

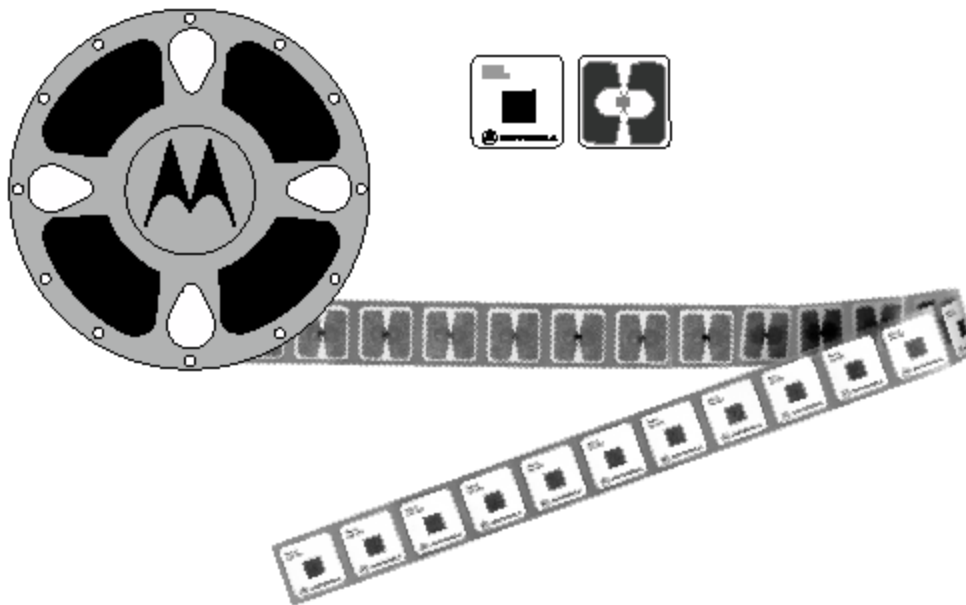


BXI-5

BiStatix™ RFID Interposer

Reference Manual

Version 0.31



Document #

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1. Introduction

The Motorola BXI-5 BiStatix RFID interposer is a nominal 15.875mm x 15.875mm (5/8" x 5/8") IC carrier package, intended to be used as a means for attaching a BiStatix™ IC to larger printed antennae by paper converters that fabricate labels, tags, tickets, boarding passes and other personal electronic transaction media, envelopes, boxes, or other packaging materials. The method of construction is intended for the extremely low cost, disposable RFID tag market. The products are ideal for insertion in standard printing processes by label converters using conventional label insertion machinery.

Although it is envisioned that BiStatix antennae will be printed on the reverse side of existing product label stock, the technology is not limited to use with paper substrates! Any nonconductive, solid material can be used, e.g., plastic, wood, etc.

The BiStatix BXI-5 RFID interposer is a "green" product; it may be disposed of with negligible environmental impact. It may be recycled in common paper recycling processes.



2. General Description

This tag consists of a printed antenna structure on a nominal 15.875mm x 15.875mm (5/8" x 5/8") paper substrate with the BiStatix™ IC permanently attached to the printed pattern. An adhesive covers most of the exposed substrate printed surface area. This adhesive enables prolonged, permanent physical and electrical connection to the subsequent, larger, printed antennae on the item to which the interposer is being attached.

All interposers are uniquely identified with a 60-bit code. Further programming of interposers (after application to tags) can be accomplished in the field with Motorola BiStatix transceiver products, or by authorized Motorola BiStatix Converter Partners.

3. Specifications

Mechanical Dimensions

The overall shape is as shown in Figure 1. The IC is permanently attached to the paper substrate. Measurement in mm [in.].

