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**Future Technology Devices International Ltd.**

## **Application Note AN\_116**

# **FTDI Devices T&R Dimensions**

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This document provides information on the tape and reel dimensions for FT232BL, FT245BL, FT232BQ, FT245BQ, FT232RL, FT245RL, FT232RQ, FT245RQ, FT2232D, FT2232HL, FT2232HQ, FT4232HL, FT4232HQ, FT-X series chips, FT12 series chips, FT311D, FT313H, VNC1L and VNC2

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## **1 Introduction**

This document provides information on the tape and reel dimensions for FT232BL, FT245BL, FT232BQ, FT245BQ, FT232RL, FT245RL, FT232RQ, FT245RQ, FT2232D, FT2232HL, FT2232HQ, FT4232HL, FT4232HQ, FT-X series chips, FT12 series chips, FT311D, FT313H, VNC1L and VNC2.

## 2 Packaging options

FTDI can supply devices packaged in tape and reel packaging or in trays or tubes. The quantities in each package type are described below.

### 2.1 Tape and Reel Packaging

IC – Tape and Reel	Package	Quantities (pieces)
FT232BL, FT245BL – R	LQFP	1000
FT232BQ, FT245BQ – R	QFN	2500
FT232RL, FT245RL – R	SSOP	2000
FT232RQ, FT245RQ – R	QFN	6000
FT2232D – R	LQFP	1000
FT2232HL – R	LQFP	1000
FT2232HQ – R	QFN	4000
FT4232HL – R	LQFP	1000
FT4232HQ – R	QFN	4000
VINC1L – A – R	LQFP	2000
VNC2-32LQFP	LQFP	1500
VNC2-48LQFP	LQFP	1500
VNC2-64LQFP	LQFP	1000
VNC2-32 QFN 7x7x.9	QFN	3000
VNC2-48 QFN 8x8x.9	QFN	3000
VNC2-64 QFN 8x8x.9	QFN	3000
FT311DLQFP	LQFP	1500
FT311D QFN 7X 7 X .9	QFN	3000
FT200XD- R	DFN	5000
FT201XS – R, FT220XS – R, FT221XS – R, FT230XS – R, FT231XS – R, FT240XS – R	SSOP	3000
FT201XQ- R, FT220XQ – R, FT221XQ – R, FT230XQ – R, FT231XQ – R, FT240XQ – R	QFN	5000
FT120T- R, FT121T - R , FT122T - R	TSSOP	2500
FT120Q- R, FT121Q - R, FT122Q - R	QFN	6000
FT313HQ - R	QFN	3000
FT313HL - R	LQFP	1000
FT313HP – R	TQFP	2500

