

## Tape and Reel Packaging for Surface Mount Components

Rev. V20

### 1.0 Introduction

MACOM supplies integrated circuits, diodes, and related surface mount components in tape wound on standard 7-inch and 13-inch diameter reels. This application note documents the reel and tape dimensions and the orientation of the components within the tape cavities for many of our most popular package styles.

#### Packages Covered in This Application Note:

Package Type	Package Type
1 mm X1DFN-6LD	LSM3
1.2 x 1.5 mm TDFN-6LD (0.5 mm pitch)	LSM6
1.5 x 1.2 mm TDFN-6LD (0.4 mm pitch)	MSOP-8, MSOP-8EP
2 mm PDFN-8LD	MSOP-10
2 mm STDFN-8LD	ODS-120 (ceramic)
2 mm STQFN-12LD	ODS-186 (ceramic)
2 x 2.5 mm STQFN-14LD	ODS-1056 (ceramic)
3 mm PQFN-12LD	ODS-1072 (MELF)
3 mm PQFN-12LD (1.1 mm Height)	ODS-1079 (MELF)
3 mm PQFN-16LD	ODS-1091 (MELF)
3 x 6 mmPDFN-14LD	ODS-1269 (GaAs flip-chip)
4 mm PQFN-16LD	ODS-1294 (surmount)
4 mm PQFN-20LD	ODS-1295 (surmount)
4 mm PQFN-24LD	ODS-1305 (GaAs flip-chip)
4 x 6 mm PQFN-32LD	ODS-1306 (surmount)
4 x 7 mm PQFN-36LD	ODS-1402 (GaAs flip-chip)
5 mm PQFN-20LD	ODS-1411 (GaAs flip-chip)
5 mm PQFN-28LD	ODS-1500 (GaAs flip-chip)
5 mm PQFN-32LD	QSOP-16, QSOP-16EP
5 x 6 mm PQFN-32LD	QSOP-24
5 x 7 mm PQFN-40LD	QSOP-28
6 x 5 mm PDFN-8LD	R-1, R-4, R-5, R-15
6 x 6 mm PQFN-20LD	SC70-3LD
6 x 7 mm PQFN-37LD	SC70-6LD
7 mm LGA-16	SC-79
8 mm BGA	SM-1
15 mm BGA	SM-2
BD-1, BD-2, BD-3 (Bumped Die)	SM-3
CR-5	SM-4 (same as SM-2)
LCC1	SM-7-1
LSM1	SM-20
LSM2	SM-22

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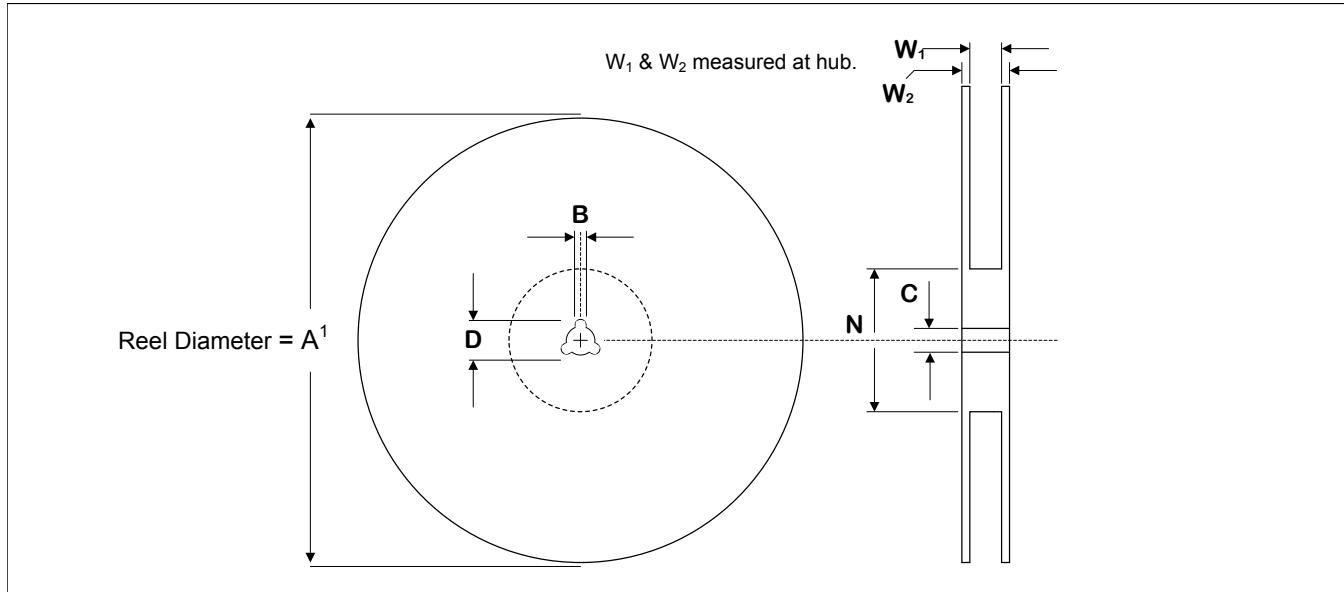
### Packages Covered in This Application Note (cont.):

