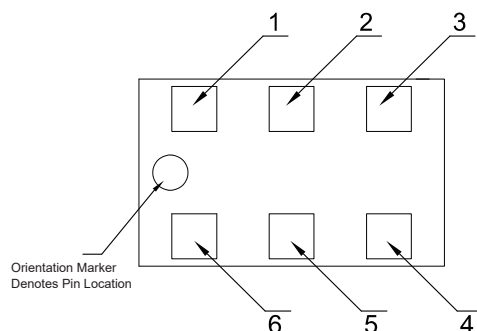
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Power Divider Pin Configuration

The PD15T03A has an orientation marker to denote Pin1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:



Pin	Designation
1	GND
2	input
3	GND
4	Output 1
5	GND
6	Output 2

Typical Performance Data (@25°C)

Frequency (MHz)	S12 (dB)	S13 (dB)	Insertion Loss (dB)	Isolation (dB)	Amplitude Balance (dB)	Phase (degree)	Return Loss(dB)		
							S11	S22	S33
950	-3.44	-3.48	-0.37	-9.91	0.04	-0.25	-12.28	-24.64	-24.04
1010	-3.42	-3.47	-0.36	-10.50	0.05	-0.28	-12.67	-26.48	-25.94
1070	-3.41	-3.45	-0.34	-11.09	0.05	-0.24	-13.00	-29.07	-28.24
1130	-3.40	-3.45	-0.33	-11.67	0.05	-0.27	-13.26	-32.75	-30.77
1190	-3.38	-3.43	-0.31	-12.40	0.05	-0.28	-13.80	-36.87	-34.34
1250	-3.36	-3.41	-0.28	-13.14	0.05	-0.26	-14.44	-42.88	-36.21
1310	-3.34	-3.40	-0.26	-13.93	0.05	-0.28	-14.96	-45.70	-39.77
1370	-3.33	-3.39	-0.25	-14.73	0.06	-0.25	-15.54	-44.16	-45.54
1430	-3.32	-3.38	-0.24	-15.75	0.06	-0.28	-16.39	-39.20	-40.19
1490	-3.30	-3.36	-0.21	-16.93	0.06	-0.23	-17.53	-37.37	-38.76
1550	-3.28	-3.35	-0.19	-18.09	0.06	-0.27	-18.65	-34.94	-35.19
1610	-3.28	-3.34	-0.18	-19.49	0.06	-0.26	-20.09	-34.28	-33.53
1670	-3.27	-3.33	-0.17	-21.17	0.06	-0.25	-21.85	-32.41	-33.31
1730	-3.26	-3.33	-0.16	-23.10	0.07	-0.28	-24.03	-31.38	-30.99
1790	-3.27	-3.33	-0.16	-25.00	0.07	-0.30	-25.61	-29.87	-29.85
1850	-3.27	-3.34	-0.17	-26.68	0.07	-0.32	-25.42	-27.73	-26.94
1910	-3.29	-3.36	-0.18	-27.33	0.08	-0.27	-24.35	-26.45	-25.76
1970	-3.31	-3.39	-0.21	-26.22	0.08	-0.29	-21.59	-24.61	-23.78
2030	-3.34	-3.42	-0.23	-24.46	0.08	-0.33	-19.33	-23.15	-22.35
2090	-3.37	-3.44	-0.25	-22.85	0.07	-0.33	-17.80	-21.64	-21.30
2150	-3.41	-3.49	-0.30	-21.26	0.07	-0.29	-15.93	-20.32	-19.54

