



Specification

Part No. : **ILA.02**

Model : 2.4dbi 868MHz High Efficiency Loop Antenna

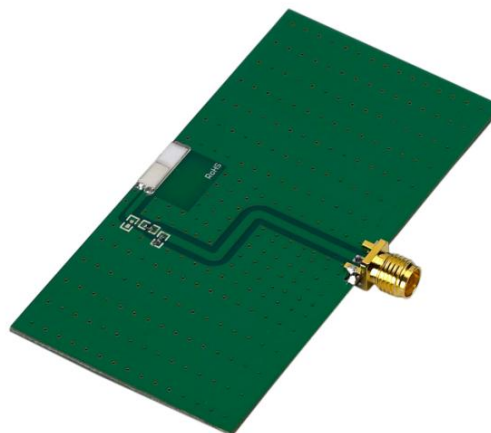
Description : 855MHz to 881MHz

Features : 10*3.2*0.6mm
50 Ohm Impedance

RoHS ✓



ILA.02 Antenna



ILAD.02 (ILA.02 on EVB)

REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	30 Sep 2009	All	Updated	TW PDC	Ronan Quinlan



Specification

1. Introduction

The ILA.02 has excellent stability and sensitivity to consistently provide high signal reception efficiency, 65% at centre frequency.

Based on the loop effect this antenna works best when placed on the centre of the edge of the board, but can still work better than traditional linear polarized chip antennas even when placed at corners as substitute.

The antenna at 10*3.2*0.6mm is low profile and would be suitable for devices with space constraints. The ILA.02 is delivered on tape and reel and now allows M2M customers to use an omni-directional antenna in devices where orientation of the product is unknown.

1.1 Applications

- *Automated Meter Reading (AMR)
- *Remote Monitoring
- *Healthcare
- *Communications
- *RFID

2.0 Key Performance Indicators

The antenna performance was measured with the ILA.01 mounted on the evaluation board (80*40mm) with SMA(F) connector.

No	Parameter	Specification
1	Center Frequency	868MHz
2	Dimensions	10*3.2*0.6mm
3	Polarization	Linear
4	Bandwidth	Min. 26MHz(under -3dB return Loss)
5	Peak Gain	2.4dBi typ.
6	Efficiency	65.2% typ.
7	Impedance	50 Ω
8	Operating Temperature	-40°C~+85°C
9	Temperature Coefficient (τ_f)	0 \pm 20 ppm @ -40°C to +85°C

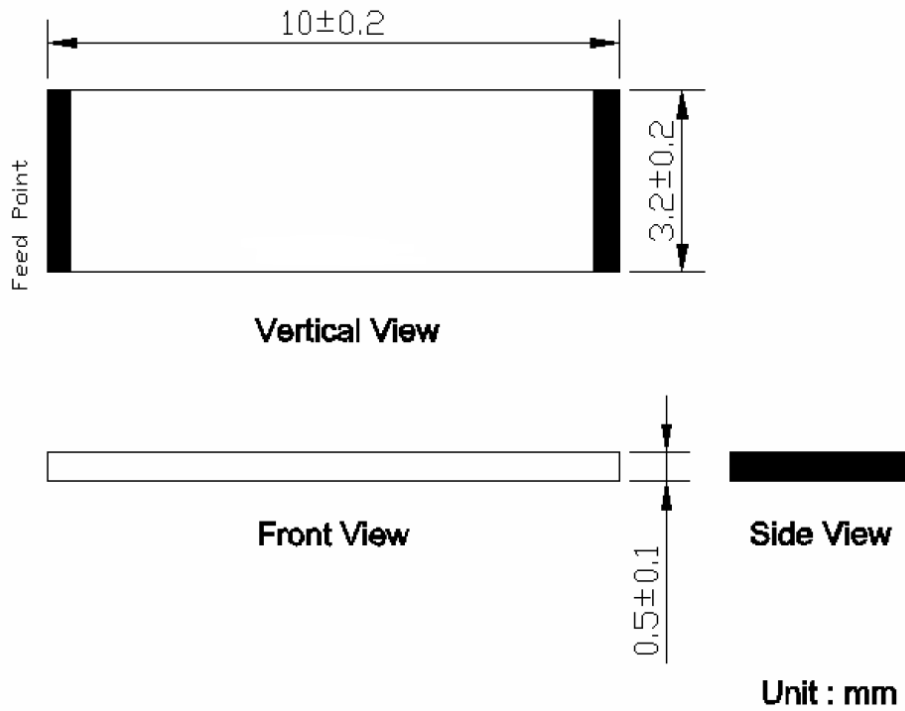
* Center frequency will be offset to working frequency according to the conditions of user's Ground plane and radome.

