

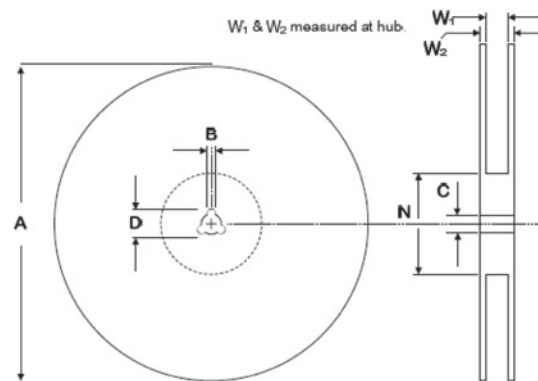
## Carrier tape and reel dimensions and device orientation

### Description

Application Note 101 applies to all packaged devices that Custom MMIC delivers 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: 178mm. Size: 12mm.



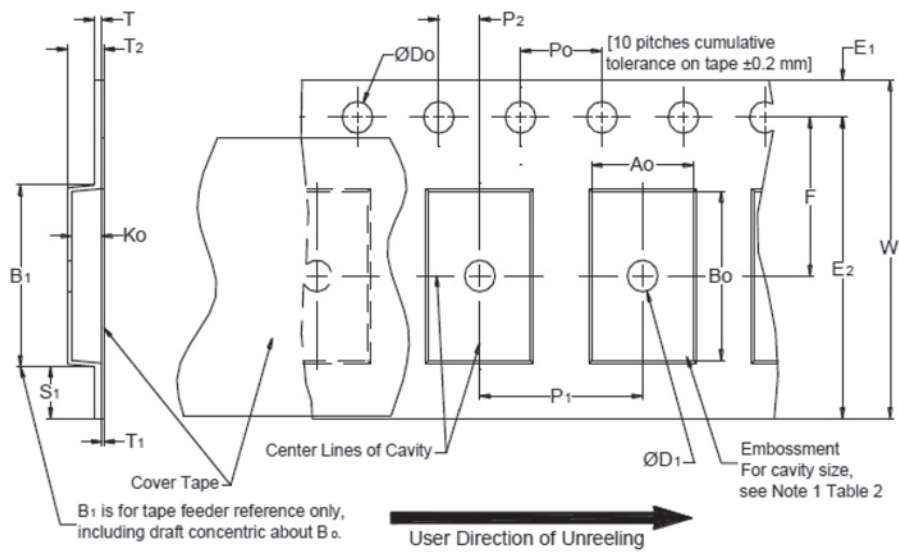
	Item	Symbol	Size (MM)	Size (Inch)
Reel	Diameter	A	178 ± 2.0	7.0 ± 0.08
	Width (Inside Flanges)	W <sub>1</sub>	12.4 + 1.5, - 0.0	0.472 + 0.06, - 0.0
	Width (Inside Flanges)	W <sub>2</sub>	18.4 max	0.724 max
Hub	Outer Diameter	N	50.0 min	1.97 min
	Spindle Hole Diameter	C	13.0 ± 0.2	0.512 ± 0.008
	Key Slot Width	B	1.5 min	0.06 min
	Key Slot Diameter	D	20.2 min	0.795 min



## Carrier Tape Specifications

All carrier tape used by Custom MMIC 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.

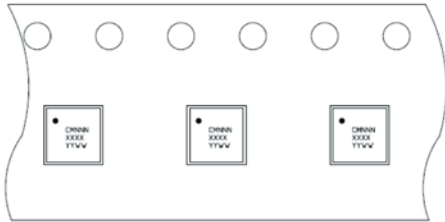


Tape Dimensions	Description	Symbol	Size (MM)	Size (INCH)
Cavity	Pitch	P1	8.0 ± 0.05	0.315 ± 0.004
Distance Between Centerlines	Cavity to Sprocket Hole (Length Direction)	P2	2.0 ± 0.05	0.079 ± 0.002
	Cavity to to Sprocket Hole (Width Direction)	F	5.5 ± 0.05	0.217 ± 0.002
Carrier Tape	Width	W	12.3 max	0.484 max
Cover Tape	Width	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



## Device Orientation 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 Quality
3x3 mm QFN	1000
4x4 mm QFN	1000
5x5 mm QFN	500

For application support and additional technical resources visit our [Support Page](#).