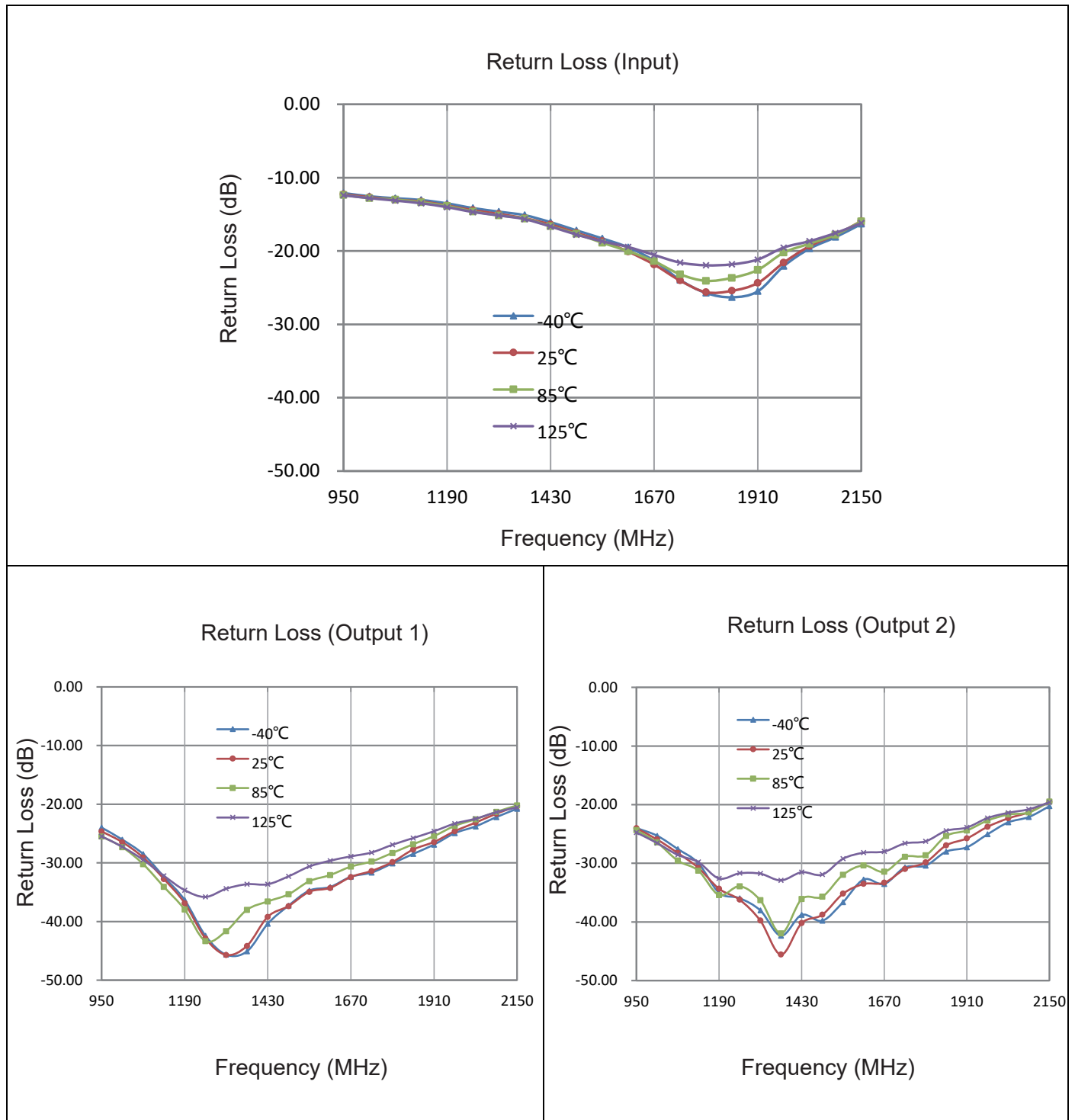
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Typical Performance (-40°C, 25°C, 85°C, 125°C: 950-2150 MHz)