**The data was measured by A Test Lab Techno Corp. (CTIA Authorized Test Lab).

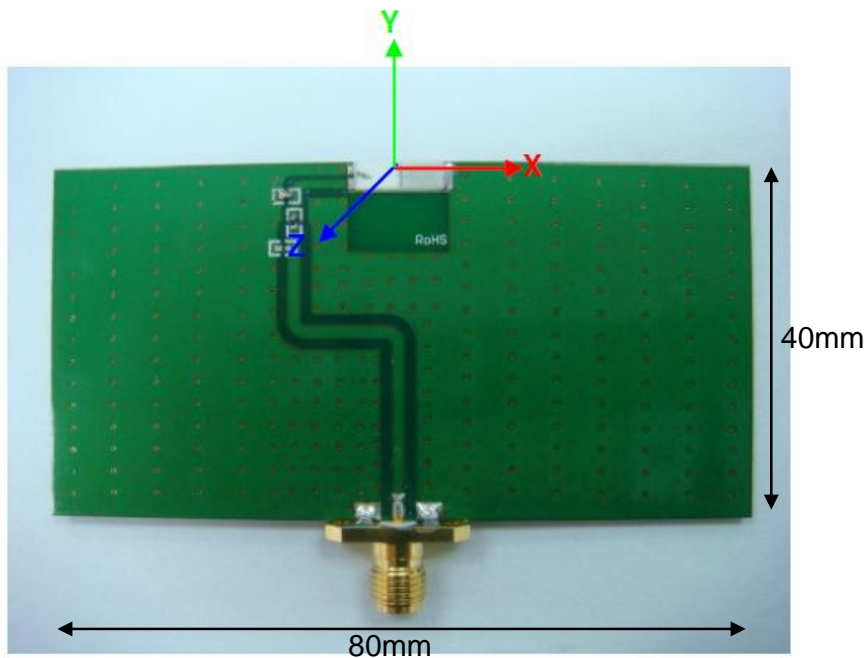


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3.0 Antenna Dimensions & Test Board (unit:mm)



3.1 Test board with Antenna



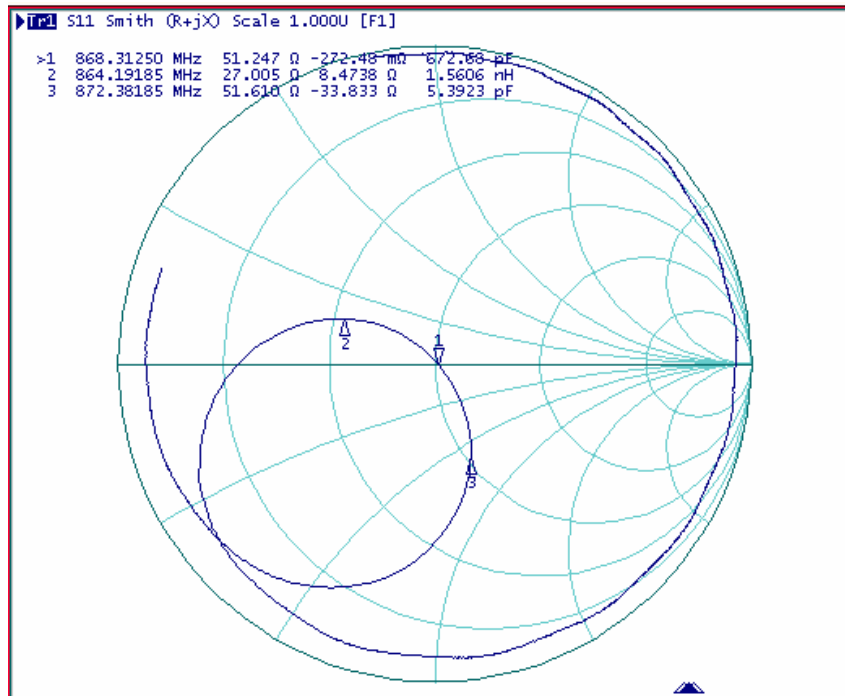
The definition of the measurement planes