**Table 2.1 – Tape and Reel Quantities**

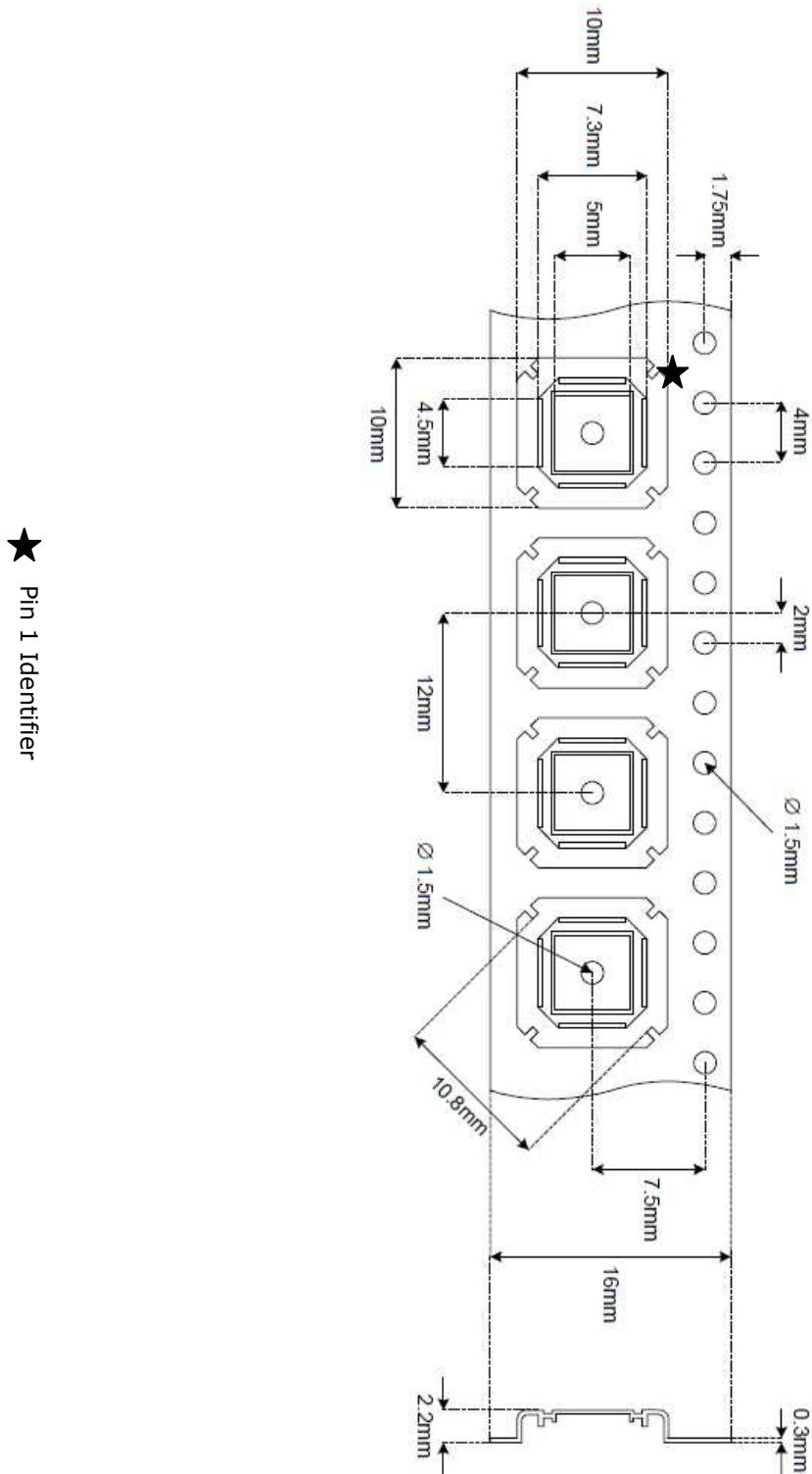
## 2.2 Tray/Tube Packaging

IC – Tray/Tube	Package	Quantities (pieces)	Box of Trays/Tube (pieces)
FT232BL, FT245BL – Tray	LQFP	250	2500
FT232BQ, FT245BQ	QFN	250	-
FT232RQ, FT245RQ – Tray	QFN	490	4900
FT2232D – Tray	LQFP	250	2500
FT2232HL – Tray	LQFP	160	-
FT2232HQ – Tray	QFN	260	-
FT4232HL – Tray	LQFP	160	-
FT4232HQ – Tray	QFN	260	-
VINC1L – A – Tray	LQFP	250	2500
VNC2-32LQFP	LQFP	250	
VNC2-48LQFP	LQFP	250	
VNC2-64LQFP	LQFP	160	
VNC2-32 QFN 7x7x.9	QFN	260	
VNC2-48 QFN 8x8x.9	QFN	260	
VNC2-64 QFN 8x8x.9	QFN	260	
FT311DLQFP	LQFP	250	
