

MODCO Inc.

PROCESS INSTRUCTION:

Tape and Reel Specification

Revision history:

<i>Rev</i>	<i>Date</i>	<i>Description</i>
A	10/10/06	Release (Document only change added MMF to table 1 1/25/07)
B	01/29/07	Add orientation D to Fig. 1
C	04/12/07	Add VS to Table 1
D	10/31/07	Correct MMF orientation in Table 1 from D to C. Add label requirements.

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POLICY:

This document describes the tape and reel requirements for all Modco, Inc. voltage controlled oscillators. It applies to all Modco employees and outside service providers. The requirements in this document are based on EIA-481-C.

EQUIPMENT:

N/A

SET UP:

N/A

PROCEDURE:

1.Product orientation.

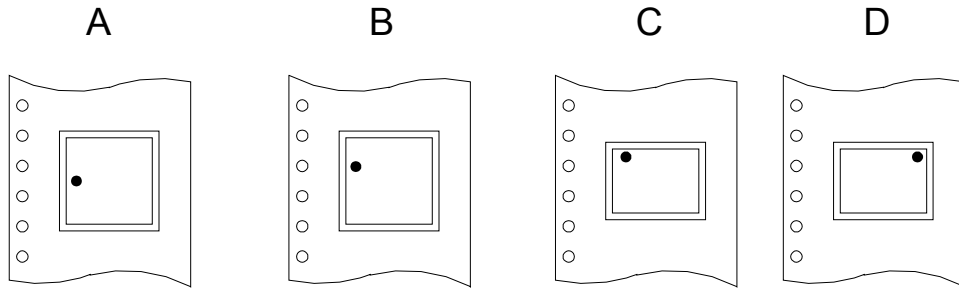


Fig. 1 (Dot indicates V_{cc})

Table 1 Component orientation and tape size by product family.

<i>Package Type</i>	<i>Figure1 reference</i>	<i>Tape Size</i>
VS	A	12mm
MMS	A	12mm
MMF	C	12mm
UM	A	16mm
UML	A	16mm
SM	A	24mm
SML	B	16mm
MS	B	24mm
MST	B	24mm
S	B	TBD
FC	C	16mm
MLM	C	16mm
MLN/MQS	C	24mm

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2. Dimensional requirements.

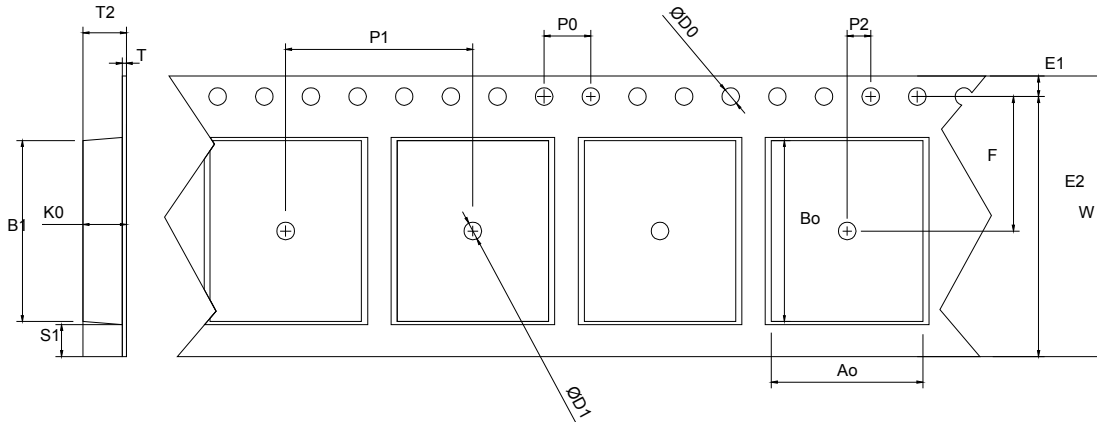


Fig. 2

Table 2 Tape Constant Dimensions

Tape Size(mm)	D0 (mm)	D1 min (mm)	E1 (mm)	P0 (mm)	P2 (mm)	S1 min See note 3 (mm)	T Max.	T1 Max.
12	1.5 +0.1 -0.0	1.5	1.75±0.1	4.0±0.1	2.0±0.1	0.6	0.6	0.1
16								
24								
44	1.5 +0.1 -0.0	2.0	1.75±0.1	4.0±0.1	2.0±0.15	0.6	0.6	0.1