Package Type	Package Type
SM-23 (same as SM-1)	SSOP-24
SM-24	SSOP-28
SM-26	TSSOP-16, TSSOP-16EP
SM-28	
SM-41	
SM-44	
SM-46	
SM-52	
SM-55	
SM-68 (same as SM-44)	
SM-69 (same as SM-1)	
SM-74 (same as SM-2)	
SM-87 (same as SM-1)	
SM-89 (same as SM-1)	
SM-106	
SM-108 (same as SM-2)	
SM-134 (same as SM-1)	
SOD-323	
SOIC-8	
SOIC-14	
SOIC-16	
SOIC-16 Wide Body	
SOIC-24 Wide Body	
SOT-23	
SOT-25 (same as SOT-23 (5LD))	
SOT-26 (same as SOT-23 (6LD))	
SOT-89	
SOT-143	
SOW-16 (same as SOIC-16 Wide Body)	
SOW-24 (same as SOIC-24 Wide Body)	
SSOP-8	
SSOP-20	

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### 2.0 Reel Dimensions



### Reel Dimensions in mm

W Tape Width <sup>2</sup>	W <sub>1</sub> (+2.0/-0.0)	W <sub>2</sub> (max.)	N (min.)		B (min.)	C (+0.5/-0.2)	D (min.)
			A = 7 inch	A = 13 inch			
8	8.4	14.4	50	N/A	1.5	13	20.2
12	12.4	18.4	50	100	1.5	13	20.2
16	16.4	22.4	50	100	1.5	13	20.2
24	24.4	30.4	N/A	100	1.5	13	20.2
32	32.4	38.4	N/A	100	1.5	13	20.2

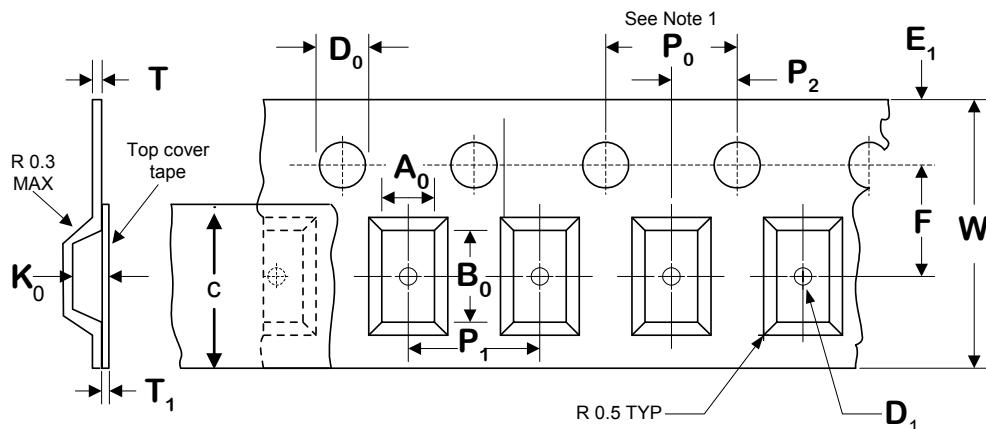
1. See section 5.0 Reel Diameter Dimensions.