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4.0 Electrical Characteristics (80*40mm ground plane)

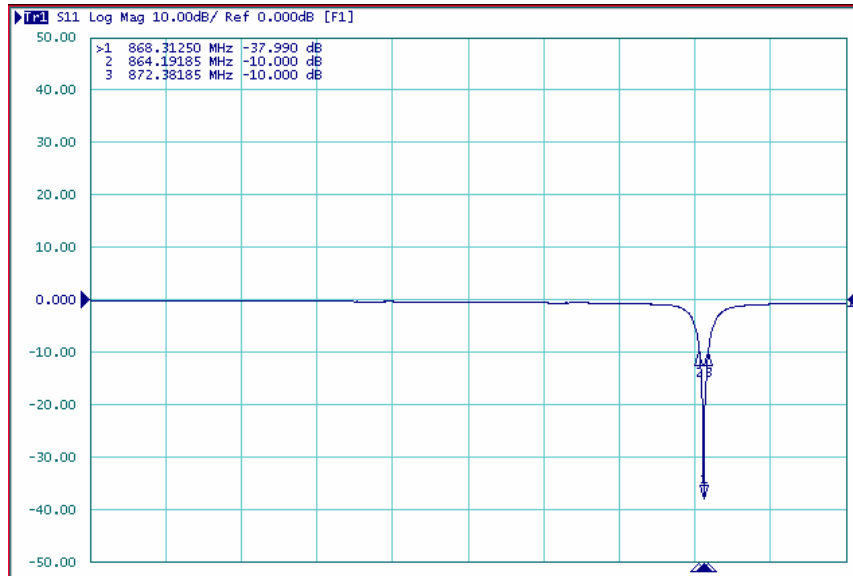
4.1 Smith Chart





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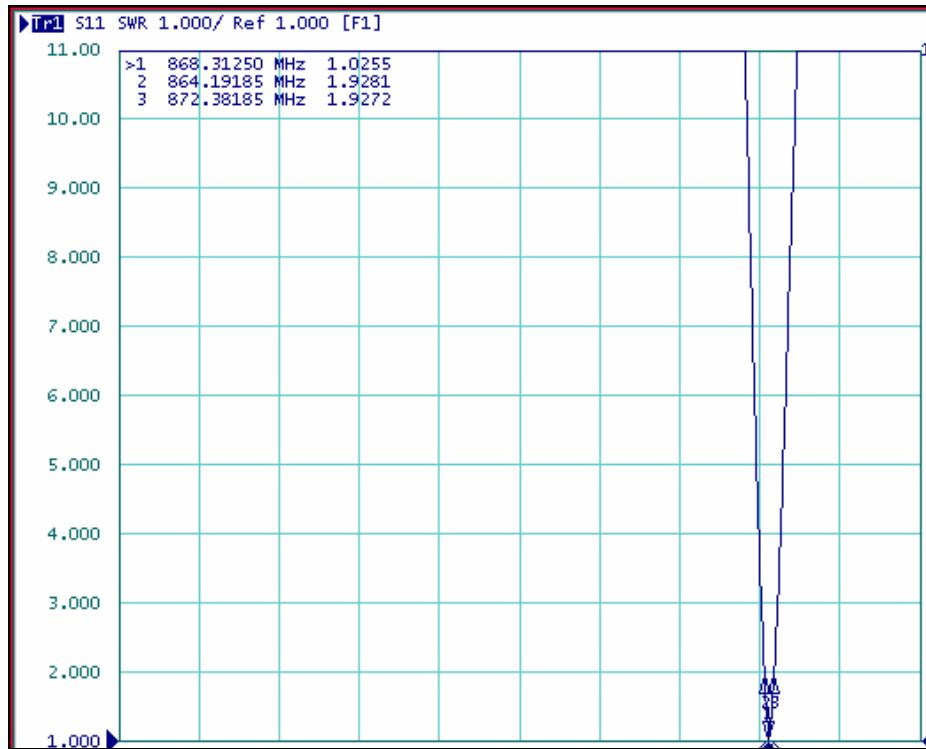
4.2 Return Loss