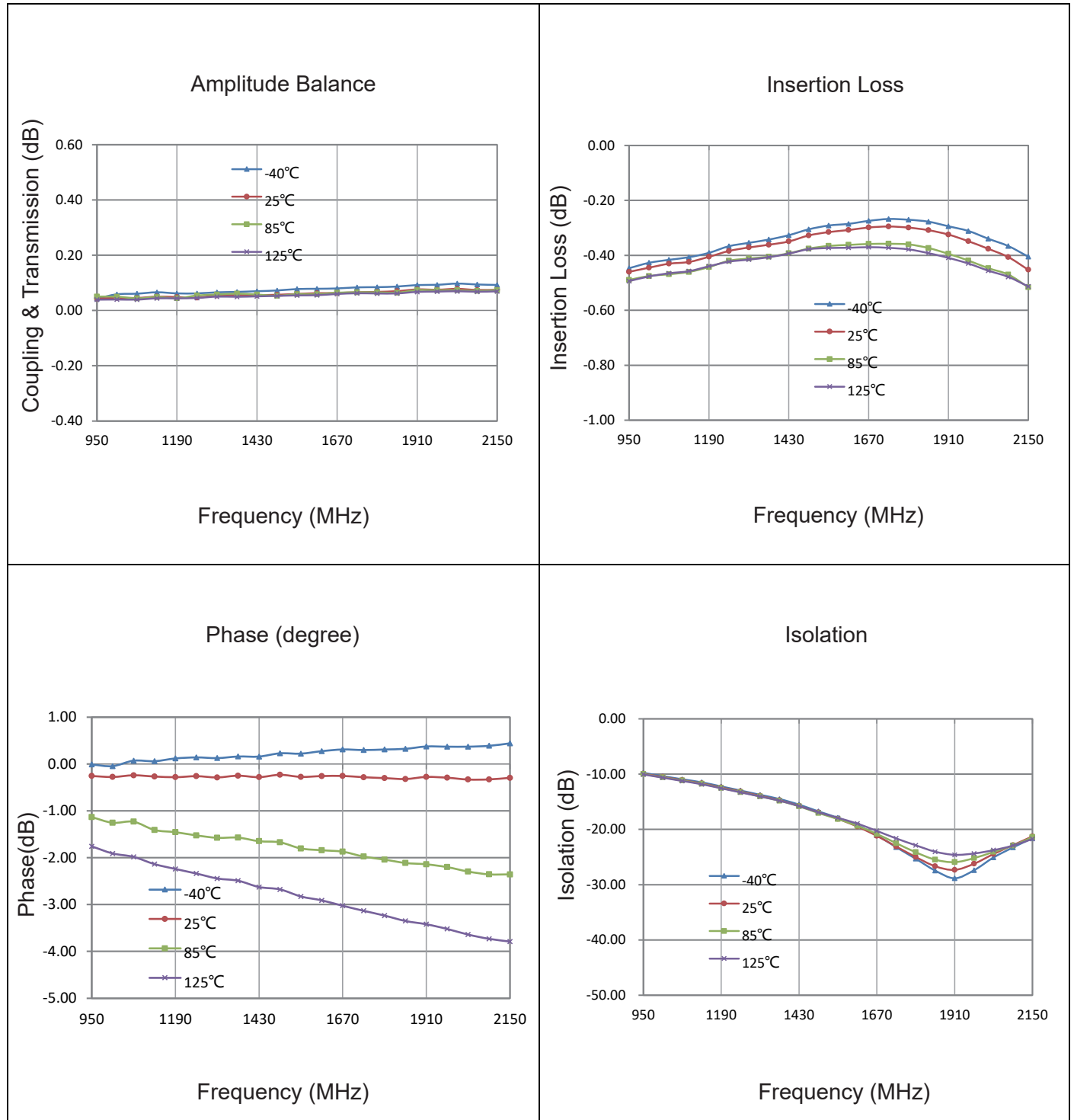
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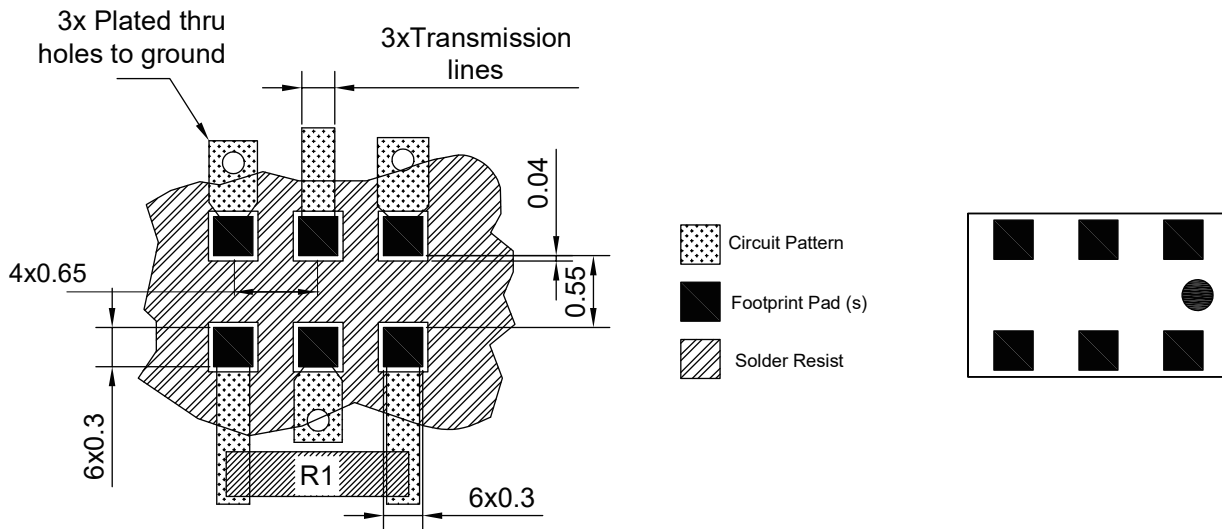
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Mounting Configuration:

In order for surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation and VSWR may not meet published specifications.

An example of the PCB footprint used in the testing of these parts is shown below. In specific designs, the transmission line widths need to be adjusted to the unique dielectric coefficients and thicknesses as well as varying pick and place equipment tolerances. In addition, since the PD15T03 is a Wilkinson power divider, an external 0603 100Ω resistor must be mounted in locations R1 as shown in the Figure below.

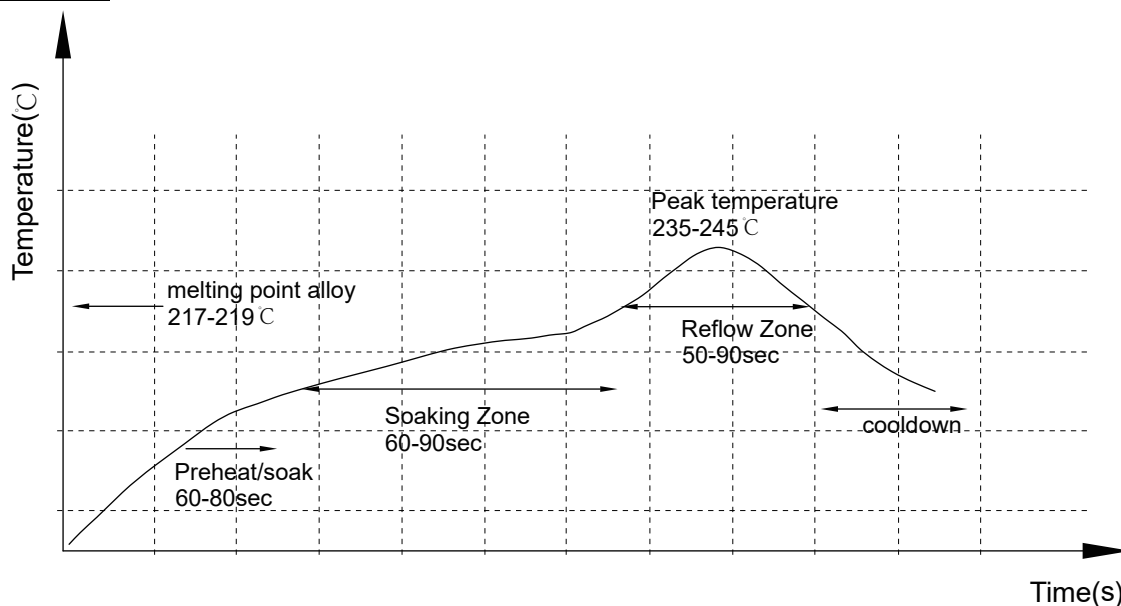
Pad Footprint w/ 0603 Resistor Locations



NOTE:

1. 50Ω line width is shown above designing.
2. Bottom side of the PCB is continuous ground plane.
3. All dimensions shown in mm [inch].