2. See section 3.0 Tape Dimensions.

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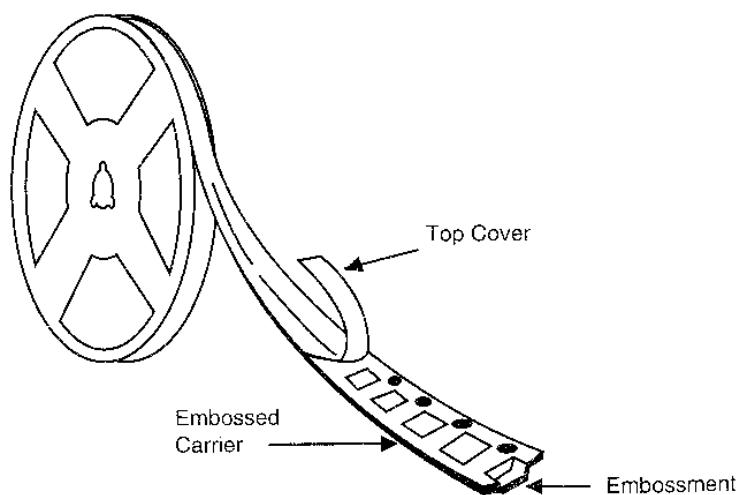
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### 3.0 Tape Dimensions



Notes

1. 10 sprocket hole cumulative tolerance  $\pm 0.2$
2. Dimensions in millimeters (mm).
3. Not to exact scale.
4. Camber not to exceed 1 mm in 100 mm.
5. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.
6. Metric dimensions will govern.



### Tape Dimensions

Tape Dimensions	Description	Symbol	Size (mm)
Perforation	Diameter	D <sub>0</sub>	1.5 +0.1 / -0.0
	Pitch	P <sub>0</sub>	4 $\pm$ 0.1
	Position	E <sub>1</sub>	1.75 $\pm$ 0.1
	Thickness	T	0.25 $\pm$ 0.1
Cover Tape	Thickness	T <sub>1</sub>	0.06 $\pm$ 0.02

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**1 mm X1DFN-6LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$1.2 + 0.0/-0.05$
	Width	$B_0$	$1.2 + 0.0/-0.05$
	Depth	$K_0$	$0.55 \pm 0.05$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$5.5 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 \pm 0.3$

**1.2 x 1.5 mm TDFN-6LD (0.5 mm Lead Pitch) & 1.5 x 1.2 mm TDFN-6LD (0.4 mm Lead Pitch)**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$1.75 \pm 0.1$
	Width	$B_0$	$1.35 \pm 0.1$
	Depth	$K_0$	$1.02 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 +0.3/-0.1$

**2 mm PDFN-8LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$2.42 \pm 0.1$
	Width	$B_0$	$2.42 \pm 0.1$
	Depth	$K_0$	$1.1 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
	Diameter	$D_1$	$1 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$9.2 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$12 \pm 0.3$

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**2 mm STDFN-8LD, 2 mm STQFN-12LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$2.3 \pm 0.1$
	Width	$B_0$	$2.3 \pm 0.1$
	Depth	$K_0$	$0.75 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
	Diameter	$D_1$	$1 \pm 0.25$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.5 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 \pm 0.3$

**2 x 2.5 mm STQFN-14LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$2.2 \pm 0.1$
	Width	$B_0$	$2.7 \pm 0.1$
	Depth	$K_0$	$0.7 \pm 0.05$
	Pitch	$P_1$	$4 \pm 0.1$
	Diameter	$D_1$	$0.7 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$5.5 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 \pm 0.3$

**3 mm PQFN-12LD, 3 mm PQFN-16LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$3.3 \pm 0.1$
	Width	$B_0$	$3.3 \pm 0.1$
	Depth	$K_0$	$1.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$9.2 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$12 \pm 0.3$