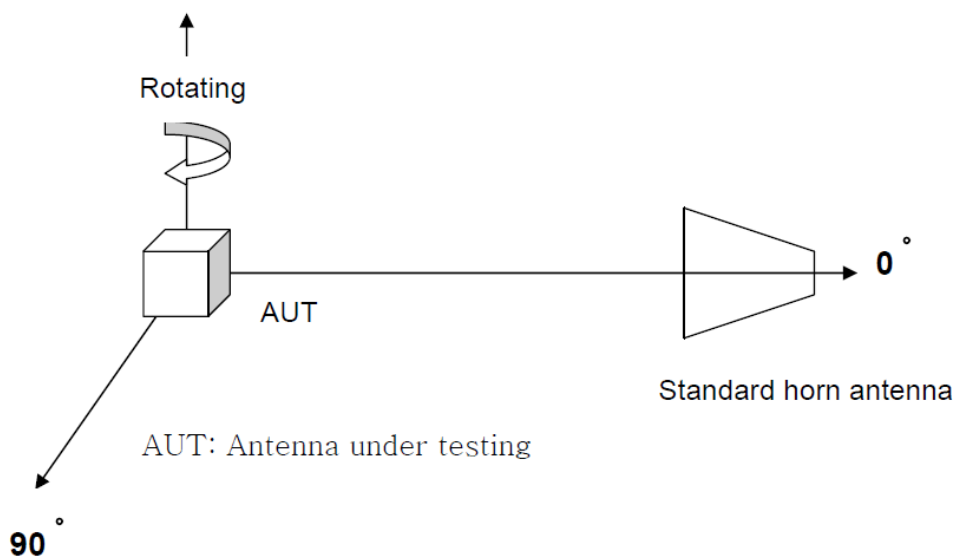


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4.3 VSWR



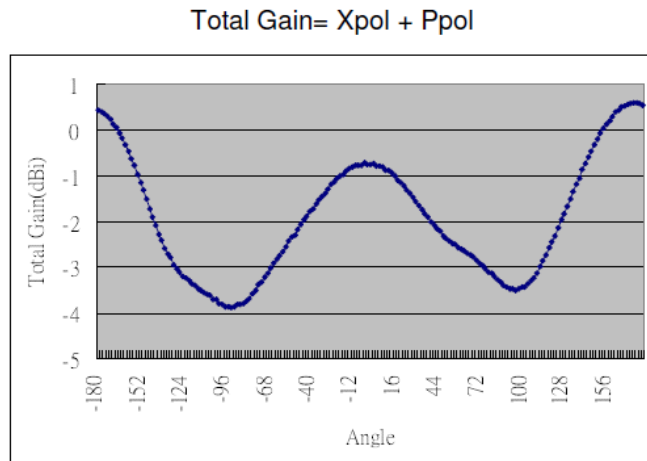
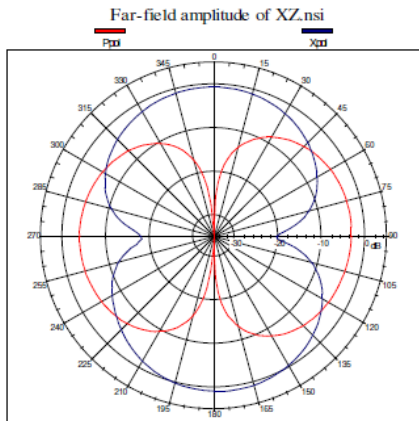
5.0 Radiation Pattern (Customize Design)