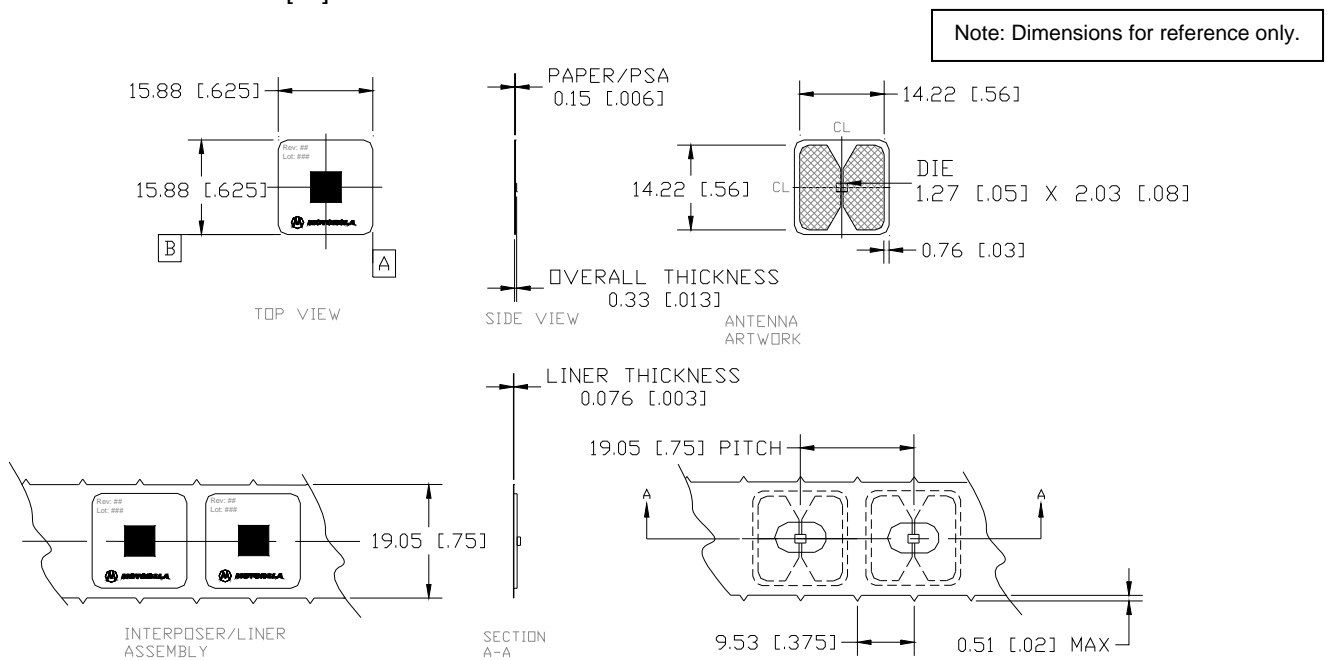


Figure 1. Interposer outline dimensions and artwork

Material

Substrate	
Material	Paper, coated on one side
Thickness	0,10 mm (0.004 in.)
Adhesive	
Material	Pressure sensitive adhesive
Thickness	0,05 mm (0.002 in.) max.
Circuit pattern	
Material	Conductive ink
Carrier	
Material	Polyester
Thickness	0,076mm (0.003 in.)
Peel strength	Minimum 6 g at 30 cm/min (11.8 in/min.) See Figure 3.

Electrical

Excitation frequency	125 KHz (± 25 KHz)
Data rate	7.813 kbps
IC type	Motorola CMOS EEPROM
Read range	Not applicable. Interposer requires attachment of auxiliary antennae to enable noncontact reading.
Memory configuration	<ul style="list-style-type: none"> • 1056 bits total • User programmable data area: 796 bits • Unique ID number (UID): 60 bits + 4 CRC bits

Functional

Interposer to be dispensed from carrier strip per Figure 2.