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**3 mm PQFN-12LD (1.1 mm Height)**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$3.3 \pm 0.1$
	Width	$B_0$	$3.3 \pm 0.1$
	Depth	$K_0$	$1.3 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.05$
Cover Tape	Width	$C$	$9.2 \pm 0.1$
Carrier Tape	Width	$W$	$12 \pm 0.3$

**3 x 6 mm PDFN-14LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$3.25 \pm 0.1$
	Width	$B_0$	$6.35 \pm 0.1$
	Depth	$K_0$	$1.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
Cover Tape	Width	$C$	$13.3 \pm 0.1$
Carrier Tape	Width	$W$	$16 \pm 0.3$

**4 mm PQFN-16LD, 4 mm PQFN-20LD, 4 mm PQFN-24LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$4.35 \pm 0.1$
	Width	$B_0$	$4.35 \pm 0.1$
	Depth	$K_0$	$1.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.1$
Cover Tape	Width	$C$	$9.2 \pm 0.1$
Carrier Tape	Width	$W$	$12 \pm 0.3$

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**4 x 6 mm PQFN-32LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$4.2 \pm 0.1$
	Width	$B_0$	$6.2 \pm 0.1$
	Depth	$K_0$	$1.2 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

**4 x 7 mm PQFN-36LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$4.2 \pm 0.1$
	Width	$B_0$	$7.2 \pm 0.1$
	Depth	$K_0$	$1.2 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

**5 mm PQFN-20LD, 5 mm PQFN-28LD, 5 mm PQFN-32LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$5.25 \pm 0.1$
	Width	$B_0$	$5.25 \pm 0.1$
	Depth	$K_0$	$1.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	F	$5.5 \pm 0.1$
Cover Tape	Width	C	$9.2 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

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**5 x 6 mm PQFN-32LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$5.3 \pm 0.1$
	Width	$B_0$	$6.3 \pm 0.1$
	Depth	$K_0$	$1.2 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Carrier Tape	Width	W	$16 \pm 0.3$

**5 x 7 mm PQFN-40LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$5.5 \pm 0.1$
	Width	$B_0$	$7.5 \pm 0.1$
	Depth	$K_0$	$1.5 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	F	$7.5 \pm 0.1$
Cover Tape	Width	C	$13.3 \pm 0.1$
Carrier Tape	Width	W	$16 \pm 0.3$

**6 x 5 mm PDFN-8LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$6.5 \pm 0.1$
	Width	$B_0$	$5.5 \pm 0.1$
	Depth	$K_0$	$1.4 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	F	$5.5 \pm 0.05$
Cover Tape	Width	C	$9.3 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

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**6 x 6 mm PQFN-20LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	6.3 ± 0.1
	Width	B <sub>0</sub>	6.3 ± 0.1
	Depth	K <sub>0</sub>	1.4 ± 0.1
	Pitch	P <sub>1</sub>	12 ± 0.1
Carrier Tape	Width	W	16 ± 0.3

**6 x 7 mm PQFN-37LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	6.4 ± 0.1
	Width	B <sub>0</sub>	7.4 ± 0.1
	Depth	K <sub>0</sub>	1.2 ± 0.1
	Pitch	P <sub>1</sub>	12 ± 0.1
Carrier Tape	Width	W	16 ± 0.3

**7 mm LGA-16LD**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	7.4 ± 0.1
	Width	B <sub>0</sub>	7.4 ± 0.1
	Depth	K <sub>0</sub>	1.9 ± 0.1
	Pitch	P <sub>1</sub>	12 ± 0.1
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.1
	Cavity to Perforation (width)	F	7.5 ± 0.1
Cover Tape	Width	C	13.3 ± 0.1
Carrier Tape	Width	W	16 ± 0.3