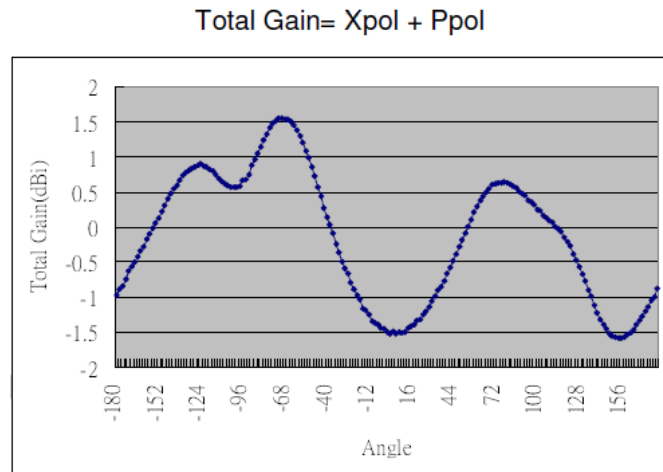
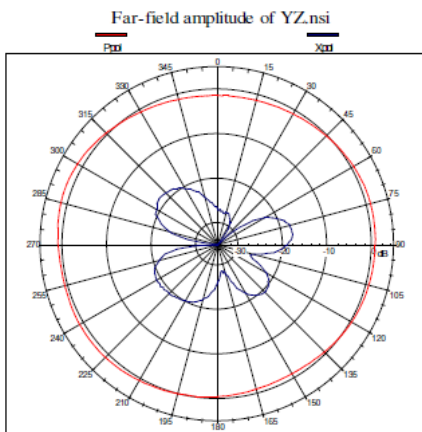
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5.1 2D Gain Pattern on XZ-plane (unit:dBi)



(Peak Gain = 0.60 dBi, Average Gain = -1.90 dBi)

5.2 2D Gain Pattern on YZ-plane (unit:dBi)

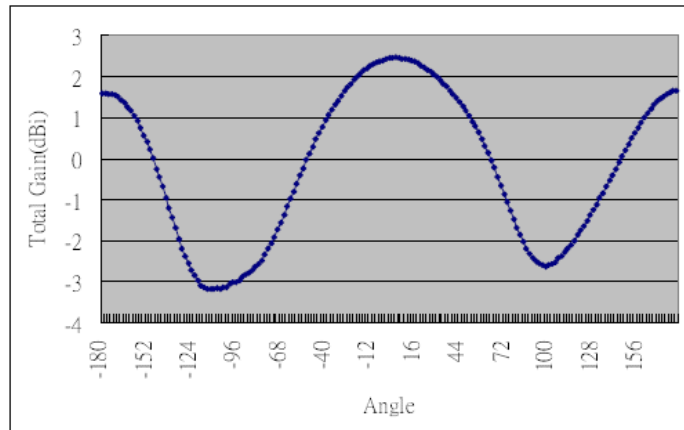
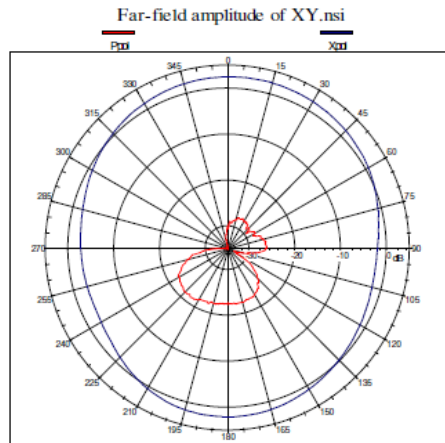


(Peak Gain = 1.54 dBi, Average Gain = -0.14 dBi)



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5.3 2D Gain Pattern on XY-plane (unit:dBi)



(Peak Gain =2.46 dBi, Average Gain =-0.18 dBi)

5.4 Gain Table

Plane	XZ	YZ	XY
Peak gain	0.6	1.54	2.46
Average Gain	-1.9	-0.14	-0.18

5.5 3D Gain Efficiency & Peak Gain Vs. Frequency

Frequency(MHz)	Gain (dBi)	Efficiency	Efficiency. dB
861	-1.00	42.60%	-3.70
862	-0.60	47.00%	-3.30
863	-0.10	51.70%	-2.90
864	0.20	56.10%	-2.50
865	0.50	60.10%	-2.20
866	0.80	63.00%	-2.00
867	0.90	64.60%	-1.90
868	1.00	65.20%	-1.90
869	0.90	64.20%	-1.90
870	0.80	62.10%	-2.10
871	0.50	59.00%	-2.30
872	0.20	55.20%	-2.60
873	-0.10	51.00%	-2.90
874	-0.50	46.70%	-3.30



