

Specification No: ADI0421 Rev. HH  
 TITLE: ADI Standard Tape And Reel Procedures

### REVISION HISTORY

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ECN #	DATE	REV	AUTHOR	DESCRIPTION OF CHANGE
WIL111501	01Oct14	GL	R. Macaraeg	Add AD5592R and AD5593R to table 2 and Correct the ADAU1772 orientation to C2
WIL112284	10Nov14	GM	K. O'Donnell	Add ADPD103 WLCSP to table 2.
WIL112526	27Nov14	GN	S. Kudtarkar	Add ADP5350 WLCSP to Table 2.
WIL112865	17Dec14	GO	R. Cezar	Add specific AD51/098Z-ORL7 as exemption on Table 4 special orientation.
WIL113300	26Jan15	GP	R. Macaraeg	Add ADUX1050 and AD5668 in table 2
WIL113826	11Feb15	GQ	R. Macaraeg	Update Package Designator for ADUX1050 from CB to CD
WIL113960	16Feb15	GR	O. Gilligan	Update to AD5840. Changed the Package designator from CB to CD. Corrected the Device Package type from WLCSP to Bumped chip and corrected Pin #1 Orientation from CI to C1.
WIL114521	22Mar15	GS	H. Morse	Add 2.8x6.5x1.55 LGA_CAV to table 1
WIL114976	19Apr15	GT	R. Macaraeg	Add AD5841 at Table 2
WIL115138	28May15	GU	K. O'Donnell	Change Die Size of ADPD103 due to silicon revision to increase the die size.
WIL115846	16Jun15	GV	I. Oh	Add the 7x7x0.75 mm LFCSP-SS to the table 1 Standard Package Tape & Reel
WIL115992	01Jul15	GW	R. Macaraeg	Add AD5842 and AD81005 at Table 2. Add LFCSP 5x5x0.90 at Table 1
WIL116437	03Aug15	GX	E. Bunagan	Add 5x4x0.75mm LFCSP and 11x11 CSPBGA at Table 1
WIL116840	14Aug15	GY	R. Macaraeg	Update AD81005 reel 7 quantity at table 2
WIL117039	25Aug15	GZ	K. O'Donnell	Add AD80396, ADuCM3029, ADPD104 and ADADN8080 WLCSP. Change ADP5350 X-dimension (3250 to 3400 um).
WIL117512	02Oct15	HA	K. O'Donnell	Change ADADN8080 WLCSP Tape width from 12 mm to 16 mm.
WIL117903	30Oct15	HB	R. Macaraeg	Add AD81006 and AD5665 for reel 7 and 13 carrier tape in Table 2.

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ECN #	DATE	REV	AUTHOR	DESCRIPTION OF CHANGE
LIM056577	13Nov15	HC	R. McGeehan	<p>Correct AD5628/AD5668 Z die size from 356um to 650um.</p> <p>Correct AD5665 die size from 2645x2645x356um to 1705x2285x650um.</p> <p>Add AD5629, AD5648, AD5649, AD5669 &amp; AD5678 to AD5628/AD5668 line.</p> <p>Add AD5625, AD5625R, AD5627, AD5627R, AD5645R, AD5647R, AD5665R, AD5667, AD5667R to AD5665 line.</p> <p>Add AD5623R, AD5624, AD5624R, AD5643R, AD5644R, AD5663, AD5663R, AD5664 &amp; AD5664R.</p>
WIL118475	09Dec15	HD	H. Morse	Change lead counts for 2x2 LFCSP from 8, 10 to All lead counts, adding 6 ld package. Add ADV7535 to table 2.
WIL118657	10Jan16	HE	S. Kudtarkar	Add 3 products - ADP165 (Bumped Chip), AD80397, AD8233.
WIL119010	27Jan16	HF	K. Cataytay R. McGeehan	<p>Add 4x4x0.95 and 8x7x0.75 LFCSP to Table 1.</p> <p>Correct C3 and C4 orientations in section 5.3.2, which were accidentally swapped in Rev HC.</p>
WIL119294	12Feb16	HG	S. Kudtarkar	Change the orientation from C1 to C2 for AD8233 and ADP5350.
WIL119715	10Mar16	HH	D.Burgos	Added the pin 1 orientation standard of Chelmsford parts for LFCSP packages in Table 1.

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## 1.0 OBJECTIVE

This document outlines processing and packaging requirements for standard ADI products shipped in Tape and Reel format.

## 2.0 SCOPE

This specification applies to all standard ADI products processed both within ADI and at qualified subcontractors.

This specification will be followed for all of ADI tape and reel requirement, unless otherwise special instructions are given through the test lot travelers, assembly/test release form or Purchase Order.

## 3.0 REFERENCE DOCUMENTS

<a href="#">ADI0355</a>	ADI Warehouse Operation Procedure
<a href="#">ADI0028</a>	ADI External Visual Inspection Specification
<a href="#">ADI0326</a>	ADI Dry Pack Specification
<a href="#">ADI0585</a>	ADI Standard Tube and Tray Processes
<a href="#">ADI0862</a>	MEMS Requirements for Pack and Ship Materials
EIA-481	Taping of Surface Mount Components for Automatic Placement
EIA-481-1	8 mm & 12 mm Punched & Embossed Carrier Taping of Surface Mount Components for Automatic Handling
EIA-481-2	16 mm & 24 mm Punched & Embossed Carrier Taping of Surface Mount Components for Automatic Handling
EIA-481-3	32 mm, 44 mm & 56 mm Punched & Embossed Carrier Taping of Surface Mount Components for Automatic Handling
EIA-783	Design Rules for Tape & Reel Orientation

## 4.0 MATERIALS REQUIREMENTS

### 4.1 List Of Materials Required

<u>Item</u>	<u>Description</u>	<u>Controlling Specification</u>
a.	Pocket Tape	EIA-481
b.	Cover Tape	EIA-481
c.	Reels	EIA-481
d.	Shipping Boxes (Pizza Boxes)	ADI0355
e.	Standard Labels	ADI0355
f.	Dry Pack Labels	ADI0326
g.	Desiccant	ADI0326
h.	Moisture Barrier Bags	ADI0326
i.	APS Tape (or conductive/anti-static tape)	
j.	ESD Caution Label	ADI0326
k.	Humidity Indicator Cards	ADI0355
l.	ADI Logo Sealing Tape	ADI0355
m.	Dunnage	ADI0355
n.	Moisture Sensitive Identification Labels	ADI0326

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## 4.2 Electrical Requirements

Carrier tape, cover tape and reels shall meet the requirements of EIA-481 and the table below:

	<u>Material</u>	<u>Surface Resistivity</u>
<u>Cover Tape</u>	Static dissipative	> 1 x 10 <sup>5</sup> ohms/square and <10 <sup>12</sup> ohms/square
<u>Carrier Tape</u>	Static dissipative	> 1 x 10 <sup>5</sup> ohms/square and <10 <sup>12</sup> ohms/square
<u>Reels</u>	Static dissipative	> 1 x 10 <sup>5</sup> ohms/square and <10 <sup>12</sup> ohms/square

## 4.3 Processing Requirements for Bare Die Sales

4.3.1 Pick and place processing shall be performed under clean room requirements of less than Class 10,000.

4.3.2 Any amount of needle mark on back of die is NOT allowed.

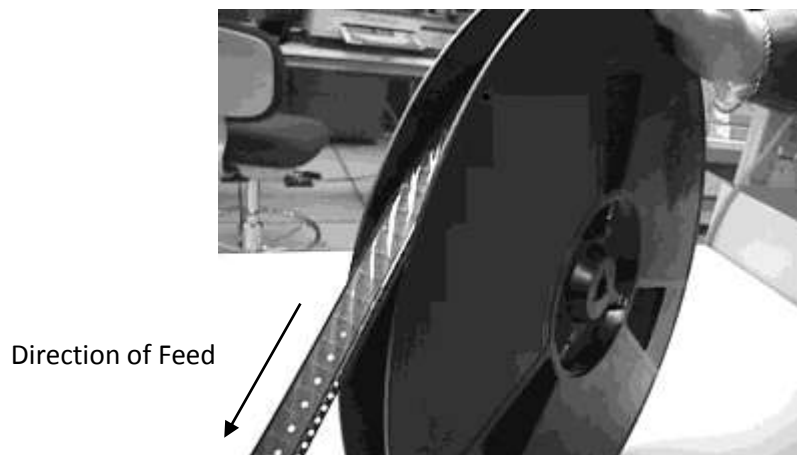
## 5.0 GENERAL PROCESSING REQUIREMENTS

### 5.1 Peel Back Strength

The peel back force will be between 10 and 100 g for 8 mm wide tape and 10g to 130g for tapes 12 mm and wider when tested at room temperature and pulled at a 175-180 degree angle with a peel-off speed of 300 +/- 10mm/min.