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**8 mm BGA**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$8.3 \pm 0.1$
	Width	$B_0$	$8.3 \pm 0.1$
	Depth	$K_0$	$2.7 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**15 mm BGA**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$15.3 \pm 0.1$
	Width	$B_0$	$15.3 \pm 0.1$
	Depth	$K_0$	$3.8 \pm 0.1$
	Pitch	$P_1$	$20 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$11.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$21 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$24 \pm 0.3$

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**BD-1**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	0.82 ± 0.05
	Width	B <sub>0</sub>	0.82 ± 0.05
	Depth	K <sub>0</sub>	0.395 ± 0.05
	Pitch	P <sub>1</sub>	4 ± 0.1
	Pocket Hole Diameter	D <sub>1</sub>	0.35 ± 0.05
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.05
	Cavity to Perforation (width)	F	3.5 ± 0.05
Cover Tape	Width	C	5.3 ± 0.1
Carrier Tape	Width	W	8 ± 0.1

**BD-2**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	1.1 ± 0.05
	Width	B <sub>0</sub>	1.25 ± 0.05
	Depth	K <sub>0</sub>	0.298 ± 0.028
	Pitch	P <sub>1</sub>	4 ± 0.1
	Pocket Hole Diameter	D <sub>1</sub>	0.5 ± 0.05
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.05
	Cavity to Perforation (width)	F	3.5 ± 0.05
Cover Tape	Width	C	5.3 ± 0.1
Carrier Tape	Width	W	8 +0.3/-0.1

**BD-3**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	0.58 ± 0.05
	Width	B <sub>0</sub>	0.7 ± 0.05
	Depth	K <sub>0</sub>	0.36 ± 0.05
	Pitch	P <sub>1</sub>	4 ± 0.1
	Pocket Hole Diameter	D <sub>1</sub>	N/A
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.05
	Cavity to Perforation (width)	F	3.5 ± 0.05
Cover Tape	Width	C	5.3 ± 0.1
Carrier Tape	Width	W	8 ± 0.1

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**CR-5**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$9.02 \pm 0.1$
	Width	$B_0$	$9.91 \pm 0.1$
	Depth	$K_0$	$2.03 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$11.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$21 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$24 \pm 0.3$

**LCC1**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	10.47
	Width	$B_0$	11.15
	Depth	$K_0$	3.38
	Pitch	$P_1$	16
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	11.5
<b>Carrier Tape</b>	Width	$W$	24

**LSM1**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	13
	Width	$B_0$	13
	Depth	$K_0$	4.7
	Pitch	$P_1$	16
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	11.5
<b>Carrier Tape</b>	Width	$W$	24

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**LSM2**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	10.08
	Width	$B_0$	15.29
	Depth	$K_0$	3.94
	Pitch	$P_1$	16
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	11.5
<b>Carrier Tape</b>	Width	$W$	24

**LSM3**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	10.97
	Width	$B_0$	12.62
	Depth	$K_0$	4.75
	Pitch	$P_1$	16
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	11.5
<b>Carrier Tape</b>	Width	$W$	24

**LSM6**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	20.5
	Width	$B_0$	15
	Depth	$K_0$	4.1
	Pitch	$P_1$	24
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	11.5
<b>Carrier Tape</b>	Width	$W$	24

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**MSOP-8, MSOP-8EP, MSOP-10**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$5.3 \pm 0.1$
	Width	$B_0$	$3.4 \pm 0.1$
	Depth	$K_0$	$1.4 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$9.2 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$12 \pm 0.3$

**ODS-120**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$1.42 - 1.79$
	Width	$B_0$	$1.29 - 1.52$
	Depth	$K_0$	$1.42 - 1.78$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 +0.3/-0.1$

**ODS-186**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$9.32 \pm 0.1$
	Width	$B_0$	$2.7 \pm 0.1$
	Depth	$K_0$	$1.37 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.1$

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**ODS-1056**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$2 \pm 0.1$
	Width	$B_0$	$2 \pm 0.1$
	Depth	$K_0$	$1.19 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
Cover Tape	Width	$C$	$5.4 \pm 0.1$
Carrier Tape	Width	$W$	$8 +0.3/-0.1$