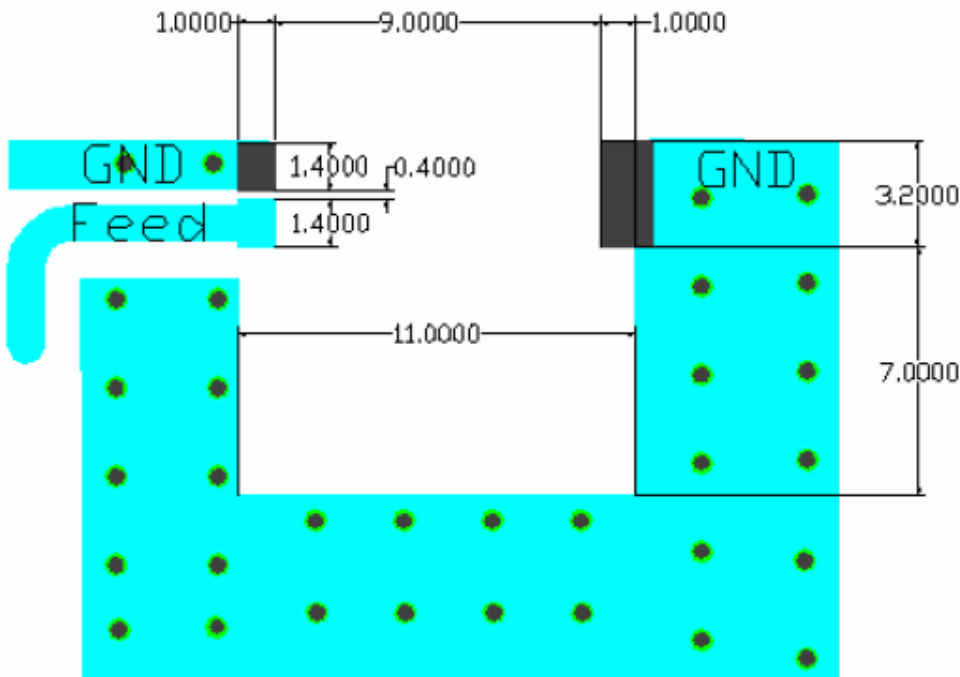
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875	-0.90	42.50%	-3.70
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6.0 Layout Guide

a. Solder Land Pattern:

Land pattern for soldering (black marking areas) is as shown below. Depending on Customer's requirement, matching circuit as shown below is also recommended. With a small total footprint size including ground clearance area of 11*10.2mm this is suitable for devices that have space constraints.

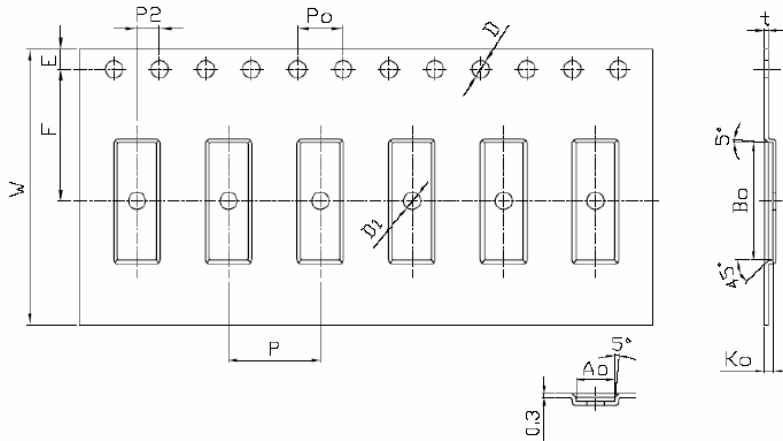




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7.0 Packing

- (1) Quantity/Reel: 6000pcs/Reel
- (2) Plastic Tape



1. 10 sprocket hole pitch cumulative tolerance $\pm 0.20\text{mm}$
2. Carrier camber not to exceed 1mm in 250mm
3. Ao and Bo measured on a plane the bottom of the pocket.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. All dimensions meet EIA-481-C requirements.
6. Material: Clear Non Anti-Static Polystyrene.
 Black Conductive Polystyrene.

7.1 Tape Dimensions (unit:mm)

Feature	Specifications	Tolerances
W	24	± 0.30
P	8	± 0.10
E	1.75	± 0.10
F	11.5	± 0.10
P2	2	± 0.10
D	1.5	± 0.10
Po	4	± 0.10
10Po	40	± 0.20

7.2 Pocket Dimensions (unit:mm)

Feature	Specifications	Tolerances
Ao	3.40	± 0.10
Bo	10.20	± 0.10
Ko	0.70	± 0.10
t	0.30	± 0.05