Table 3 Tape Variable Dimensions

Tape Size(mm)	B1 Max.	E2 Min.	F	P1	T2 Max.	W Max.	A0, B0 & K0
12	8.2	10.25	5.5±0.05	2.0±0.05 or 4.0±0.1 or 8.0±0.1	6.5	12.3	See Note 1
16	12.1	14.25	7.5±0.1	4.0±0.1 to 12.0±0.1 in 4.0 increments	8.0	16.3	
24	20.1	22.25	11.5±0.1	4.0±0.1 to 20.0±0.1 in 4.0 increments	12.0	24.3	
44	35.0	N/A	20.2±0.10	4.0±0.1 to 44.0±0.1	16.0	44.0±0.3	

Notes

1. A0, B0, and K0 must be such that;
 - a) The component is contained below the top surface of the carrier tape.
 - b) The cavity does not restrict removal of the component.
 - c) The cavity does not restrict the removal of the component
 - d) Rotation is limited to 20° (8 and 12 mm) or 10° (16, 24 and 44mm).
 - e) Side to side movement is restricted to 0.5mm for 8 & 12 mm and 1.0 for 16, 24, and 44 mm tape.

3.Reel general dimensions.

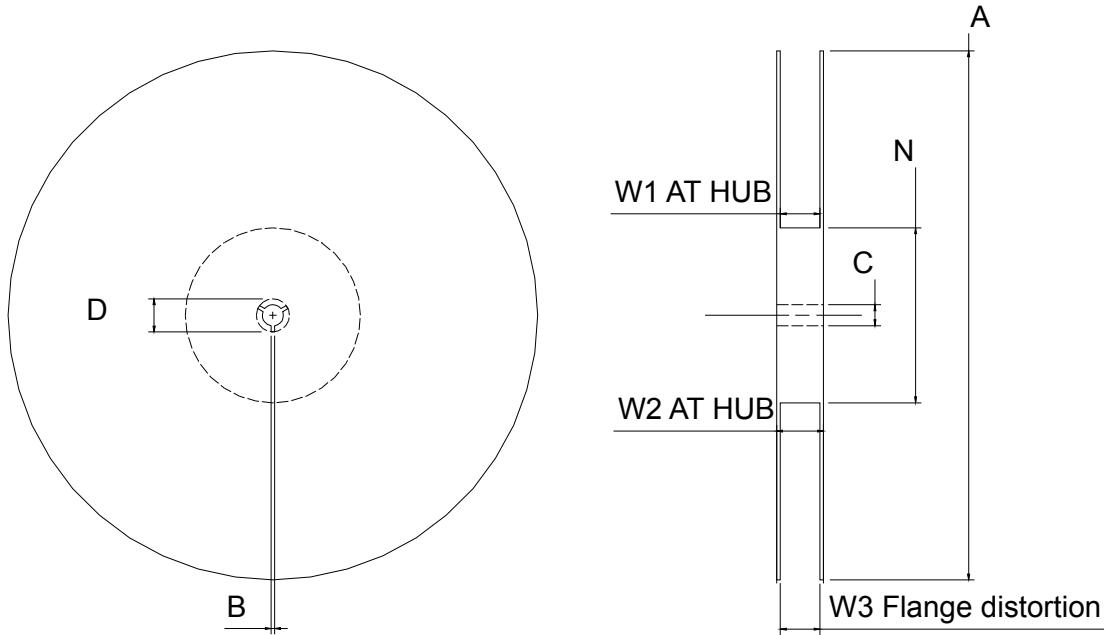


Fig. 3

Table 5 Reel Constant Dimensions

Tape Size (mm)	A Max.	B Min	C	D Min.
12mm to 200mm	609	1.5	13.0 +0.5 -0.2	20.2

Table 6 Reel Variable Dimensions

Tape Size (mm)	N Min. See Note	W1	W2 Max	W3
12	50	12.4 +2.0/-0.0	18.4	Must not interfere with tape.
16		16.4 +2.0/-0.0	22.4	
24	60	24.4 +2.0/-0.0	30.4	

Note: Radius must be large enough that the tape will not be damaged when loaded with components and passed around N.

4. Label Requirements.

4.1 Internal labeling:

Each reel shall be labeled with the Modco part number and quantity of parts on the reel.

Unless otherwise specified on the purchase order all products will be labeled as RoHS compliant.

Unless otherwise specified on the purchase order all Modco products will be labeled to indicate a moisture sensitivity level (MSL) of 1.

4.2 Over pack labeling:

Same as reel

4.3 Additional label requirements:

Any additional label requirements, such as bar coding, will be as defined on the purchase order.