### 5.2 Direction of Feed

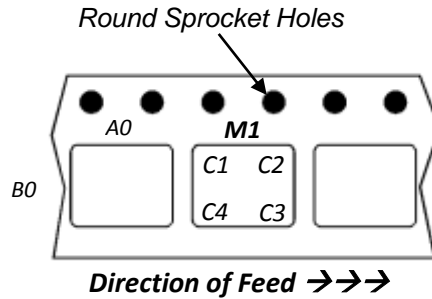
Direction of feed is defined as the direction which the end user unreels the tape. The direction of feed for all products shall be counter clockwise when the reel is held with the round sprocket holes facing the observer:



### 5.3 Pin #1 Orientation

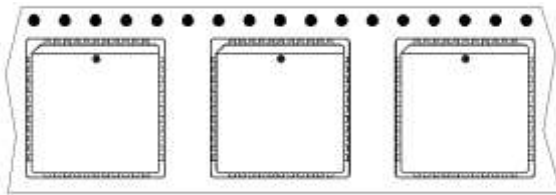
- 5.3.1 Devices shall be reeled such that pin #1 is oriented properly with respect to the direction of feed and round sprocket holes. (For clear LFCSP packages no pin 1 is visible on the top of the device. Reference the pin 1 chamfer on the bottom of the package to determine correct orientation in tape.)
- 5.3.2 Proper pin #1 orientation is denoted as C1 – C4 or M1 with respect to the direction of feed and round sprocket holes as defined below:

**Note: Any ECN to this specification that changes pin 1 orientation requires a test change TRB per ADI0755.**



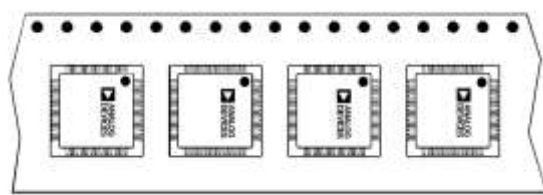
### 5.3.3 Examples of Standard Pin #1 Orientation

PLCC (M1)



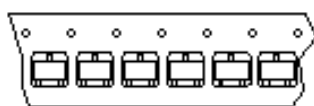
Direction of Feed →→→

TQFP, LQFP, MQFP, BGA, Square Body LFCSP (C2)



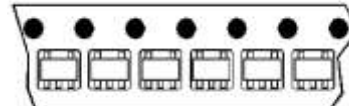
Direction of Feed →→→

SOT-23 (C4)



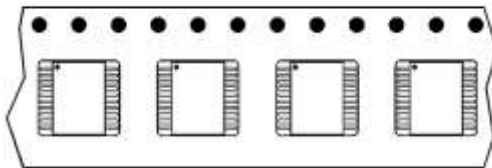
Direction of Feed →→→

SOT-25 (C4)



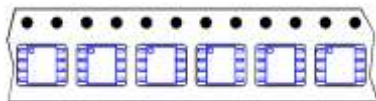
Direction of Feed →→→

SSOP, TSSOP, MINI SO (C1)



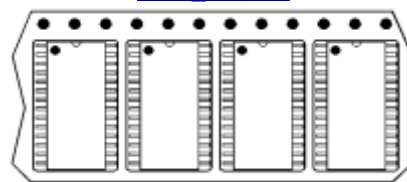
Direction of Feed →→→

SOIC N (C1)



Direction of Feed →→→

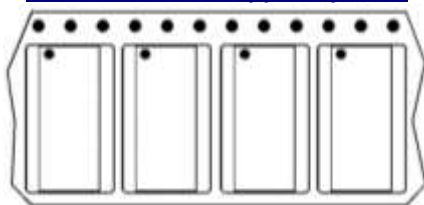
SOIC W (C1)



Direction of Feed →→→

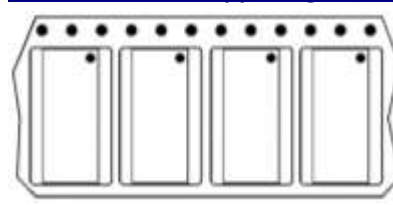
Rectangular LFCSP, CAV LGA (Non-Microphone)

When Pin1 is on upper left (C1)



Direction of Feed →→→

When Pin1 is on upper right (C2)



Direction of Feed →→→

## 5.4 Leader

The leader is an extra length of empty pockets run after the reel has been filled with the proper quantity of parts.

5.4.1 The leader must be a minimum of 400 mm in length.

5.4.2 The end of the leader is attached using adhesive tape with folded end. Refer to [Figure 1](#) below.

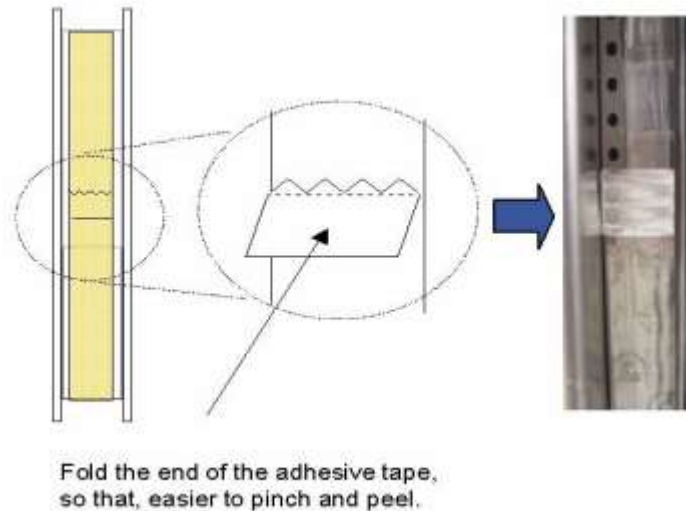


Figure 1

## 5.5 Trailer

The trailer is an extra length of empty pockets run prior to filling any pockets with components. The end of the trailer is attached to the reel hub.

5.5.1 For Packages, the trailer must be a minimum of 160 mm in length.

5.5.2 For Bare Die processing, the trailer shall have a minimum length of 500 mm.

5.5.3 For WLCSP/Bumped Die packages, the trailer must be a minimum of 160mm in length.

## 5.6 Cover tape

5.6.1 Cover tape may be sealable by heat or pressure.

5.6.2 The cover tape seal shall not cover any portion of the sprocket holes.

5.6.3 The cover tape shall not extend past the edge of the carrier tape.

5.6.4 The cover tape shall have a break force greater than 10N.



## 5.7 Other Requirements

- 5.7.1 Tapes and their Packaged Components or Bare Die will be capable of withstanding a relative humidity of 40-80% at a temperature of 10 degrees C to 40 degrees C for 12 Months.
- 5.7.2 Materials used shall be of a chemical composition which will not affect the electrical or mechanical characteristics or marking of the component.
- 5.7.3 No Splicing of carrier tape or cover tape is allowed.
- 5.7.4 Tapes in adjacent layers shall not stick together.
- 5.7.5 Packaged Components or Bare Die will not stick to carrier or cover tape.
- 5.7.6 For minimum bend radius see EIA-481.
- 5.7.7 For physical dimensions of carrier tapes see EIA-481.
- 5.7.8 For Physical dimensions of reels see EIA-481. Any items not specifically covered by this document shall be as specified in EIA 481 specifications.

## 5.8 Populating Reels

- 5.8.1 Packaged Component Parts may be combined within a reel as long as:
  - The maximum number of dates codes is three or less
  - Total time difference between the oldest and newest date codes is  $\leq 13$  weeks.
  - All units within the lot are marked via the same method (i.e. all ink, all laser or all multigrade (ink & Laser)).
  - All units within the lot are marked with the same top mark format (e.g. all have same ADI Logo dimensions and font).
  - All lots are assembled at the same assembly site
  - All lots are tested via the same method- singulated test and strip test lots may not be combined.
  - The test program revision is the same
  - The test program revision is not on the label
- 5.8.2 More than one Bare Die Wafer Lot may NOT be mixed in a single pocket tape reel, except for the last reel where a lot can be completed with the start of the next wafer lot. For this exception, both wafer lot numbers must be contained on the label of the combined reel.