FT311D QFN 7X 7 X .9	QFN	260	
FT200XD- T	DFN	490	
FT201XS- U, FT220XS- U, FT230XS- U,	SSOP	100	
FT240XS - U	SSOP	58	
FT201XQ- T, FT220XQ- T, FT230XQ- T, FT240XQ- T	QFN	490	
FT120T- U, FT122T - U	TSSOP	50	
FT120Q- T, FT121Q - T, FT122Q - T	QFN	490	
FT121T- U	TSSOP	96	
FT313HP - T	TQFP	2500	
FT313HQ – T	QFN	2600	
FT313HL – T	LQFP	1600	

**Table 2.2 – Tube/Tray Quantities**



### 3 FT232BL, FT245BL and FT2232D Tape Dimensions



**Figure 3.1 – FT232BL, FT245BL and FT2232D Tape Dimensions**

#### 4 FT232BL, FT245BL and FT2232D Reel Dimensions

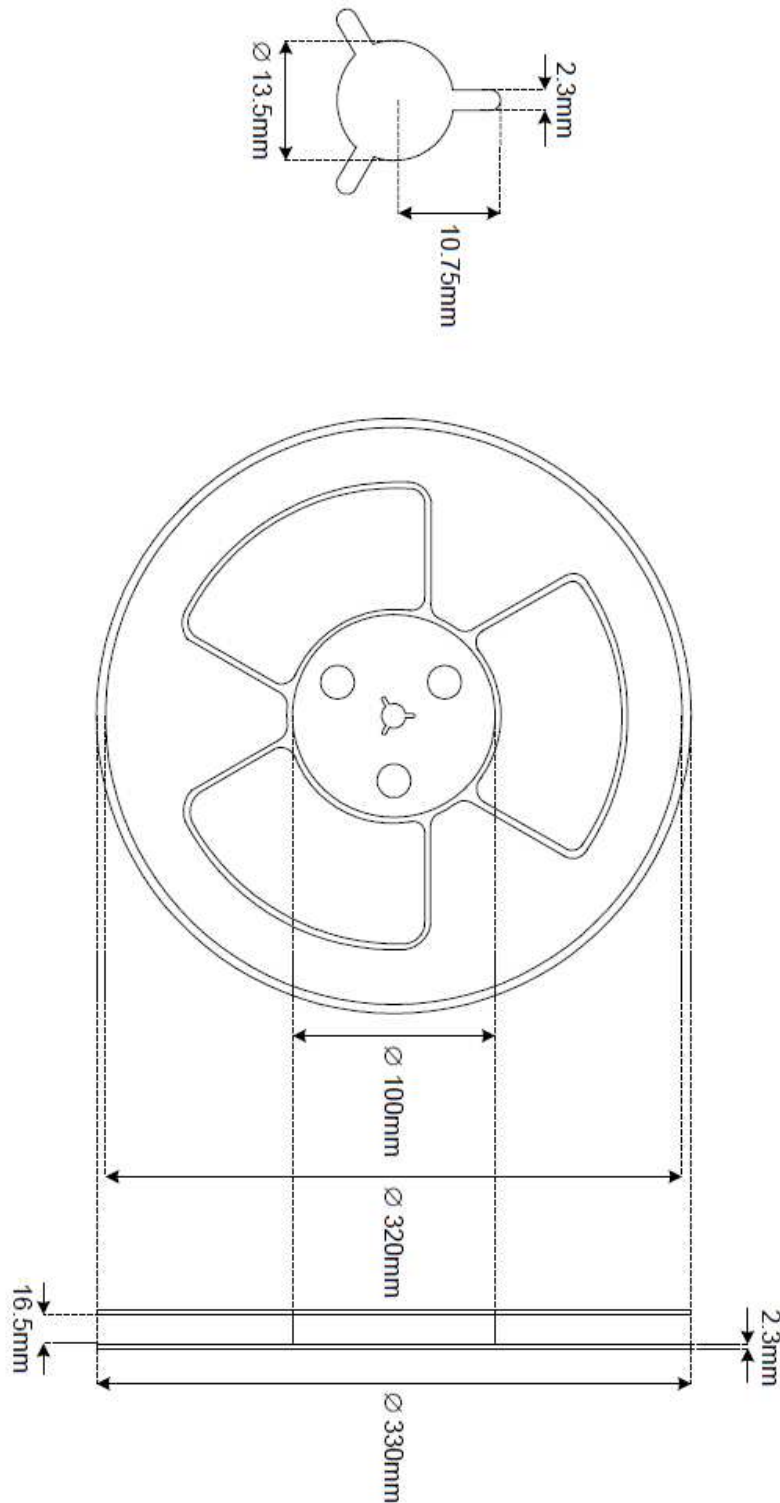
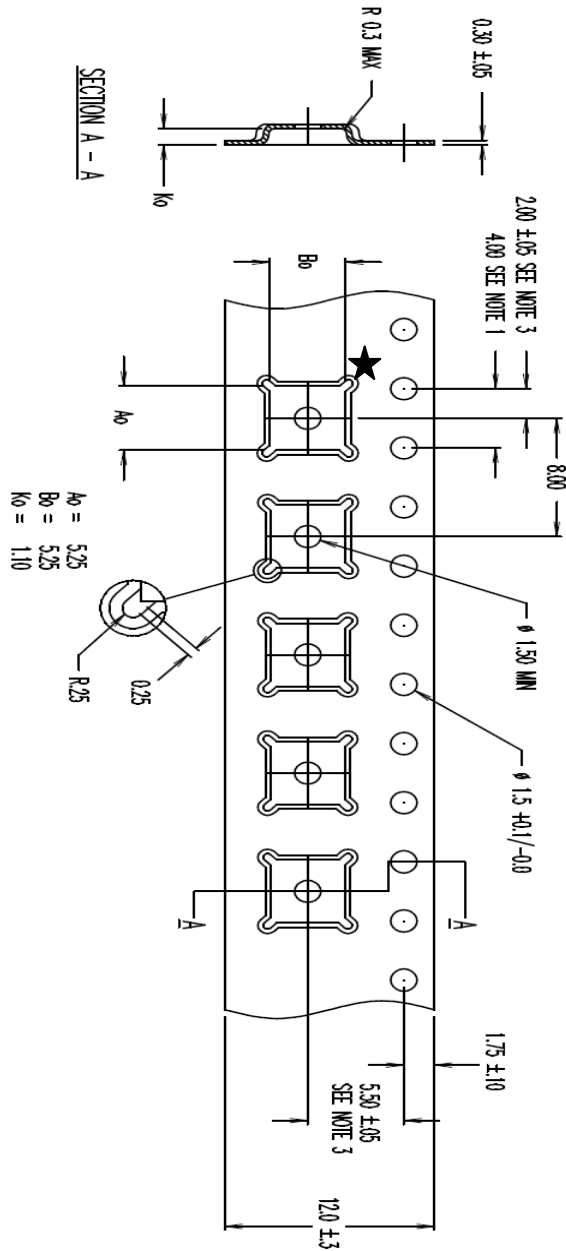


