

# Application Note 101

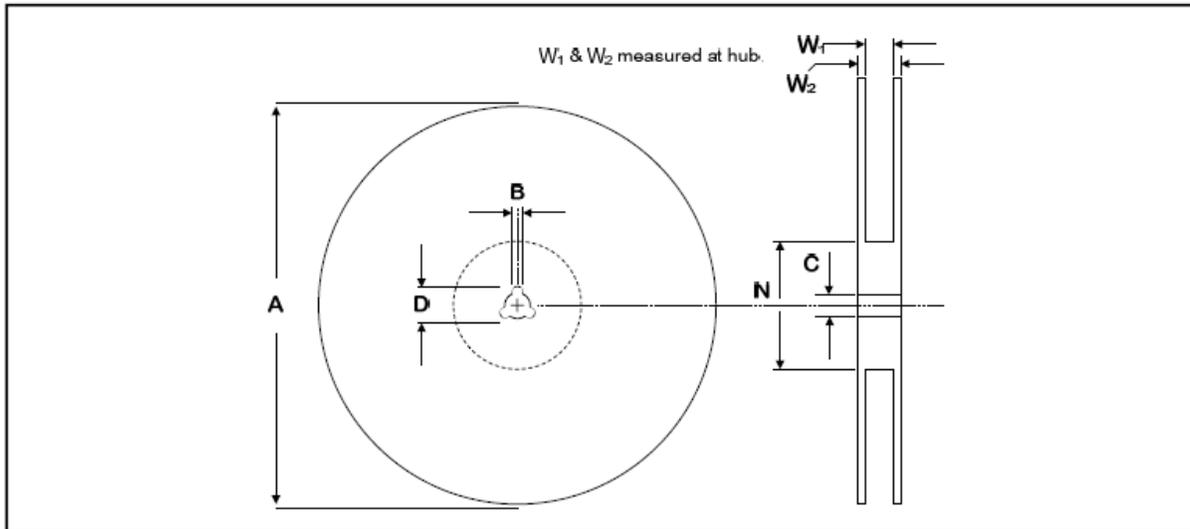
## Tape and Reel Packaging

### Introduction

Application Note 101 applies to all packaged devices that Custom MMIC Design Services deliver in Tape and Reel packaging. This Application Note documents the Carrier Tape and the Reel dimensions, along with the device orientation. Custom MMIC Design Services tape and reel procedure meets the specifications outlined in the EIA-481 Industry Standard.

### Reel Description

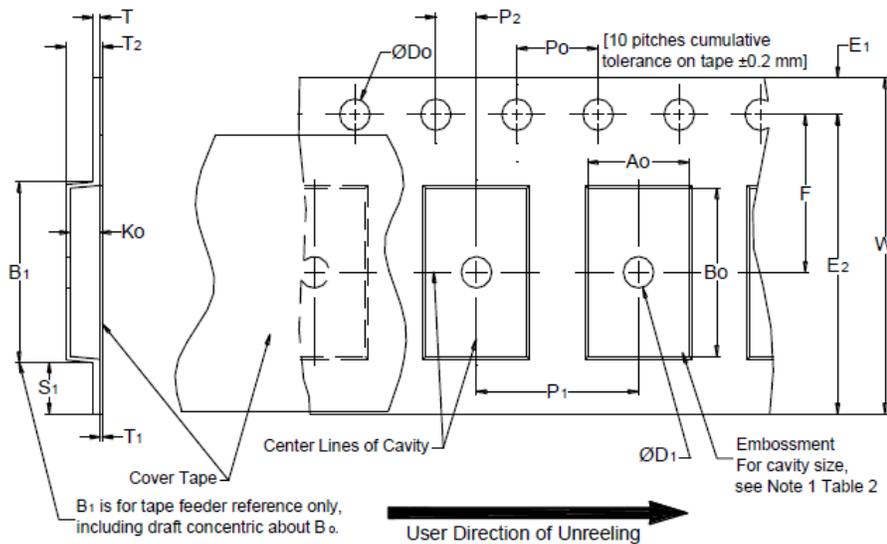
This is a one-piece plastic reel. Material: High Impact Polystyrene. Antistatic. Surface Resistivity: <1012 ohms/square per ASTM D-257 at 50% RH. Static Decay: 90% discharge in 0.14 seconds. 100% discharge in 1.48 seconds per method 4046 of Standard 101C at 50% RH. Color: White or Yellow. Specifications: Reels meet EIA-481. Reel Diameter: 178 mm. Size: 12 mm.



ITEM		SYMBOL	SIZE (MM)	SIZE (INCH)
Reel	Diameter	A	178 ± 2.0	7.0 ± 0.08
	Width	W1	12.4 + 1.5, -0.0	0.472 + 0.06, - 0.0
	(Inside flanges)	W2	18.4 max	0.724 max
Hub	Width	N	50.0 min	1.97 min
	(Including flanges)	C	13.0 ± 0.2	0.512 ± 0.008
	Outer diameter	B	1.5 min	0.06 min
	Spindle hole diameter	D	20.2 min	0.795 min

## Carrier Tape Specifications

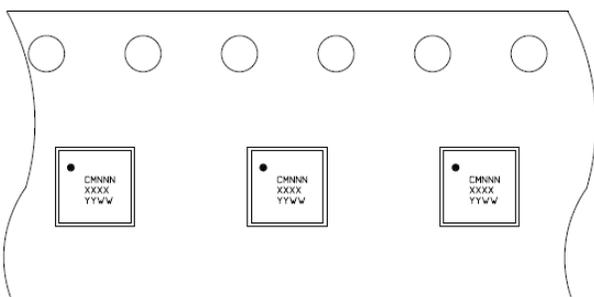
All carrier tape used by Custom MMIC Design Services to package devices meets the specifications of the EIA-481 Industry Standard. Cavity dimensions are designed per individual package size to meet the maximum device rotation and lateral movement as specified in EIA-481.



TAPE DIMENSIONS	DESCRIPTION	SYMBOL	SIZE (MM)	SIZE (INCH)
Cavity	Pitch	P1	8.0 ± 0.05	0.315 ± 0.004
Distance between centerlines	Cavity to sprocket hole	P2	2.0 ± 0.05	0.079 ± 0.002
	(LENGTH DIRECTION)	F	5.5 ± 0.05	0.217 ± 0.002
Carrier tape	Cavity to sprocket hole	W	12.3 max	0.484 max
Cover tape	(width direction)	C	9.2 ± 0.10	0.362 ± 0.004

## Device Orientation in Cavity

Device orientation is with the PIN 1 marking on the device placed in Quadrant 1 per the EIA-481 Standard. Please see orientation drawing below.



## Device Quantity per Reel

The maximum quantity of devices per reel are identified in the table below. Please contact our sales department for quantities other than those listed below.

DEVICE PACKAGE	MAX. DEVICE QUANTITY
3x3 mm QFN	1000
4x4 mm QFN	1000
5x5 mm QFN	500

## Additional Information

For information on ESD, Soldering Profiles, Packaging Standards, Handling and Assembly, please contact Qorvo for general guidelines.

## Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

**Web:** [www.qorvo.com](http://www.qorvo.com)

**Tel:** +1 833-641-3811

**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

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