Example: Wafer Lot "X" with 34,000 die is reeled into 6 reels of 5,000 die each and 1 reel of 4,000 die plus 1,000 die from Wafer Lot "Y". Both lot numbers must be contained on the label of the combined reel.

- 5.8.3 Two or more consecutive empty pockets between first and last parts in any reel are not allowed. Total number of empty pockets in reel shall not exceed requirements of EIA-481.

## 5.9 Logistics Issues

- 5.9.1 Lots should be processed on a first in first out basis (FIFO).
- 5.9.2 For each lot shipped from a subcontractor, ADI should receive a transaction using the ADI generated lot number (i.e. P1111.1).
  - Partial shipments should have the final ship flag set to "No" or SHIPMENT\_STATUS is not set on EDI.



- Upon completion of a lot, set the final ship flag to “Yes” or SHIPMENT\_STATUS to “Projected Final” on EDI.

- 5.9.3 After reeling, any quantity less than a full reel remaining should be merged with the next lot of like material to be reeled following the merging guidelines in section [5.8](#).
- 5.9.4 If a Packaged lot cannot be merged because it does not meet the date code specification, it will be dispositioned via ECN by the ADI process controlling residual lot disposition.
- 5.9.5 If a residual lot is unable to merge because of lack of material, then the processing site should review assembly WIP for material of the same device. If material is found in assembly WIP, the commit date for the residual lot should be set to align with this material. If there is no material of the same device in assembly WIP, then four weeks should be added to the original commit date.

## 6.0 TAPE AND REEL PROCESS DESCRIPTION

### 6.1 If required by ADI0326, bake Packaged devices prior to Tape & Reeling.

### 6.2 Tape and Reel appropriate quantity of components as follows:

- 6.2.1 Packaged devices shall be 100% inspected for lead or bump damage, mark legibility and pin #1 orientation per requirements of [ADI0028](#) or the appropriate package outline drawing.
- 6.2.2 Bare Die shall be 100% inspected to criteria specified by ADI.
- 6.2.3 Reel quantity, tape width, pitch and pin#1 orientation are as specified in Tables 1-5.
- 6.2.4 Affix end of trailer to the inner diameter of the reel hub using a piece of APS tape.
- 6.2.5 Reel devices until the required quantity of parts is reached.
- 6.2.6 Reel extra pockets of empty tape to create a leader of the appropriate length.
- 6.2.7 Affix the leader to the reel using a piece of APS tape.
- 6.2.8 SMALL QUANTITY REEL
- 6.2.8.1 Some small packages are available in smaller quantity reels (250/reel or 500/reel). All requirements of this specification apply, with the exception of the quantity, which is either 250/reel or 500/reel. Packages available for the small quantity reel process are listed in [Table 3](#).
- 6.2.8.2 A 500/reel and 250/reel quantity should NOT be offered at the same time for the same package generic.
- 6.2.8.3 WLCSP is not anymore offered in small quantity reel since [ADI0421 Rev DG](#).
- 6.2.8.4 SOT small quantity reel in 250/reel will continue on (as necessary) and produced through reel-to-reel process from a larger reel. SOT cannot be offered in quantity 500/reel.
- 6.2.8.5 2x2 LFCSP small quantity reels are processed at the production site.

### 6.3 Notes for Tables 1 - 5

- 6.3.1 [Note 1.](#) For SOT-23 packages prior to REV W all products and lead counts use RT. For SOT-23 packages from REV W all new products with greater than 3 leads use the RJ designator. Please refer to [Table 4](#) for SOT-23 generics that are listed under Product Specials.
- 6.3.2 [Note 2.](#) Advantek part number Q14X14-HHX52.OP2 is the only approved carrier tape for this package. When boxing this reel, dunnage (crumpled kraft paper) shall be used between the reel
- 6.3.3 [Note 3.](#) For Bumped Die or WLCSP packages see [Table 2](#). Orientation for these devices is as per EIA783. (Bumps facing bottom of carrier cavity. Pin 1 towards sprocket holes).
- 6.3.4 [Note 4.](#) WLCSP had stopped offering small quantity reel since [ADI0421 Rev DG](#).
- 6.3.5 [Note 5.](#) C-Pak part number 4205418-2/A (BD0090X0090) is the only approved carrier tape for the ADL5500 WLCSP.
- 6.3.6 [Note 6.](#) Small quantity reel options must be offered only if the cost for the smallest standard reel (in Tables 1, 2, 4 and 5) is > \$2,000. Please refer to section [6.2.8](#) for other guidelines on SMALL QUANTITY REEL.
- 6.3.7 [Note 7.](#) Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.
- 6.3.8 [Note 8.](#) Please refer to [Table 3](#) for FG models with partname ending in R2 or R5.
- 6.3.9 [Note 9.](#) This is a product special (ADXL362) on a 7" reel with a trailer 1250 empty pockets and a Standard leader of 75 pockets. This will prevent damage to the pocket tape when vacuum sealed.



**Table 1: Standard Package Tape & Reel [Note 3](#). For Bumped Die or WLCSP packages see [Table 2](#). Orientation for these devices is as per EIA783. (Bumps facing bottom of carrier cavity. Pin 1 towards sprocket holes). & [Note 8](#). Please refer to [Table 3](#) for FG models with partname ending in R2 or R5.**

DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
PLCC	P	N/A	20	250	1000	n/a	16	12	M1
PLCC	P	N/A	28, 32	not offered	750	n/a	24	16	M1
PLCC	P	N/A	44	not offered	500	n/a	32	24	M1
PLCC	P	N/A	68	not offered	n/a	250	44	32	M1
PLCC	P	N/A	84	not offered	n/a	250	44	36	M1
JLCC	J	N/A	28	not offered	250	n/a	24	16	M1
JLCC	J	N/A	44	not offered	500	n/a	32	24	M1
LCC	E	N/A	8	250	3000	n/a	12	8	M1
LCC_V	EY	9x9	All	not offered	500	n/a	24	12	C4
SOIC_N SOIC_N_EP	R/RD	N/A	8	1000	2500	n/a	12	8	C1
SOIC_N SOIC_N_EP	R/RD	N/A	14, 16	1000	2500	n/a	16	8	C1
QSOP	RQ/RC	N/A	16	1000	2500	n/a	12	8	C1
QSOP	RQ	N/A	20, 24, 28	1000	2500	n/a	16	8	C1
SOIC_W SOIC_W_BAT	RW/RB	N/A	14, 16	400	1000	n/a	16	12	C1
SOIC_W SOIC_W_BAT	RW/RB	N/A	18	400	1000	n/a	24	16	C1
SOIC_W SOIC_W_BAT	RW/RB	N/A	20, 24	400	1000	n/a	24	12	C1
SOIC_W SOIC_W_BAT	RW/RB	N/A	28	400	1000	n/a	32	12	C1
SOIC_CAV	RG	N/A	16	not offered	500	n/a	24	16	C1
SOIC_IC	RI	N/A	8	400	1500	n/a	16	12	C1
SOIC_IC	RI	N/A	16	400	1000	n/a	24	12	C1
SOIC_IC	RI	N/A	20	400	1000	n/a	24	12	C1
SSOP	RS	N/A	16,20, 24	500	1500	n/a	16	12	C1
SSOP	RS	N/A	28	500	1500	n/a	24	12	C1
PSOP2	RP	N/A	20,28	200	1000	n/a	24	12	C1
PSOP3	RR	N/A	20	not offered	750	n/a	24	20	C1
SOT_23_3	RT	N/A	3	3000	10000	n/a	8	4	C4
SOT_23 <a href="#">Note 1</a> . For SOT-23 packages prior to REV W all products and lead counts use RT. For SOT-23 packages from REV W all new products with greater than 3 leads use the RJ designator. Please refer to <a href="#">Table 4</a> for SOT-23 generics that are listed under Product Specials.	RJ/RT	N/A	5,6,8	3000	10000	n/a	8	4	C4
SOT_66	RY	N/A	5,6	3000	n/a	n/a	8	4	C4
SOT-143	RA	N/A	4	3000	10000	n/a	8	4	C4
TSOT	UJ	N/A	5,6,8	3000	10000	n/a	8	4	C4
SOT-223	KC	N/A	3	500	2500	n/a	16	12	C4
SC70	KS	N/A	3,4,5,6	3000	10000	n/a	8	4	C4