Figure 4.1 – FT232BL, FT245BL and FT2232D Reel Dimensions

## 5 FT232BQ and FT245BQ Tape Dimensions



### Notes:

1. 10 sprocket hole pitch cumulative tolerance  $\pm 0.2$
2. Camber not to exceed 1mm in 100mm.
3. Material: Black Advantek Polystyrene.
4. A<sub>0</sub> and B<sub>0</sub> measured on a plane 0.3mm above the bottom of the pocket.
5. K<sub>0</sub> measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

★ Pin 1 Identifier

Figure 5.1 – FT232BQ and FT245BQ Tape Dimensions

## 6 FT232BQ and FT245BQ Reel Dimensions

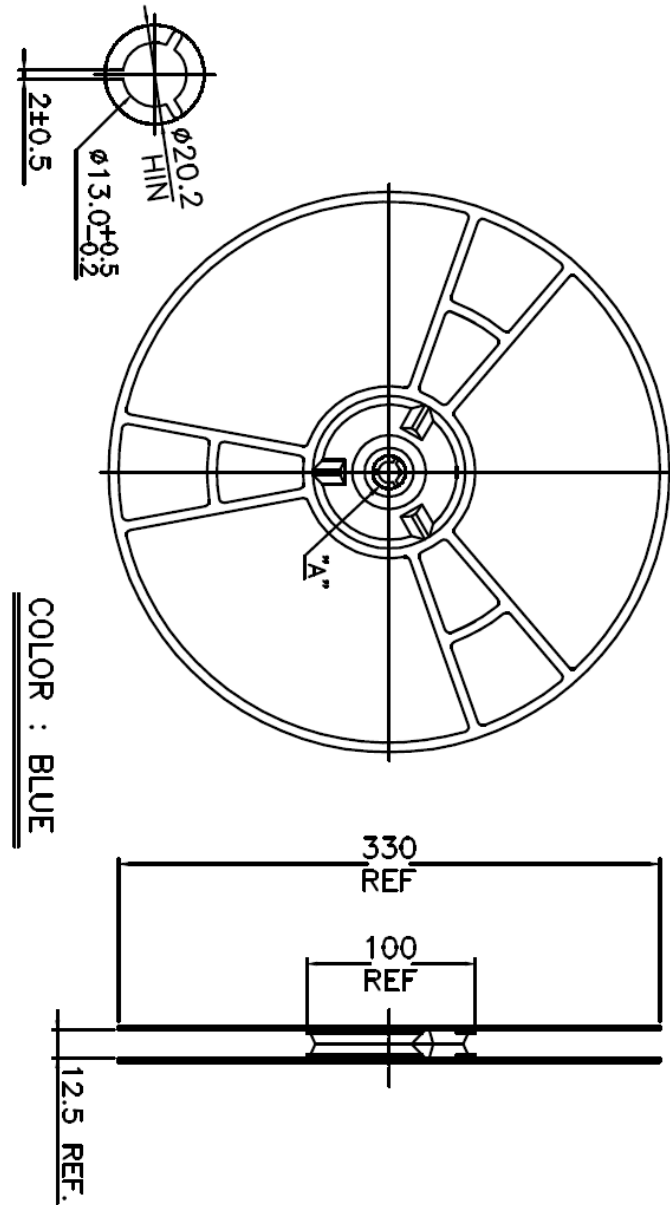


Figure 6.1 – FT232BQ and FT245BQ Reel Dimensions



## 8 FT232RL and FT245RL Reel Dimensions

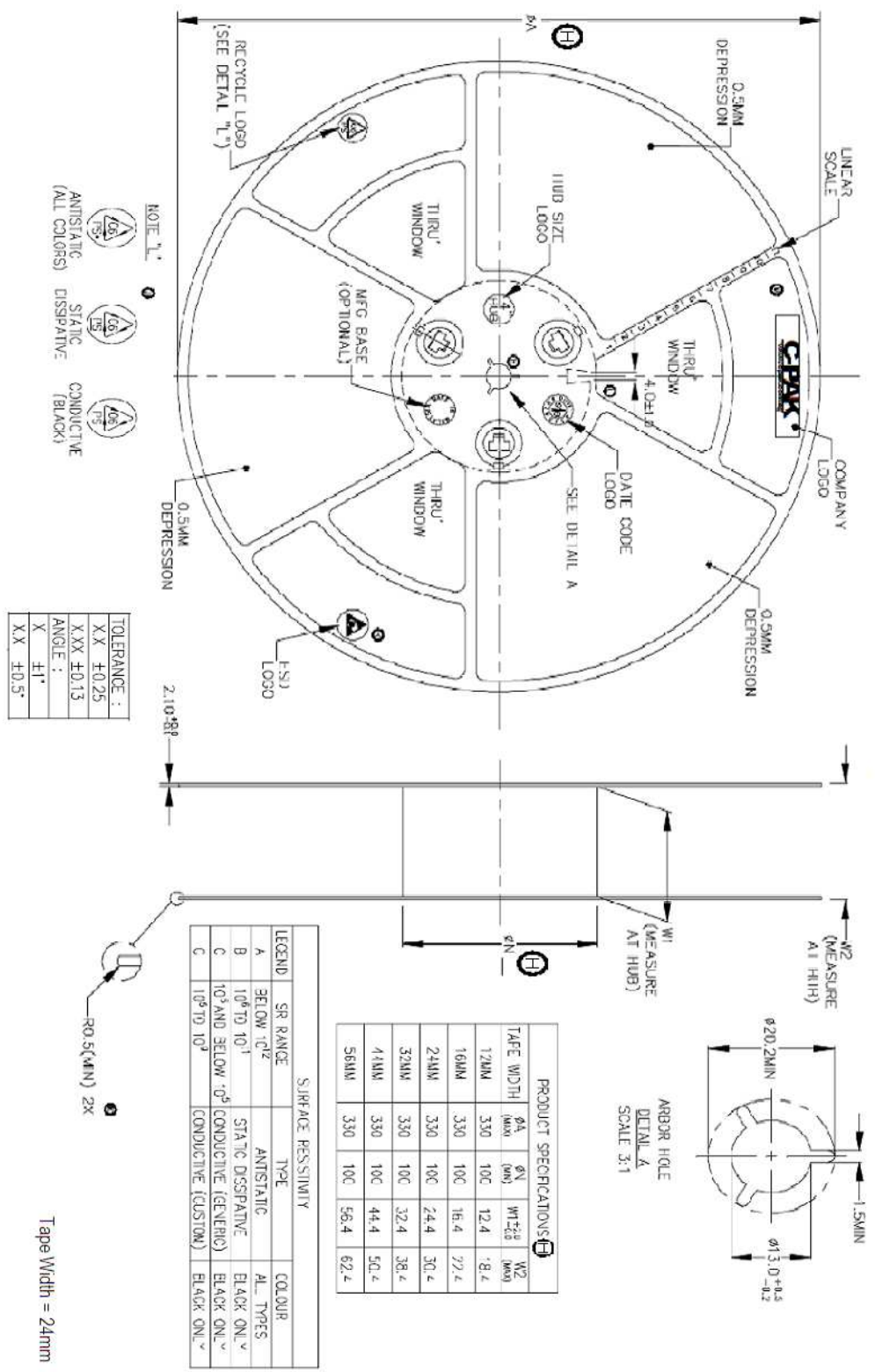