Reflow Profile



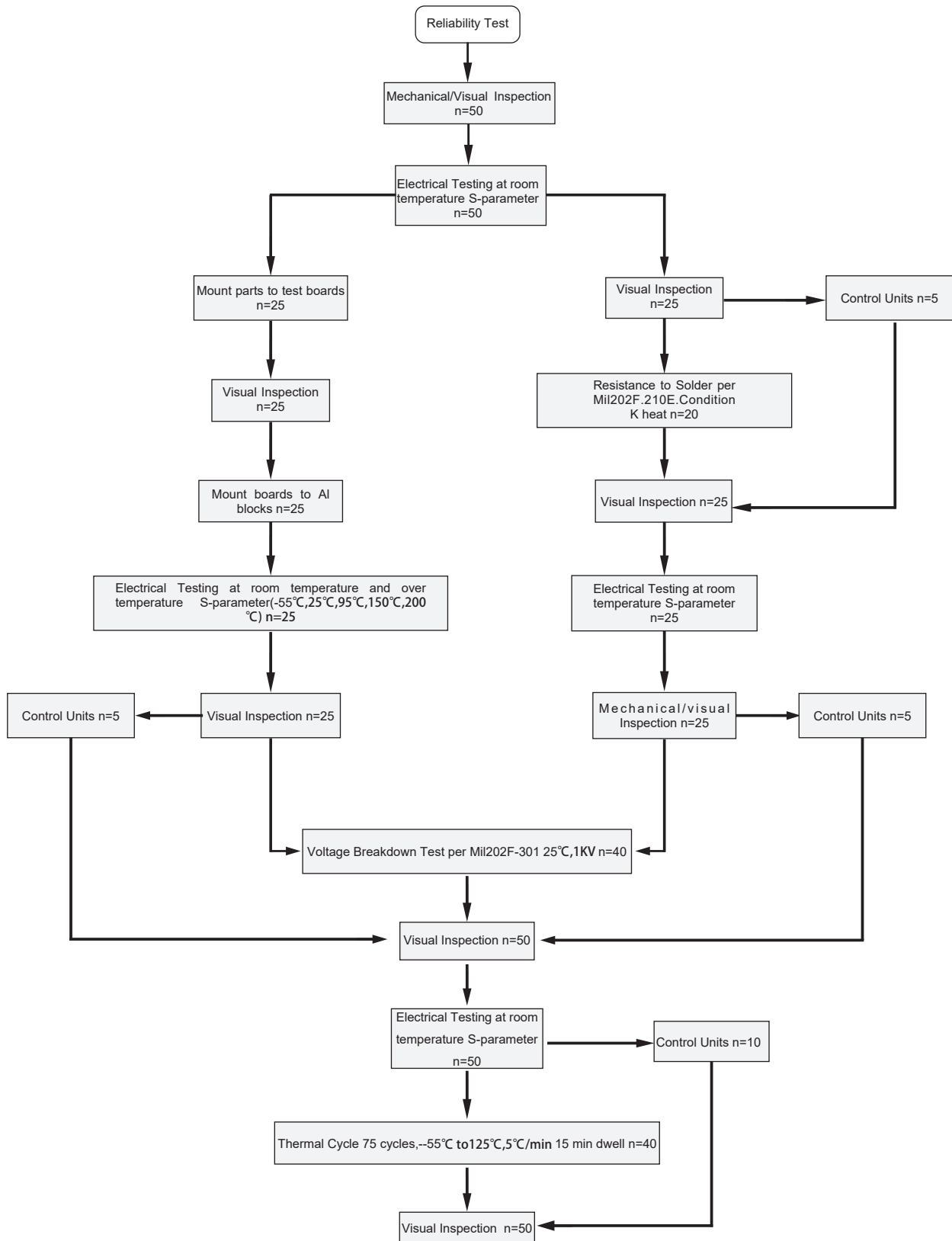
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