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DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
SOT-89	RK	N/A	3	1000	3000	n/a	12	8	C1
TSSOP_4.4	RU/RE	N/A	8, 14, 16, 20, 24, 28,38	1000	2500	n/a	16	8	C1
TSSOP_6.1	RV	N/A	28, 48	not offered	2500	n/a	24	12	C1
Micro-SOIC	RM/RH	N/A	8,10	1000	3000	n/a	12	8	C1
CERPAK	QC	N/A	14	not offered	750	n/a	24	16	C1
TQFP	SU/SV	7 x 7 x 1.0	All Counts	500	2000	not offered	16	12	C2
TQFP	SU/SV	10x10x1.0	All Counts	not offered	1500	not offered	24	16	C2
TQFP	SU/SV	12x12x1.0	All Counts	not offered	1000	not offered	24	24	C2
TQFP	SU/SV	14x14x1.0	All Counts	not offered	1000	not offered	32	24	C2
LQFP	ST	7 x 7 x 1.4	All Counts	500	2000	not offered	16	12	C2
LQFP	ST/SW	10 x 10 x 1.4	All Counts	not offered	1500	not offered	24	16	C2
LQFP	ST	12 x 12 x 1.4	All Counts	not offered	1000	not offered	24	24	C2
LQFP	ST/SW	14 x 14 x 1.4	All Counts	not offered	1000	not offered	32	24	C2
LQFP	ST	14 x 20 x 1.4	All Counts	not offered	1000	not offered	44	24	C1
LQFP	ST/SW	20 x 20 x 1.4	All Counts	not offered	500	not offered	44	32	C2
LQFP	ST/SW	24 x 24 x 1.4	All Counts	not offered	450	not offered	44	32	C2
MQFP	S	10 x 10 x 2.0	All Counts	not offered	800	not offered	24	24	C2
MQFP	S	14 x 14 x 2.0	All Counts	not offered	600	not offered	32	24	C2
MQFP	S	14 x 14 x 2.7	All Counts	not offered	500 <a href="#">Note 2.</a> Advantek part number Q14X14-HHX52.OP2 is the only approved carrier tape for this package. When boxing this reel, dunnage (crumpled kraft paper) shall be used between the reel	not offered	32	24	C2
CSP_BGA	BC	5 x 5	All Counts	not offered	4000	not offered	12	8	C2
CSP_BGA_EM	BE	5 x 5	81	not offered	4000	not offered	12	8	C2
eWLB	BF	5 x 5	81,94	not offered	4000	not offered	12	8	C2
CSP_BGA	BC	6 x 6	All Counts	not offered	2500	not offered	12	8	C2
CSP_BGA	BC	7x7	All Counts	not offered	2000	not offered	16	12	C2
CSP_BGA	BC	8 x 8	All Counts	not offered	2000	not offered	16	12	C2
CSP_BGA	BC	9 x 9	All Counts	500	2000	not offered	16	12	C2
CSP_BGA	BC	10 x 10	All Counts	400	1500	not offered	24	16	C2

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DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
CSP_BGA	BC	11 x 11	All Counts	not offered	1500	not offered	24	16	C2
CSP_BGA	BC	12 x 12	All Counts	not offered	1500	not offered	24	16	C2
CSP_BGA	BC	13 x 13	All Counts	not offered	1000	not offered	24	24	C2
CSP_BGA	BC	15X15	All Counts	Not offered	1000	Not offered	24	24	C2
CSP_BGA	BC	17x17	All Counts	not offered	1000	not offered	24	24	C2
CSP_BGA	BC	19x19	All Counts	not offered	not offered	700	32	24	C2
BGA_ED	BP	12 x 12	196	not offered	1500	not offered	24	16	C2
BGA	B	19x19	All Counts	not offered	not offered	700	32	24	C2
BGA	B	23 x 23	All Counts	not offered	not offered	450	44	32	C2
BGA	B	27x27	All Counts	not offered	not offered	450	44	32	C2
BGA	B	35 x 35	All Counts	not offered	not offered	300	56	40	C2
CBGA	BG	7x7	32 balls	not offered	500	not offered	16	12	C2
LGA	CC	3x3_MM	All Counts	1500	5000	not offered	12	8	C2
LGA	CC	3x3.25_MM	All counts	1500	5000	Not offered	12	8	C1
LGA	CC	3x5_MM	All Counts	1500	5000	not offered	12	8	C1
LGA	CC	3.5 x 4.5_MM	24	1500	5000	not offered	12	8	C1
LGA	CC	5x5_MM	8, 20	1000	4000	not offered	12	8	C2
LGA	CC	5x5_MM	13	1000	4000	not offered	12	8	C1
LGA	CC	6 x 8_MM	All Counts	1000	4000	not offered	16	8	C1
LGA	CC	7x7x0.96	32	750	2500	Not offered	16	12	C2
LGA	CC	8 x 10_MM	All Counts	not offered	2000	not offered	24	12	C1
LGA	CC	10 x 10_MM	All Counts	not offered	2000	not offered	24	12	C2
LGA_CAV <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.35x2.5x1.0	3	1000	10000	not offered	12	4	C3
LGA_CAV <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.35x2.5x.98	3	1000	10000	not offered	12	4	C3
LGA_CAV <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.35x2.5x.92	3	1000	10000	not offered	12	4	C3
LGA_CAV <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.35x2.5x0.88	3	1000	10000	not offered	12	4	C3

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DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
LGA_CAV <a href="#">Note 7</a> . Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.76x4.72x1.0	6	1000	4500	not offered	12	8	C3
LGA_CAV <a href="#">Note 7</a> . Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.76x4.72x0.98	9	1000	4500	not offered	12	8	C3
LGA_CAV <a href="#">Note 7</a> . Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	CE	3.76x4.72x3.50	6	500	2000	not offered	12	8	C3
LGA_CAV	CE	4x3x1.2	16	1000	4000	not offered	12	8	C2
LGA_CAV	CE	5x2.8x1.2	12	1000	4000	not offered	12	8	C1
LGA_CAV	CE	5x2.8x1.45	12	1000	4000	not offered	12	8	C1
LGA_CAV	CE	5.8x4.5x1.2	18	1000	4000	Not offered	12	8	C1
LGA_CAV	CE	6.5x2.8x1.2	14	1000	4000	not offered	16	8	C1
LGA_CAV	CE	6.5x2.8x1.55	14	1000	4000	not offered	16	8	C1
LFCS	CP	1.3x1.6x0.55	All Counts	3000	10000	not offered	8	4	C1
LFCS	CP	1.6x1.6x0.55	6	3000	10000	not offered	8	4	C2
LFCS	CP	2x2x0.55	All Counts	3000	10000	not offered	8	4	C2
LFCS (Chelmsford)	CP	2x2x0.9	All Counts	500	10000	Not offered	8	4	C1
LFCS	CP	2.1x2.1x0.55	All Counts	3000	10000	not offered	8	4	C1
LFCS	CP	2x3x0.65	8	3000	10000	not offered	12	4	C2
LFCS	CP	2x3x0.75	All Counts	3000	10000	not offered	12	4	C2
LFCS	CP	3x2x0.75	All Counts	3000	10000	not offered	12	4	C1
LFCS	CP	3x2x0.85	All Counts	3000	10000	not offered	12	4	C1
LFCS (Chelmsford)	CP	3x3x0.9	All Counts	500	10000	Not offered	12	4	C1
LFCS	CP	3x3x0.85	All Counts	1500	5000	not offered	12	8	C2
LFCS	CP	3x3x0.75	All Counts	1500	5000	not offered	12	8	C2
LFCS	CP	3x3x0.55	All Counts	1500	5000	not offered	12	8	C2
LFCS	CP	3x3x0.65	8	1000	5000	not offered	12	8	C2
LFCS	CP	3x3x1.45	All Counts	1000	4000	not offered	12	8	C2
LFCS	CP	3.5x3.5x0.75	24	1500	not offered	not offered	12	8	C2
LFCS	CP	3x5x1.45	All Counts	1000	4000	not offered	12	8	C1
LFCS	CP	4x3x0.65	10	1000	5000	not offered	12	8	C2