Figure 8.1 – FT232RL and FT245RL Reel Dimensions

## 9 FT232RQ and FT245RQ Tape Dimensions

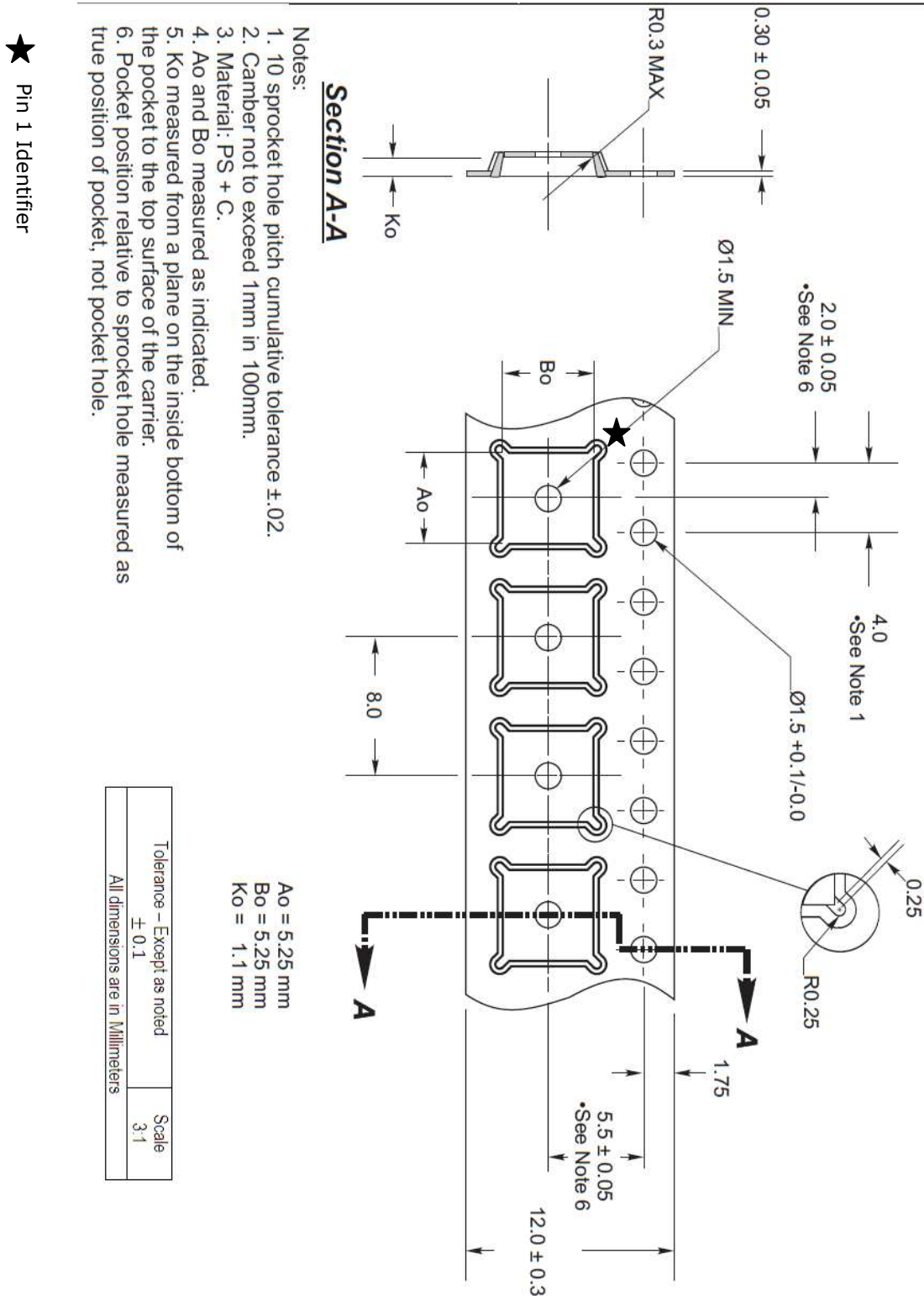


Figure 9.1 – FT232RQ and FT245RQ Tape Dimensions







## 12 FT2232HL and FT4232HL Reel Dimensions

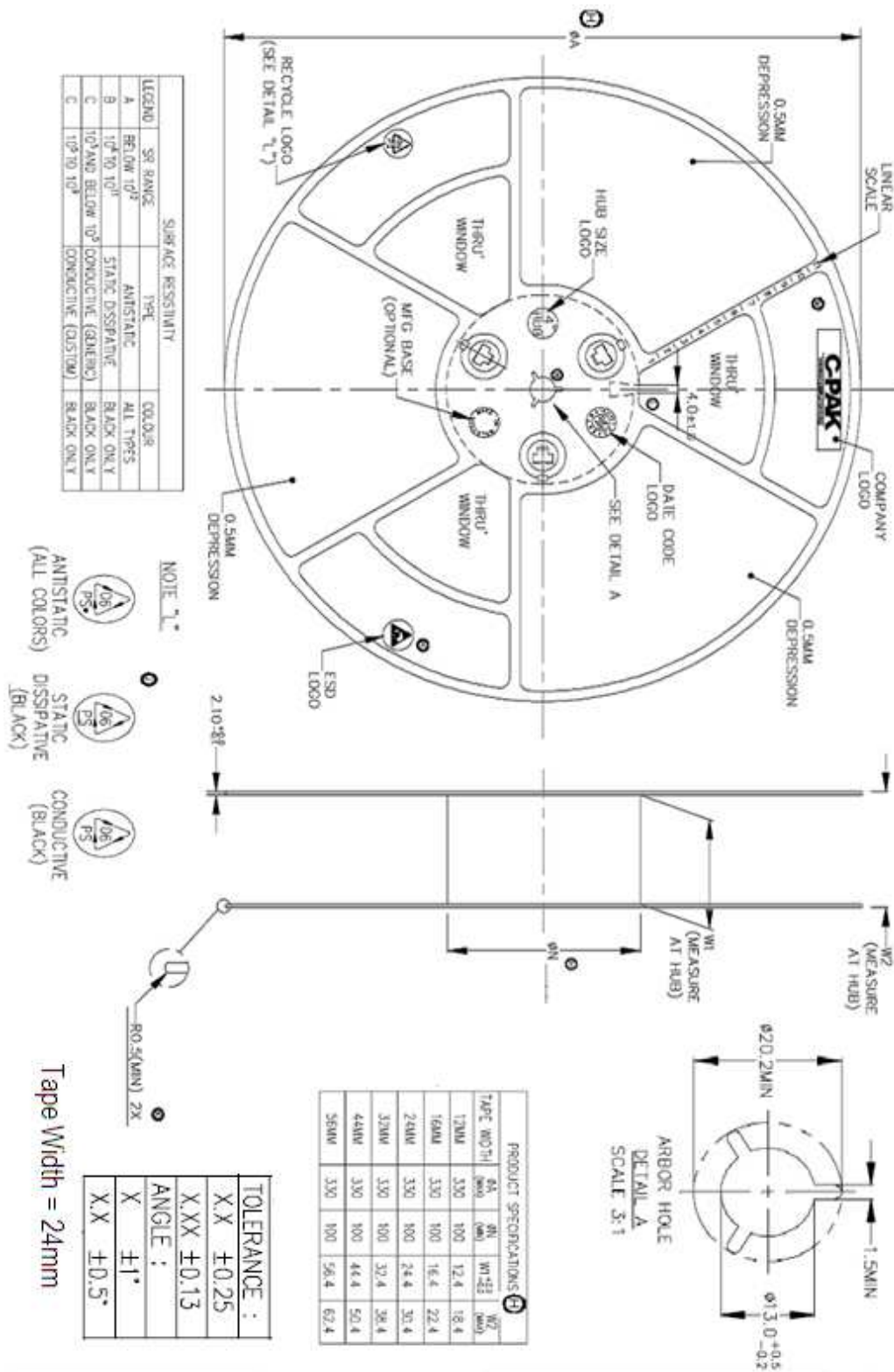