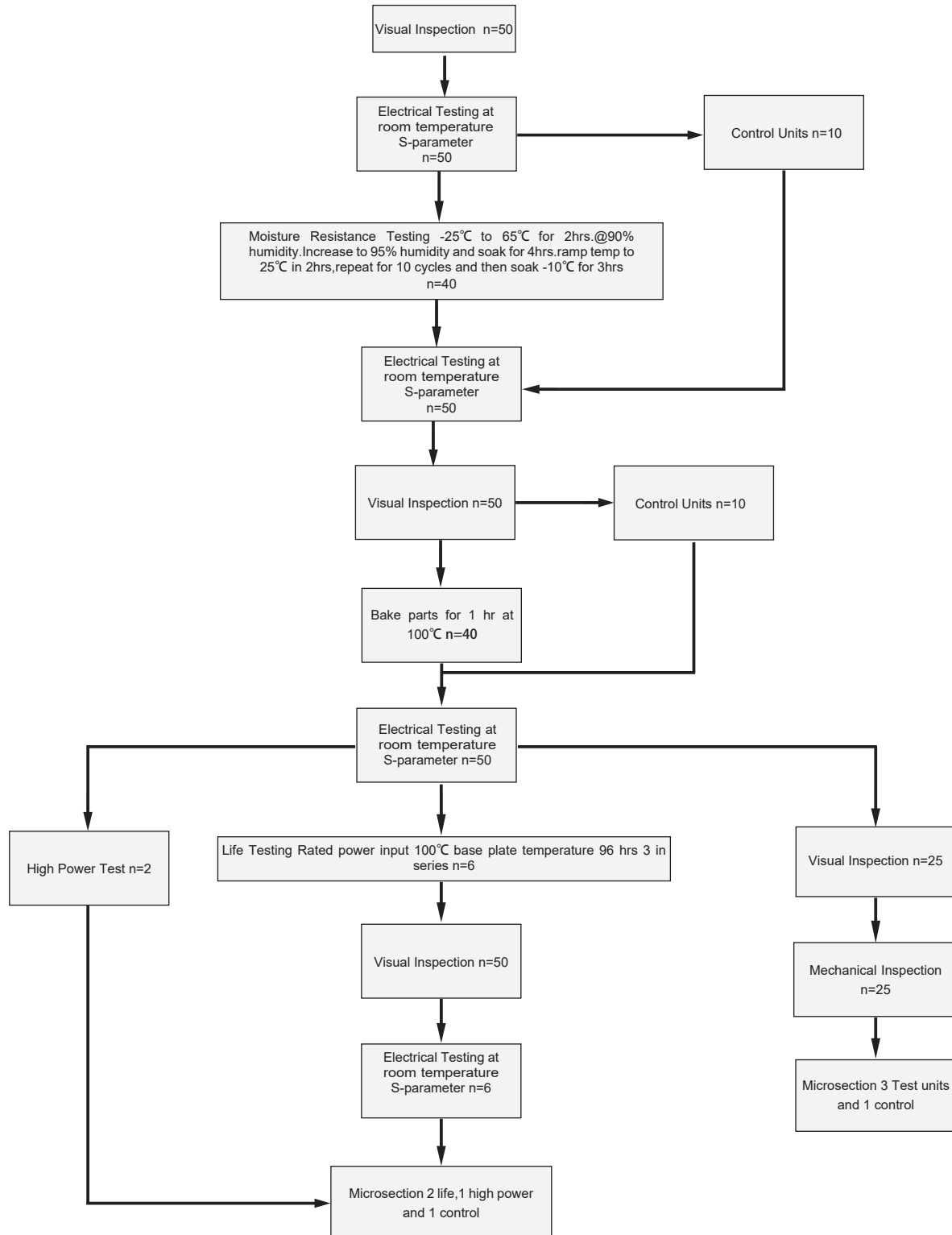
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Reliability Test Flow