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DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
LFCSP	CP	4x3x0.75	14	1500	5000	not offered	12	8	C1
LFCSP	CP	4x4x0.65	10	1000	5000	not offered	12	8	C2
LFCSP	CP	4x4x0.75	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	4x4x0.85	All Counts	1500	5000	not offered	12	8	C2
LFCSP (Chelmsford)	CP	4x4x0.9	All Counts	500	5000	Not offered	12	8	C1
LFCSP	CP	4x4x0.95	All Counts	1500	5000	Not offered	12	8	C2
LFCSP	CP	4x4x1.45	All Counts	1000	4000	not offered	12	8	C2
LFCSP_SS	CS	4x4x1.45	All Counts	1000	4000	not offered	12	8	C2
LFCSP	CP	4x5x0.75	24	1500	5000	not offered	12	8	C1
LFCSP	CP	4x5x0.90	All Counts	1500	5000	not offered	12	8	C1
LFCSP	CP	4x5x0.95	24	1500	5000	not offered	12	8	C1
LFCSP	CP	5x5x0.75	All Counts	1500	5000	not offered	12	8	C2
LFCSP_SS	CS	5x5x0.75	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	5x5x0.85	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	5x5x0.90	All Counts	1500	5000	not offered	12	8	C2
LFCSP (Chelmsford)	CP	5x5x0.90	All Counts	500	5000	Not offered	12	8	C1
LFCSP	CP	5x5x0.95	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	5x5x1.45	All Counts	1000	4000	not offered	12	8	C2
LFCSP	CP	5x4x0.75	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	5x4x0.95	All Counts	1500	5000	not offered	12	8	C2
LFCSP	CP	6x6x0.75	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	6x6x0.85	All Counts	750	2500	not offered	16	12	C2
LFCSP (Chelmsford)	CP	6x6x0.85	All counts	500	2500	Not offered	16	12	C1
LFCSP	CP	6x6x0.95	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	7x7x0.75	All Counts	750	2500	not offered	16	12	C2
LFCSP_SS	CS	7x7x0.75	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	7x7x0.85	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	7x7x0.95	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	8x7x0.75	All Counts	750	2500	Not offered	16	12	C2
LFCSP	CP	8x8x0.75	All Counts	750	2500	not offered	16	12	C2

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DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)	13" REEL (6" Hub)			
LFCSP	CP	8x8x0.85	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	9x9x0.75	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	9x9x0.85	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	9x9x0.95	All Counts	750	2500	not offered	16	12	C2
LFCSP	CP	10x10x0.85	All Counts	400	2000	not offered	24	16	C2
LFCSP	CP	12x12x0.85 12x12x0.80	All Counts	400	2000	not offered	24	16	C2



Table 2: WLCSP/Bumped Die/Embedded Die Sale Tape &amp; Reel

GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
AD15/416	WLCSP	CB	1960	2460	600	N/A	3,000	10,000	8	4	C2
AD5398	WLCSP	CB	1515	1690	655	N/A	3,000	10,000	8	4	C1
AD5592R AD5593R	WLCSP	CB	2000	2000	650	N/A	3,000	N/A	8	4	C1
AD5628 AD5629 AD5648 AD5649 AD5668 AD5669 AD5678	WLCSP	CB	2645	2645	650	N/A	3,000	10,000	8	4	C1
AD5625 AD5625R AD5627 AD5627R AD5645R AD5647R AD5665 AD5665R AD5667 AD5667R	WLCSP	CB	1705	2285	650	N/A	3,000	10,000	8	4	C1
AD5623R AD5624 AD5624R AD5643R AD5644R AD5663 AD5663R AD5664 AD5664R	WLCSP	CB	1705	2285	650	N/A	3,000	10,000	8	4	C1
AD5755-1	WLCSP	CB	6300	6200	650	N/A	700	N/A	16	12	C1
AD5801	WLCSP	CB	3270	3170	655	N/A	1,500	5,000	12	8	C4
AD5801*	WLCSP	CB	3270	3170	555	N/A	1,500	5,000	12	8	C4
AD5804	Bumped Chip	CD	1900	800	330	N/A	3,000	10,000	8	4	C2
AD5805	WLCSP	CB	1170	1890	505	N/A	3,000	10,000	8	4	C1
AD5806	WLCSP	CB	2500	2500	656	N/A	3,000	10,000	8	4	C1
AD5807	WLCSP	CB	2810	1610	550	N/A	3,000	10,000	8	4	C2
AD5807A	WLCSP	CB	1610	3010	550	N/A	3,000	10,000	12	4	C2
AD5808	WLCSP	CB	3450	3450	650	N/A	1,500	5,000	12	8	C1
AD5810	WLCSP	CB	1500	2500	550	N/A	3,000	10,000	8	4	C2
AD5811	EWLP (PFM)	CN	1240	1870	200	N/A	3,000	10,000	8	4	C1
AD5811	WLCSP	CD	1240	1870	380	N/A	3,000	10,000	8	4	C1
AD5814	WLCSP	CB	2630	2700	550	N/A	3,000	10,000	12	4	C1
AD5815	Bumped Chip	CD	800	1400	330	N/A	3,000	10,000	8	4	C1
AD5816	Bumped Chip	CD	800	1400	330	N/A	3,000	10,000	8	4	C1
AD5816	EWLP (PFM)	CN	800	1400	150	N/A	3,000	10,000	8	4	C1

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
AD5817	Bumped Chip	CD	1630	1900	330	N/A	3,000	10,000	8	4	C1
AD5817	EWLP (PFM)	CN	1630	1900	330	N/A	3,000	10,000	8	4	C1
AD5819	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5819B	WLCSP	CB	1035	1500	350	N/A	3,000	10,000	8	4	C1
AD5820	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5820*	WLCSP	CB	1035	1500	555	N/A	3,000	10,000	8	4	C1
AD58201	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD58202	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5821	WLCSP	CB	1515	1690	655	N/A	3,000	10,000	8	4	C1
AD5822	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5823	Bumped Chip	CD	880	1250	330	N/A	3,000	10,000	8	4	C1
AD5823-1	Bumped Chip	CD	880	1250	330	N/A	3,000	10,000	8	4	C1
AD5824A	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5824B	WLCSP	CB	910	1410	550	N/A	3,000	10,000	8	4	C1
AD5825	WLCSP	CB	910	1410	550	N/A	3,000	10,000	8	4	C1
AD5826	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5826-1	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5827	WLCSP	CB	1035	1500	656	N/A	3,000	10,000	8	4	C1
AD5830	WLCSP	CB	1300	2100	380	N/A	3,000	10,000	8	4	C1
AD5831	WLCSP	CB	1300	2100	380	N/A	3,000	10,000	8	4	C1
AD5832	WLCSP	CB	880	2300	380	N/A	3,000	10,000	8	4	C1
AD5836	Bumped Chip	CD	880	2300	380	N/A	3,000	10,000	8	4	C1
AD5839	Bumped Chip	CD	880	1250	330	N/A	3,000	10,000	8	4	C1
AD5839-1	Bumped Chip	CD	880	1250	330	N/A	3,000	10,000	8	4	C1
AD5840	Bumped Chip	CD	800	3200	300	N/A	3,000	10,000	12	4	C1
AD5841	Bumped Chip	CD	1000	3400	300	N/A	3,000	10,000	12	4	C1
AD5842	Bumped Chip	CD	1250	3625	300	N/A	3,000	10,000	12	4	C1
AD6548	Bumped Chip	CD	3240	3140	350	N/A	N/A	3000	12	8	C2
AD6676	WLCSP	CB	4330	5080	660	N/A	N/A	2,000	12	8	C1
AD7146	WLCSP	CB	2295	2100	550	N/A	3,000	10,000	8	4	C2
AD7147A	WLCSP	CB	2295	2100	550	N/A	3,000	10,000	8	4	C2
AD7149	WLCSP	CB	2295	2100	550	N/A	3,000	10,000	8	4	C2
AD7160	WLCSP	CB	3400	3400	565	N/A	1,500	5,000	12	8	C1
AD7166	WLCSP	CB	3400	3400	565	N/A	1,500	5,000	12	8	C1
AD7689	WLCSP	CB	2430	2430	560	N/A	1,500	5,000	12	8	C1
AD7682	WLCSP	CB	2430	2430	560	N/A	1,500	5,000	12	8	C1
AD7737	WLCSP	CB	2370	2400	550	N/A	3,000	10,000	8	4	C1
AD7877	WLCSP	CB	2765	2545	600	N/A	3,000	10,000	8	4	C1
AD7879	WLCSP	CB	1600	2100	650	N/A	3,000	10,000	8	4	C1
AD7889	WLCSP	CB	1600	2100	690	N/A	3,000	10,000	8	4	C1