Figure 12.1 – FT2232HL and FT4232HL Reel Dimensions



## 14 FT2232HQ and FT4232HQ Reel Dimensions

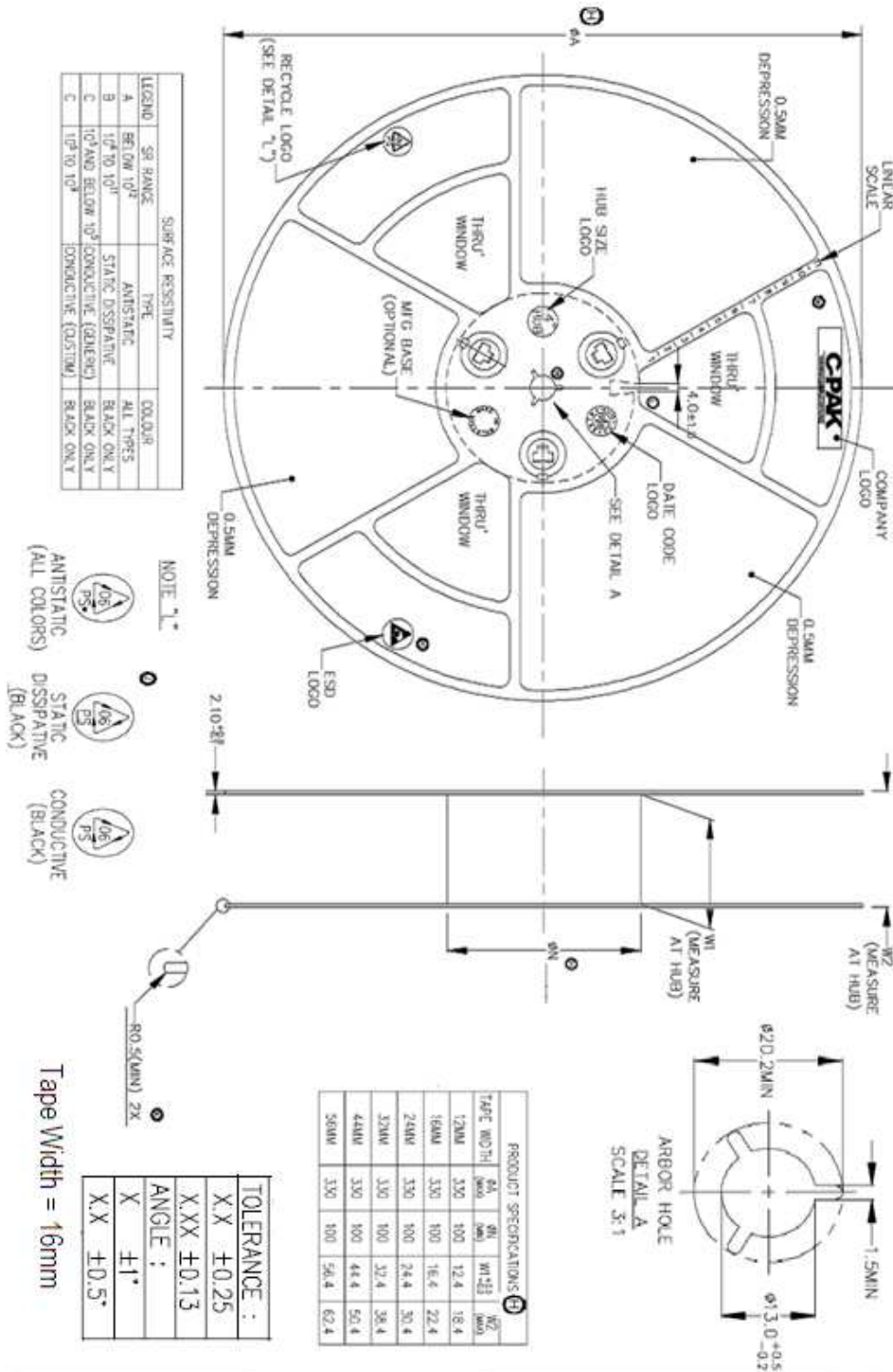


Figure 14.1 – FT2232HQ and FT4232HQ Reel Dimensions



## 16 FT232HL Cover Tape Dimensions

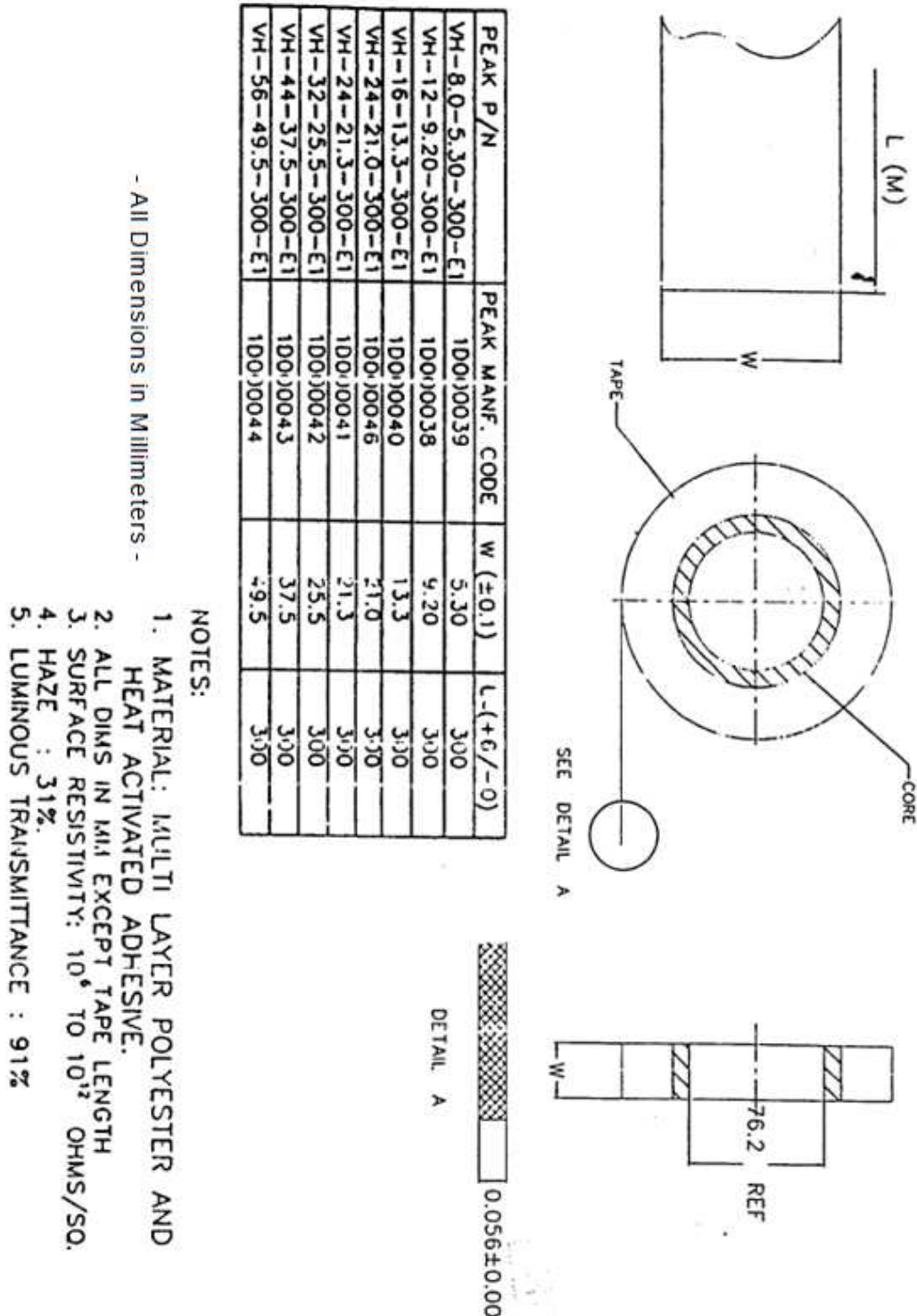


Figure 16.1 – FT232HL Cover Tape Dimensions