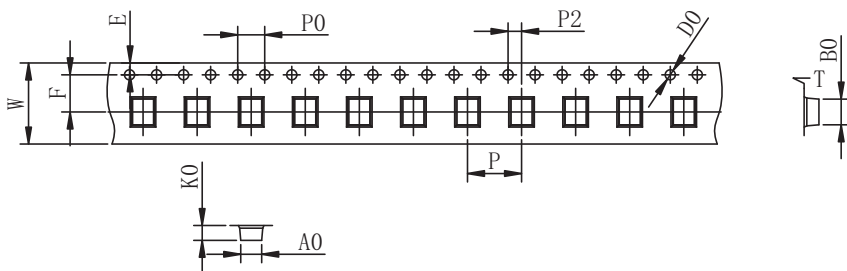


Reliability Test Flow



Tape and Reel Drawing

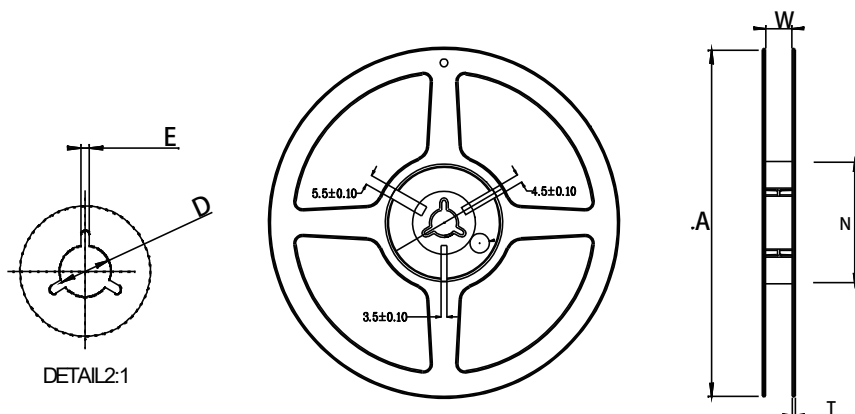
Feeding Direction



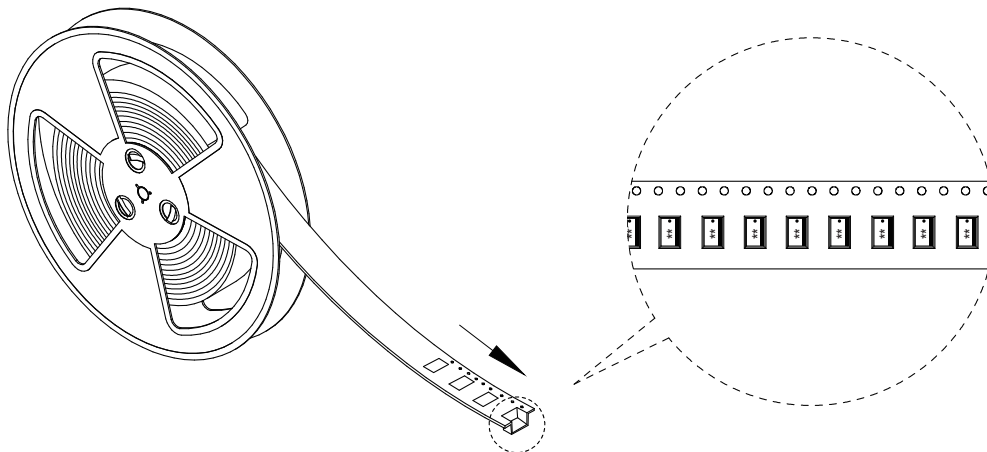
ITEM	W	A0	B0	K0	K1	P	F	E	D0	P0	P2	t	7"
DIM(mm)	8.0	1.45	2.30	1.00		4.0	3.5	1.75	1.5	4.0	2.0	0.2	P/R
TOLE	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.00	+0.10 -0.10	+0.10 -0.10	+0.05 -0.05	5000pcs

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: 0.20 ± 0.05 mm
- H. 5000 units (maximum) / T&R



Symbol	Dimensions(mm)
W	9.0 ± 0.4
A	180 ± 0.3
N	60 ± 0.3
T	1.4 ± 0.2
E	3 ± 0.5
D	25 ± 0.8


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