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
AD80216	WLCSP	CB	1500	2000	600	N/A	3,000	10,000	8	4	C1
AD81005	WLCSP	CB	3400	3800	565	N/A	1500	5000	12	8	C1
AD81006	WLCSP	CB	1000	2500	500	N/A	3000	10000	8	4	C1
AD9394	WLCSP	CB	1500	2000	600	N/A	3,000	10,000	8	4	C1
AD80244	WLCSP	CB	3500	3500	640	250	1500	5000	12	8	C1
AD80360	WLCSP	CB	5075	5075	560	N/A	N/A	2,000	12	8	C1
AD80396	WLCSP	CB	2260	2190	560	N/A	3,000	10,000	12	4	C1
AD80397	WLCSP	CB	2980	2880	560	N/A	3,000	10,000	12	4	C1
AD8233	WLCSP	CB	2080	1745	560	N/A	3,000	10,000	8	4	C2
AD8235	WLCSP	CB	1610	2080	660	N/A	3,000	10,000	8	4	C1
AD8311 AD8312	WLCSP	CB	1000	1500	596	250	3,000	N/A	8	4	C1
AD8506	WLCSP	CB	1460	1460	650	N/A	3,000	10,000	8	4	C1
AD8508	WLCSP	CB	1500	3000	660	N/A	3,000	10,000	12	4	C1
AD8605	WLCSP	CB	940	1330	496	N/A	4,000	15,000	8	4	C1
AD8606	WLCSP	CB	1400	1825	655	N/A	3,000	10,000	8	4	C1
AD9937	WLCSP	CB	2680	3740	660	N/A	3,000	5,000	12	4	C1
AD9938	Bumped Chip	CD	2675	4290	501	N/A	3,000	N/A	12	4	C1
AD9948 AD9949	WLCSP	CB	2710	3360	563	N/A	3,000	10,000	8	4	C1
ADA4505-1 AD8505	WLCSP	CB	945	1425	645	N/A	3,000	10,000	8	4	C1
ADA4505-2	WLCSP	CB	1460	1460	650	N/A	3,000	10,000	8	4	C1
ADA4505-4	WLCSP	CB	1500	3000	660	N/A	3,000	10,000	12	4	C1
ADA4556	WLCSP	CB	2475	2625	660	N/A	3,000	10,000	12	4	C1
ADA4701-1	WLCSP	CB	2030	2740	660	N/A	3000	10000	12	4	C1
ADA4691-2	WLCSP	CB	1250	1260	645	N/A	3,000	10,000	8	4	C1
ADADN8080	WLCSP	CB	6220	6220	660	N/A	N/A	1,000	16	8	C1
ADAU1301-00A ADAU1301-01A	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1301-9	Bumped Chip	CD	1260	880	350	N/A	5,000	10,000	8	4	C1
ADAU1302-1 ADAU1302-02	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1303-12 ADAU1303-22 ADAU1303-32	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1304-32	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1311-00	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1331-03	Bumped Chip	CD	1260	880	350	N/A	5,000	N/A	8	4	C1
ADAU1321-01	Bumped Chip	CD	1130	1330	350	N/A	5,000	N/A	8	4	C1
ADAU1371	WLCSP	CB	3300	2980	645	N/A	2,000	4,000	12	8	C2
ADAU1373	WLCSP	CB	4085	3860	560	N/A	1,000	3,000	12	8	C2
ADAU1381	WLCSP	CB	3440	2680	650	N/A	2,500	5,000	12	4	C2
ADAU1382	WLCSP	CB	3440	2680	650	N/A	2,500	5,000	12	4	C2
ADAU1772	WLCSP	CB	3805	3235	660	N/A	N/A	5,000	12	8	C2

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
ADAU7002	WLCSP	CB	800	1600	560	N/A	3000	10000	8	4	C1
ADCMP380	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADCMP385	WLCSP	CB	1500	1500	660	N/A	3,000	10,000	8	4	C1
ADDI9000	WLCSP	CB	4780	4970	650	N/A	N/A	2,000	12	8	C1
ADG3304	WLCSP	CB	1610	2010	655	N/A	3,000	10,000	8	4	C1
ADG3308	WLCSP	CB	1960	2460	600	N/A	3,000	10,000	8	4	C1
ADG787	WLCSP	CB	1500	2000	655	N/A	3,000	10,000	8	4	C1
ADG790	WLCSP	CB	2500	3000	656	N/A	3,000	10,000	8	4	C1
ADG819	WLCSP	CB	1140	2180	605	N/A	3,000	10,000	8	4	C1
ADG884	WLCSP	CB	1500	2000	655	N/A	3,000	10,000	8	4	C1
ADG888	WLCSP	CB	2000	2000	655	N/A	3,000	10,000	8	4	C1
ADL5500	WLCSP	CB	1000	1000	596	250	3000	10,000	8	4	C1
Note 5. C-Pak part number 4205418-2/A (BD0090X0090) is the only approved carrier tape for the ADL5500 WLCSP.											
ADL5502	WLCSP	CB	1500	1500	596	250	3,000	10,000	8	4	C1
ADL5503	WLCSP	CB	830	1230	596	250	3,000	10,000	8	4	C1
ADL5504											
ADL5505	WLCSP	CB	830	830	596	250	3,000	10,000	8	4	C1
ADL5506	WLCSP	CB	830	1230	560	250	3,000	10,000	8	4	C1
ADM8611	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8612	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8613	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8614	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8615	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8641	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8642	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADM8834	WLCSP	CB	2000	2000	605	N/A	4,000	15,000	8	4	C1
ADN8833	WLCSP	CB	2580	2580	660	N/A	1500	5000	12	8	C1
ADN8834											
ADP1190	WLCSP	CB	1200	1600	560	N/A	3,000	10,000	8	4	C1
ADP1190A											
ADP1196	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADP120-1	WLCSP	CB	860	860	660	N/A	3,000	N/A	8	4	C1
ADP121	WLCSP	CB	860	860	660	N/A	3,000	N/A	8	4	C1
ADP121-1	WLCSP	CB	860	860	660	N/A	3,000	N/A	8	4	C1
ADP1290	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADP130	WLCSP	CB	975	1190	660	N/A	3,000	10,000	8	4	C1
ADP150	WLCSP	CB	800	800	660	N/A	3,000	10,000	8	4	C1
ADP151											
ADP160	WLCSP	CB	990	1065	645	N/A	3,000	10,000	8	4	C1
ADP162											
ADP165	WLCSP	CB	990	1065	645	N/A	3,000	10,000	8	4	C1
ADP165	Bumped Chip	CD	990	1065	370	N/A	3,000	10,000	8	4	C1
ADP166	WLCSP	CB	990	1065	660	N/A	3,000	10,000	8	4	C1
ADP1649	WLCSP	CB	1540	2040	590	N/A	3,000	10,000	8	4	C1
ADP1650	WLCSP	CB	1540	2040	590	N/A	3,000	10,000	8	4	C1
ADP1654	WLCSP	CB	1540	2040	590	N/A	3,000	10,000	8	4	C1
ADP1655	WLCSP	CB	1540	2040	590	N/A	3,000	10,000	8	4	C1
ADP1658	WLCSP	CB	2000	3000	640	N/A	3,000	10,000	12	4	C1