## 17 FT232HQ Cover Tape Dimensions

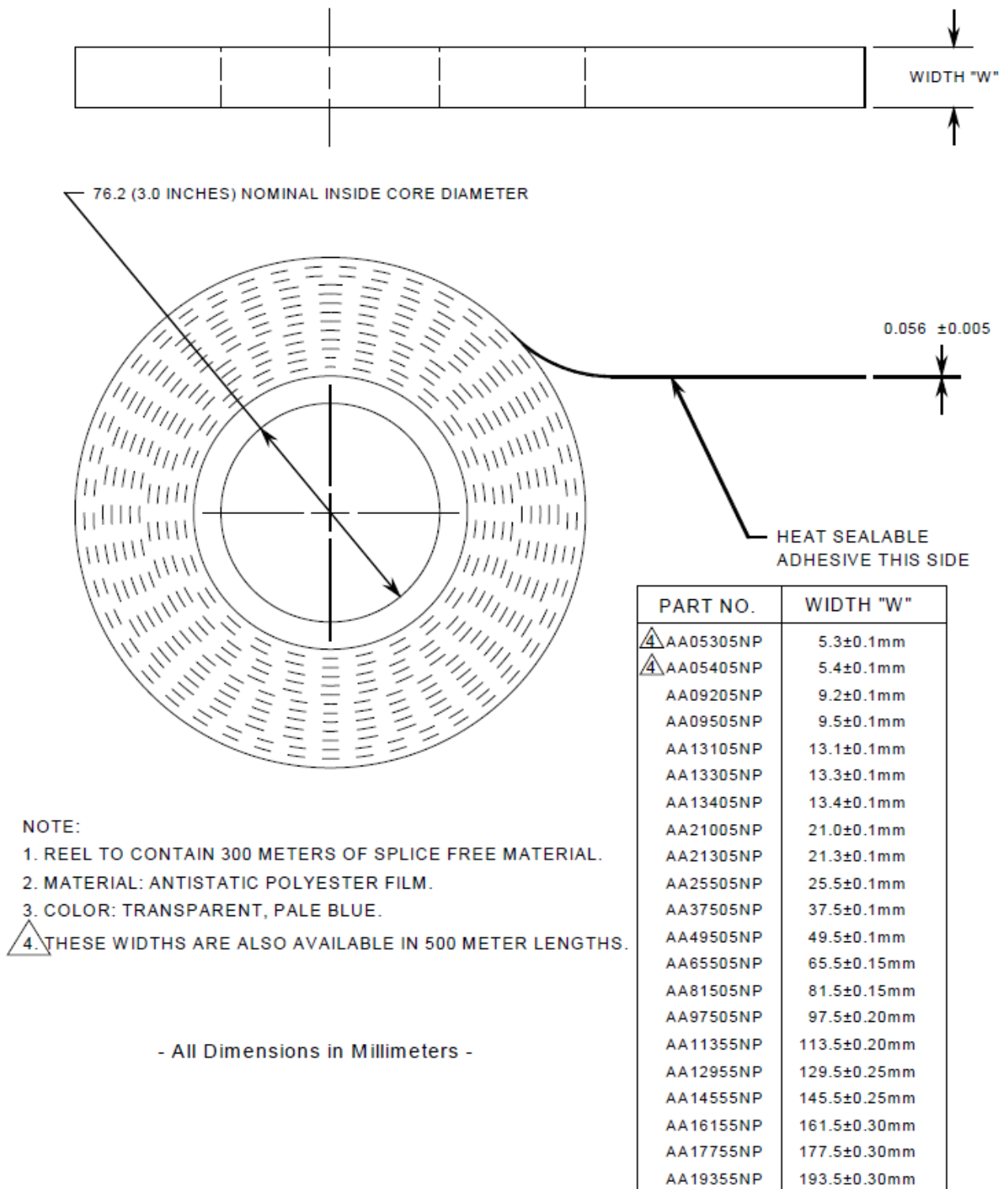


Figure 17.1 – FT232HQ Cover Tape Dimensions





## 19 FT232HQ Carrier Tape Dimensions

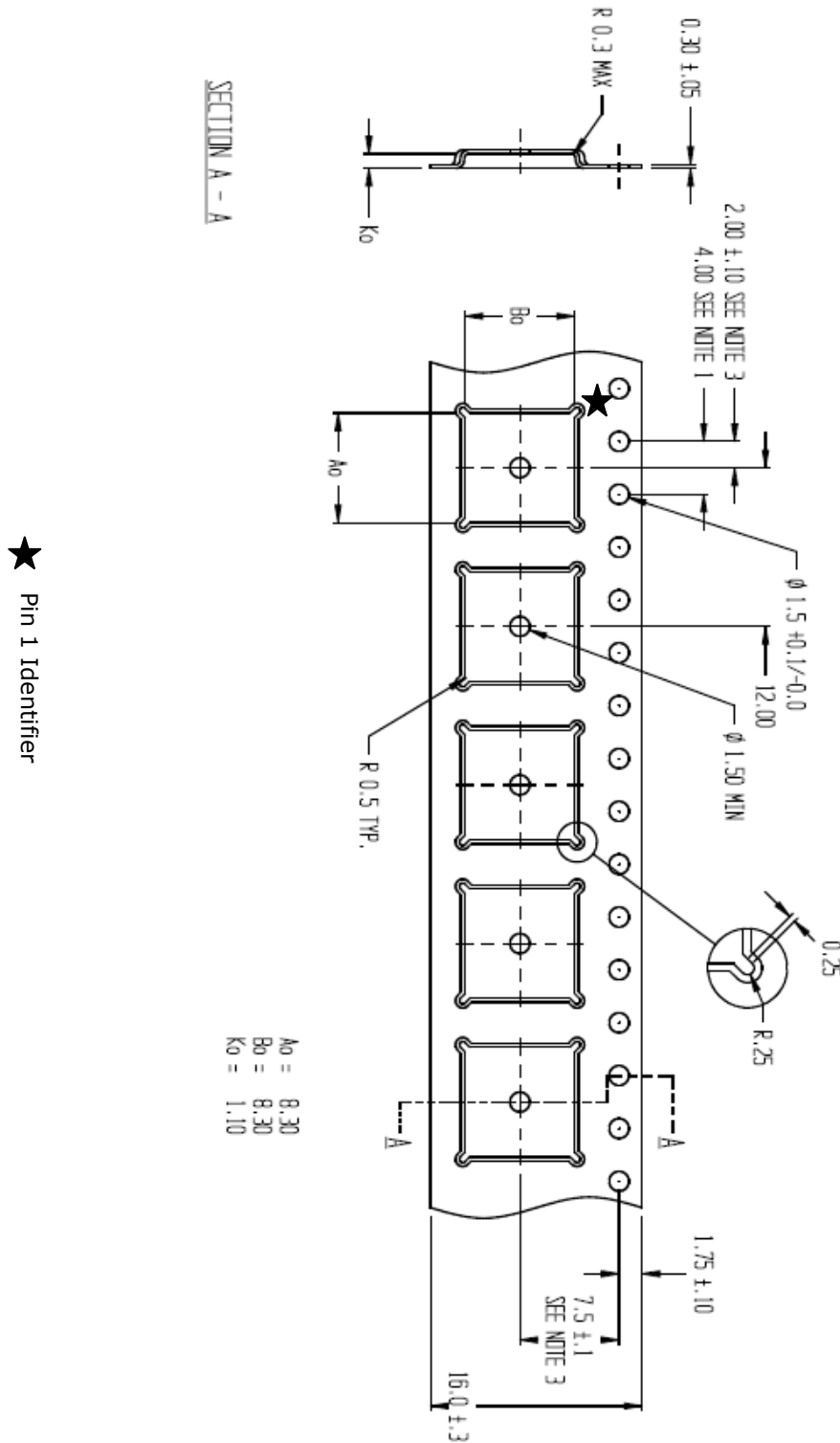


Figure 19.1 – FT232HQ Carrier Tape Dimensions

## 20 FT232HL Tray Dimensions

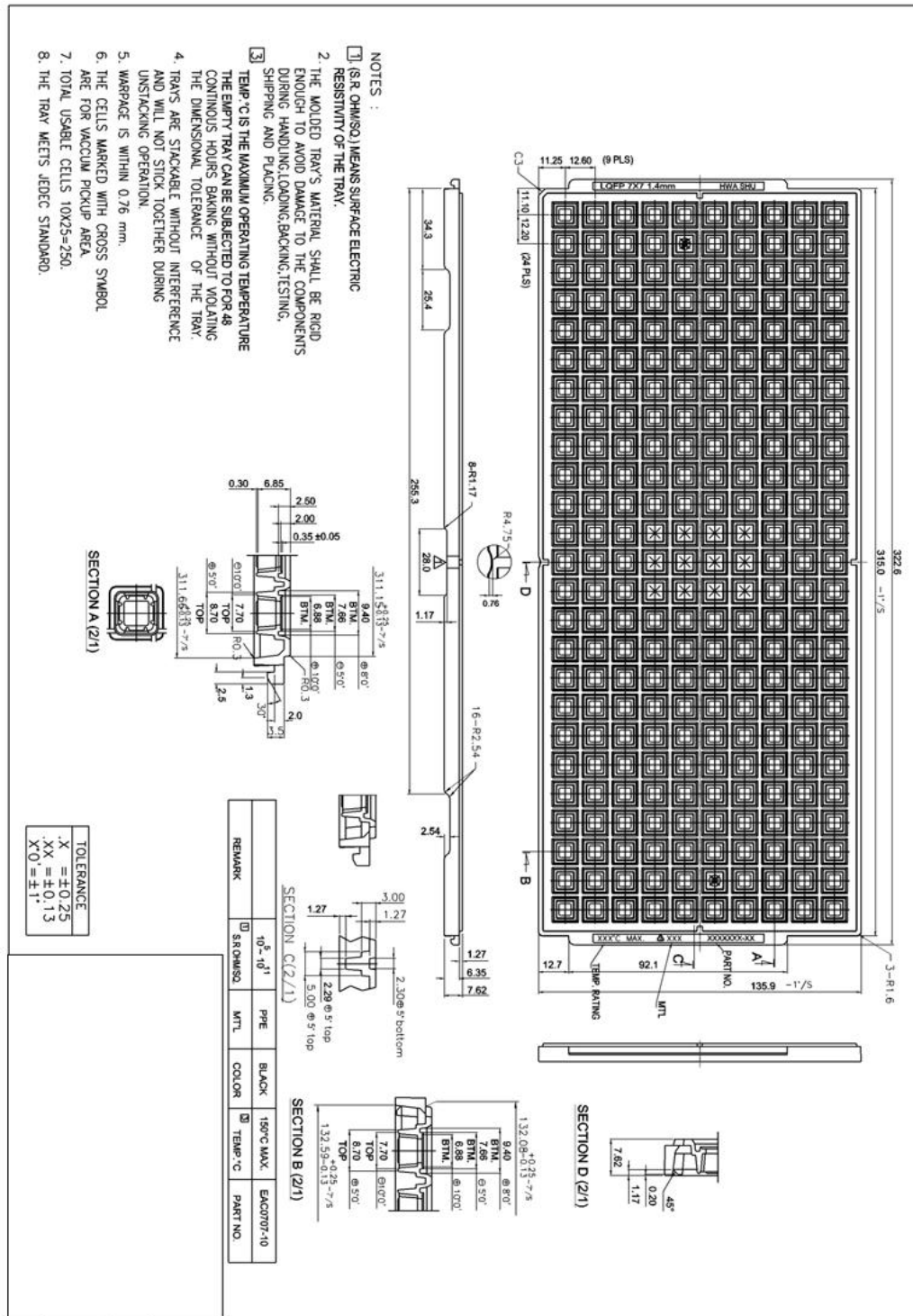


Figure 20.1 – FT232HL Tray Dimensions