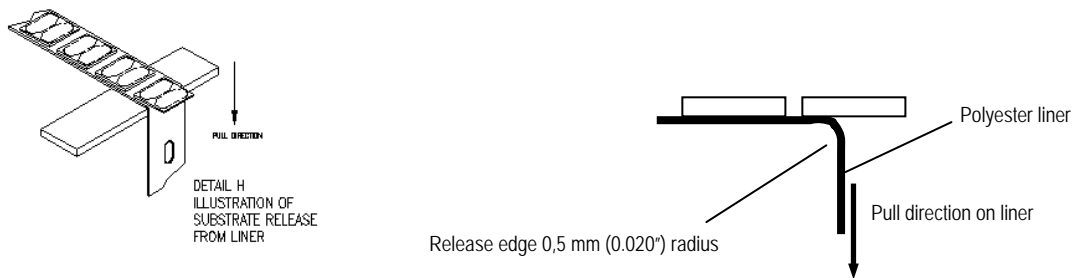
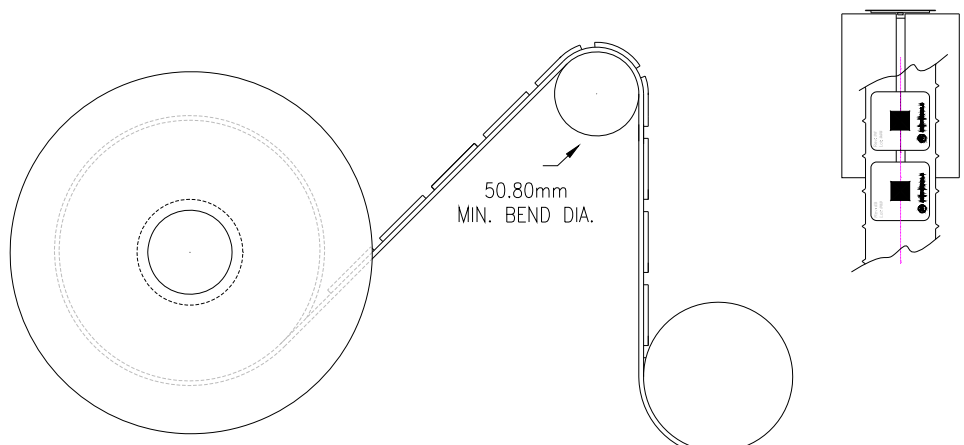


Figure 2. Proper method of dispensing interposer

Adhesion

The BXI-5 Interposer requires a removal force to the polyester carrier of 6.7 g/cm with peel rate of 11.8 in/min (30 cm/min).

4. Environmental & Reliability

Ambient temperature range	
Operating	-20°C to +50°C
Storage	-25°C to +55°C, 1 year maximum in an unopened, factory-sealed package
Humidity	
Operating	1-week exposure to 45°C/60% RH
Storage	1-year 95% RH in an unopened, factory-sealed package
Mechanical	
Folding	Interposer is engineered to remain operational as a read only device after having been folded 180° once (1 time) adjacent to (but not across or through) the IC and subsequently re-folded to the original flat condition.
Water resistance	Interposer not to be submerged or immersed in water. Refer to humidity exposure above.
Impact	Interposer not engineered for the silicon IC to withstand direct impacts. Next level of product converting to implement appropriate impact protection.
Bend Diameter	 <p>Bend diameter of interposer not to exceed 51,8 mm (2") minimum.</p>
Static electricity	Do not expose to more than a 1KV discharge.

5. Warranty

This interposer is warranted to be free from defects in material and workmanship for a period of one (1) year from the date of shipment to the customer.

6. Packaging

BiStatix interposers are packaged on 330mm diameter cardboard reels in factory-sealed moisture barrier bags.

Note: to insure optimum paper humidity levels, it is advised that bags should remain sealed until ready for use.

Label information	
Start UID	Hexadecimal value
Stop UID	Hexadecimal value
Quantity	Total number of interposer units on reel

Leader	~1.8 m (6 ft.), spliced blank film
Trailer	~1.8 m (6 ft.), spliced blank film
Physical skips	May be present
UID logical skips	May be present
Weight	
BXI-5-5K reel of 5,000, bag, cardboard box	793.8 g (1.75 lbs.)
BXI-5-10K reel of 10,000, bag, cardboard box	1111.32 g (2.45 lbs.)

BXI-5 interposer reel. Note: all dimensions in millimeters.

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7. Warnings

The following precautions should be followed:

- Do not use interposers in a microwave oven.
- Do not expose IC to direct or indirect impact.
- Avoid exposure to electrostatic discharge when handling interposers, unpacking, and during the label converting process.

8. Ordering Information

Description	Catalog Number
Interposer, roll of 5,000	BXI-5-5K
Interposer, roll of 10,000	BXI-5-10K



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