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
ADP1660	WLCSP	CB	1695	2060	660	N/A	3,000	10,000	12	4	C1
ADP172	WLCSP	CB	990	1065	645	N/A	3,000	10,000	8	4	C1
ADP173	WLCSP	CB	800	800	560	N/A	3,000	10,000	8	4	C1
ADP190	WLCSP	CB	800	800	660	N/A	3,000	10,000	8	4	C1
ADP191											
ADP194	WLCSP	CB	800	800	560	N/A	3,000	10,000	8	4	C1
ADP195	WLCSP	CB	990	1065	645	N/A	3,000	10,000	8	4	C1
ADP196	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADP197	WLCSP	CB	1000	1500	660	N/A	3,000	10,000	8	4	C1
ADP198	WLCSP	CB	990	1065	645	N/A	3,000	10,000	8	4	C1
ADP199	WLCSP	CB	800	800	560	N/A	3,000	10,000	8	4	C1
ADP2108	WLCSP	CB	1065	1495	660	N/A	3,000	10,000	8	4	C1
ADP2109											
ADP2121	WLCSP	CB	940	1340	660	N/A	3,000	10,000	8	4	C1
ADP2125	Bumped Chip	CD	940	1340	405	N/A	3,000	10,000	8	4	C1
ADP2126	Bumped Chip	CD	940	1340	330	N/A	3,000	10,000	8	4	C1
ADP2127	EWLP	CN	940	1340	200	N/A	3,000	10,000	8	4	C2
ADP2138	WLCSP	CB	1070	1545	660	N/A	3,000	10,000	8	4	C1
ADP2139											
ADP2147	WLCSP	CB	1070	1545	660	N/A	3,000	10,000	8	4	C1
ADP220	WLCSP	CB	1000	1500	660	N/A	3,000	N/A	8	4	C1
ADP221	WLCSP	CB	1000	1500	660	N/A	3,000	N/A	8	4	C1
ADP221	Bumped Chip	CD	1000	1500	330	N/A	3,000	10,000	8	4	C1
ADP2370	WLCSP	CB	1645	2130	660	N/A	3,000	10,000	8	4	C1
ADP2505	WLCSP	CB	2000	2500	660	N/A	3,000	10,000	12	4	C1
ADP5020	WLCSP	CB	2420	2420	660	N/A	3,000	10,000	8	4	C1
ADP5022	WLCSP	CB	2040	2040	655	N/A	3,000	10,000	8	4	C1
ADP5025	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5026											
ADP5027	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5028	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5029	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5030	WLCSP	CB	1600	1600	660	N/A	3,000	10,000	8	4	C1
ADP5031	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5032	WLCSP	CB	2120	2120	655	N/A	3,000	10,000	8	4	C1
ADP5033											
ADP5035	WLCSP	CB	4500	4500	655	N/A	N/A	2,000	12	8	C1
ADP5036	WLCSP	CB	2120	2120	655	N/A	3,000	10,000	8	4	C1
ADP5038	WLCSP	CB	1670	1670	560	N/A	3,000	10,000	8	4	C1
ADP5045	WLCSP	CB	3960	3960	660	N/A	N/A	5,000	12	8	C1
ADP5046											
ADP5061	WLCSP	CB	2035	2635	660	N/A	3,000	10,000	8	4	C1
ADP5065	WLCSP	CB	2080	2750	655	N/A	3,000	10,000	8	4	C1
ADP5075	WLCSP	CB	1650	2220	660	N/A	3,000	10,000	8	4	C1
ADP5080	WLCSP	CB	4500	4000	660	N/A	N/A	3,000	12	8	C2
ADP5125	WLCSP	CB	3800	3460	560	N/A	N/A	5,000	12	8	C2
ADP5133	WLCSP	CB	2040	2040	660	N/A	3,000	10,000	8	4	C1
ADP5250	WLCSP	CB	2580	2580	660	N/A	1,500	5,000	12	8	C1

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
ADP5301	WLCSP	CB	1690	1910	660	N/A	3,000	10,000	8	4	C1
ADP5303	WLCSP	CB	1690	1910	660	N/A	3,000	10,000	8	4	C1
ADP5350	WLCSP	CB	3400	3350	660	N/A	1,500	5,000	12	8	C2
ADP5585	WLCSP	CB	1630	1630	560	N/A	3,000	10,000	8	4	C1
ADP5586											
ADP5587	WLCSP	CB	2010	2010	645	N/A	1500	10000	8	4	C1
ADP5589	WLCSP	CB	2030	2030	560	N/A	3,000	10,000	8	4	C1
ADP5847	WLCSP	CB	1500	2200	560	N/A	3,000	10,000	8	4	C1
ADP7112	WLCSP	CB	990	1200	560	N/A	3,000	10,000	8	4	C1
ADP8860	WLCSP	CB	2395	1995	660	N/A	3,000	10,000	8	4	C1
ADP8861											
ADP8863											
ADP8870	WLCSP	CB	2395	2190	645	N/A	3,000	10,000	8	4	C1
ADP8885	WLCSP	CB	1630	1730	560	N/A	3,000	10,000	8	4	C1
ADPD103	WLCSP	CB	1440	2500	560	N/A	3,000	10,000	12	4	C1
ADPD104	WLCSP	CB	1440	2500	560	N/A	3,000	10,000	12	4	C1
ADXL364	Bumped Chip	CD	1680	1380	600	250	3,000	10,000	8	4	C2
ADUC7023	WLCSP	CB	3445	3445	650	N/A	1,500	5,000	12	8	C1
ADuCM3029	WLCSP	CB	2800	2800	530	N/A	1,500	5,000	12	8	C1
ADux1001	WLCSP	CB	1600	2000	330	N/A	3,000	10,000	8	4	C1
ADUX1049	WLCSP	CB	2140	2165	550	N/A	3,000	10,000	8	4	C1
ADUX1050	Bumped Chip	CD	1470	1670	450	N/A	3,000	10,000	8	4	C1
ADV7390	WLCSP	CB	2565	3045	640	250	1500	5000	12	8	C1
ADV7391	WLCSP	CB	2565	3045	640	250	1500	5000	12	8	C1
ADV7521NK	WLCSP	CB	3500	3500	605	250	1,500	5,000	12	8	C1
ADV7523	WLCSP	CB	3500	3500	605	250	1,500	5,000	12	8	C1
ADV7523A	WLCSP	CB	3500	3500	640	250	1500	5000	12	8	C1
ADV7523A-1	WLCSP	CB	3500	3500	640	250	1500	5000	12	8	C1
ADV7524	WLCSP	CB	3500	3500	605	250	1,500	5,000	12	8	C1
ADV7524A	WLCSP	CB	3500	3500	640	250	1500	5000	12	8	C1
ADV7524A-1											
ADV7525	WLCSP	CB	3500	3500	550	250	1500	5000	12	8	C1
ADV7526	WLCSP	CB	3500	3500	550	250	1500	5000	12	8	C1
ADV7527	WLCSP	CB	3000	3000	550	250	1500	5000	12	8	C1
ADV7528	WLCSP	CB	3000	3000	550	250	1500	5000	12	8	C1
ADV7533	WLCSP	CB	3500	3500	640	250	1500	5000	12	8	C1
ADV7535											
ADV7540	WLCSP	CB	4800	4800	600	250	1500	5000	12	8	C1
ADV7541	WLCSP	CB	3750	3750	595	250	1,500	5,000	12	8	C1
ADV7542	WLCSP	CB	4800	4800	600	250	1500	5000	12	8	C1
OP482	WLCSP	CB	1165	2160	645	N/A	3,000	10,000	8	4	C1
SSM2311	WLCSP	CB	1500	1500	655	N/A	3000	10000	8	4	C2
SSM2317											
SSM2319											
SSM2315	WLCSP	CB	1500	1500	655	N/A	3000	10000	8	4	C1
SSM2335	WLCSP	CB	1500	1500	655	N/A	3000	10000	8	4	C2
SSM2355	WLCSP	CB	1230	1230	645	N/A	3,000	10,000	8	4	C1
SSM2356	WLCSP	CB	1700	1700	660	N/A	3,000	10,000	8	4	C1
SSM2377	WLCSP	CB	1280	1280	645	N/A	3,000	10,000	8	4	C1

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GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY] <a href="#">Note 4.</a> WLCSP had stopped offering small quantity reel since ADI0421 Rev DG.	7" REEL	13" REEL (4" Hub)			
SSM2380	WLCSP	CB	2000	2000	640	N/A	3,000	10,000	8	4	C1
SSM4329	WLCSP	CB	2740	3100	560	N/A	1,500	5,000	12	8	C1
SSM2517	WLCSP	CB	1500	1500	640	N/A	3,000	10,000	8	4	C1
SSM2375											
SSM2518	WLCSP	CB	2250	2250	660	N/A	3,000	10,000	8	4	C1
SSM2519	WLCSP	CB	1455	1705	560	N/A	3,000	10,000	8	4	C1
SSM2529	WLCSP	CB	1960	1980	560	N/A	3,000	10,000	8	4	C1
SSM2537	WLCSP	CB	1240	1240	560	N/A	3,000	10,000	8	4	C1
SSM2801	WLCSP	CB	2500	2500	635	N/A	3,000	10,000	8	4	C1
SSM2804	WLCSP	CB	3000	2500	640	N/A	1,500	2,500	12	8	C2
SSM2930	WLCSP	CB	1525	2025	660	N/A	3,000	10,000	8	4	C1
SSM2931	WLCSP	CB	1680	1950	660	N/A	3,000	10,000	8	4	C1
SSM2932	WLCSP	CB	1680	1680	560	N/A	3,000	10,000	8	4	C1
SSM3515	WLCSP	CB	1840	2240	560	N/A	3,000	10,000	8	4	C1
SSM3521	WLCSP	CB	2240	2480	560	N/A	3,000	10,000	12	4	C1
SSM4305	WLCSP	CB	2110	2110	660	N/A	3,000	10,000	8	4	C1
SSM4321	WLCSP	CB	1780	1780	560	N/A	3,000	10,000	8	4	C1
SSM4329	WLCSP	CB	2740	3100	560	N/A	1,500	5,000	12	8	C1
SSM4567	WLCSP	CB	1780	2140	560	N/A	3,000	10,000	8	4	C1

\* Note ([Table 2](#)): Special Carrier Tapes exist for these products where the required wafer thickness is 12mil and the required spheres are 250um.



**Table 3: Small Quantity Reel [Note 6](#).** Small quantity reel options must be offered only if the cost for the smallest standard reel (in Tables 1, 2, 4 and 5) is > \$2,000. Please refer to section [6.2.8](#) for other guidelines on SMALL QUANTITY REEL.

DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	BODY SIZE	# LEADS	Reel Quantity 7" REEL	Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
LFCSP	CP	2x3	All counts	500	12	4	C2
LFCSP	CP	3x2	All counts	250	12	4	C1
LFCSP	CP	3x3	All counts	250	12	8	C2
LFCSP	CP	4x4	All counts	250	12	8	C2
LFCSP	CP	4x4	16	500	12	8	C2
LFCSP	CP	5x5	All counts	250	12	8	C2
LFCSP	CP	2x2x0.55	All counts	250	8	4	C2
Mini SOIC	RM	N/A	8,10	250	12	8	C1
QSOP	RQ	150_MIL	16	500	12	8	C1
SC70	KS	N/A	3,4,5,6	250	8	4	C4
SOT_23	RJ/RT	N/A	3,5,6,8	250	8	4	C4
TSOT	UJ	N/A	5,6,8	250	8	4	C4
TSSOP_4.4	RU/RE	N/A	16, 20, 24	500	16	8	C1
LGA <a href="#">Note 9</a> . This is a product special (ADXL362) on a 7" reel with a trailer 1250 empty pockets and a Standard leader of 75 pockets. This will prevent damage to the pocket tape when vacuum sealed.	CC	3x3.25x1.06	16	250	12	8	C1

**Table 4: Product with Special Orientation Requirement**

GENERIC	DEVICE PACKAGE TYPE	BODY SIZE	# LEADS	Reel Quantity		Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
				7" REEL	13" REEL (4" Hub)			
ADMP421 ADMP521 ADMP522 <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	LGA_CAV	3X4X1.0	5	1000	5000	12	8	C2
ADM6306	SOT_23	N/A	5	3000	10000	8	4	C2
ADM6305	SOT_23	N/A	5	3000	10000	8	4	C2
ADM6339	SOT_23	N/A	6	3000	10000	8	4	C2
ADM6710 FG Exemption: AD51/098Z-0RL7	SOT_23	N/A	6	3000	10000	8	4	C2
ADMP508 <a href="#">Note 7.</a> Cleanroom tapes must be used for all MICROPHONE products. Pocket tape hole maybe offset.	LGA_CAV	3.35x2.5x.92	3	1000	10000	12	4	C4
AD80013	LQFP	7X7X1.4	48	NA	2000	16	12	C1
AD80014	LQFP	7X7X1.4	48	NA	1000	16	12	C1
AD9800	LQFP	7X7X1.4	48	NA	1000	16	12	C1



**Table 5: Bare Die Sales Tape & Reel**

GENERIC	DEVICE PACKAGE TYPE	PACKAGE DESIGNATOR	DIE SIZE X (um)	DIE SIZE Y (um)	DIE SIZE Z (um)	Reel Quantity			Tape Width (mm)	Tape Pitch (mm)	Pin #1 Orientation
						7" REEL [SMALL QUANTITY]	7" REEL	13" REEL (4" Hub)			
AD22100	CHIP	C	1016	2286	381	N/A	5,000	14,000	8	4	C1
AD8202	CHIP	C	1165	1180	381	N/A	5,000	14,000	12	4	C1
AD8205	CHIP	C	1650	1650	381	N/A	4,000	10,000	8	4	C1
AD8210	CHIP	C	1505	1265	381	N/A	5,000	14,000	8	4	C1
AD8221	CHIP	C	1575	2230	381	N/A	4,000	10,000	8	4	C1
AD8584	CHIP	C	2085	2745	381	N/A	5,000	14,000	8	4	C1
AD8694	CHIP	C	1335	1455	381	N/A	5,000	14,000	8	4	C2
ADCMP371	CHIP	C	560	660	275	N/A	3,000	10,000	8	4	C2
ADG419	CHIP	C	1525	1305	381	N/A	5,000	14,000	8	4	C1
ADG601	CHIP	C	820	2255	381	N/A	5,000	14,000	8	4	C1
ADG621	CHIP	C	820	2255	381	N/A	5,000	14,000	8	4	C1
ADN3000	CHIP	C	835	675	254	250	5000	14,000	8	4	M1
ADT7312	CHIP	C	1950	2350	330	N/A	3,000	10,000	8	4	C1
BF531, 2, 3	CHIP	C	4517	5417	381	N/A	2,400	N/A	16	8	C4
TMP36	CHIP	C	685.8	762	254	N/A	5,000	14,000	8	4	C1

#### 6.4 Box and Label Reels as follows:

- 6.4.1 Attach 1 shipping label and 1 ESD caution sticker to the side opposite to the round sprocket holes side of the reel as illustrated below. Note that an ESD caution sticker is not required if the reel has the ESD caution symbol embossed into the reel.



**Place labels on side opposite of Round Sprocket Holes**

**Close-up of Labels**



**ESD Caution Label**

**ADI Shipping Label**

- 6.4.2 If Drypack is necessary, place reel in moisture barrier bag along with a Humidity Indicator Card as specified in [ADI0326](#). For 7" reels, add one unit of desiccant. For 13" reels, add 3 units of desiccant. Seal bag per [ADI0326](#) and label as illustrated below.

- 6.4.2.1 For Bare Die Sales, all reels must be dry packed.

**ADI  
Shipping  
Label**  
(see [ADI0355](#))



**Moisture  
Sensitivity Label**  
(see [ADI0326](#))

***Sealed Drypack Bag***

- 6.4.3 Place reel in appropriate pizza box as illustrated below (dunnage must be placed on top of the reel for 14 x 14 x 2.7 MQFP packages):

**Non-Drypacked Parts**



***Non-drypacked parts are shipped in  
a conductive lined box***

**Drypacked Parts**



***Drypacked parts are shipped in  
an unlined box***

- 6.4.4 Close box and label two standard shipping labels. Place one label on the left hand side of the box and the second on the top of the box as illustrated below. If the reel is drypacked, place a Moisture Sensitive Identification (MSID) label on the left hand side of the box next to the shipping label.



- 6.4.5 Seal the box with paper tape printed with the ADI logo per [ADI0355](#). Tape shall be 3.00" wide, +/- 0.25". Tape shall be applied to cover the seam between the front flap and the bottom of the box and shall not cover any labels.