**ODS-1072**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$2.54 \pm 0.1$
	Width	$B_0$	$3.56 \pm 0.1$
	Depth	$K_0$	$2.54 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.05$
Cover Tape	Width	$C$	$9.3 \pm 0.1$
Carrier Tape	Width	$W$	$12 \pm 0.3$

**ODS-1079**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$3.2 \pm 0.1$
	Width	$B_0$	$3.2 \pm 0.1$
	Depth	$K_0$	$3.12 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.05$
Cover Tape	Width	$C$	$9.3 \pm 0.1$
Carrier Tape	Width	$W$	$12 \pm 0.3$

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**ODS-1091**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$4.19 \pm 0.1$
	Width	$B_0$	$5.38 \pm 0.1$
	Depth	$K_0$	$4.06 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$9.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$12 \pm 0.3$

**ODS-1294,1295,1306**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$0.64 \pm 0.05$
	Width	$B_0$	$1.12 \pm 0.05$
	Depth	$K_0$	$0.3 \pm 0.05$
	Pitch	$P_1$	$4.0 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2.0 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8.0 +0.30/-0.1$

**ODS-1305,1269**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$0.46 \pm 0.03$
	Width	$B_0$	$0.79 \pm 0.03$
	Depth	$K_0$	$0.28 \pm 0.03$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 +0.3/-0.1$

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**ODS-1402,1411,1500**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$0.47 \pm 0.03$
	Width	$B_0$	$0.84 \pm 0.03$
	Depth	$K_0$	$0.31 \pm 0.03$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 +0.3/-0.1$

**QSOP-16, QSOP-16EP**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$6.8 \pm 0.1$
	Width	$B_0$	$5.4 \pm 0.1$
	Depth	$K_0$	$1.6 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**QSOP-24**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$6.5 \pm 0.1$
	Width	$B_0$	$9 \pm 0.1$
	Depth	$K_0$	$2.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

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**QSOP-28**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$6.5 \pm 0.1$
	Width	$B_0$	$10.3 \pm 0.1$
	Depth	$K_0$	$2.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**R-1, R-4, R-5, R-15**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$12.5 \pm 0.1$
	Width	$B_0$	$12.9 \pm 0.1$
	Depth	$K_0$	$6.1 \pm 0.1$
	Pitch	$P_1$	$16 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$24 \pm 0.3$

**SC70-3LD, SC70-6LD**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$2.25 \pm 0.1$
	Width	$B_0$	$2.4 \pm 0.1$
	Depth	$K_0$	$1.2 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 \pm 0.3$

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**SC-79**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$0.9 \pm 0.05$
	Width	$B_0$	$1.94 \pm 0.05$
	Depth	$K_0$	$0.73 \pm 0.05$
	Pitch	$P_1$	$4 \pm 0.05$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	$C$	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$8 +0.3/-0.1$

**SM-1, SM-23, SM-69, SM-87, SM-89, SM-134**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$7 \pm 0.1$
	Width	$B_0$	$8.5 \pm 0.1$
	Depth	$K_0$	$5.3 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**SM-2, SM-4, SM-74, SM-108**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$10.26 \pm 0.1$
	Width	$B_0$	$13.46 \pm 0.1$
	Depth	$K_0$	$6.1 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$24 \pm 0.3$

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**SM-3**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$20.5 \pm 0.1$
	Width	$B_0$	$20.5 \pm 0.1$
	Depth	$K_0$	$5.3 \pm 0.1$
	Pitch	$P_1$	$24 \pm 0.1$
Carrier Tape	Width	W	$32 \pm 0.3$

**SM-7-1**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$16.3 \pm 0.1$
	Width	$B_0$	$21.4 \pm 0.1$
	Depth	$K_0$	$5.6 \pm 0.1$
	Pitch	$P_1$	$24 \pm 0.1$
Carrier Tape	Width	W	$32 \pm 0.3$

**SM-20**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$8.1 \pm 0.1$
	Width	$B_0$	$15.4 \pm 0.1$
	Depth	$K_0$	$7.1 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
Carrier Tape	Width	W	$24 \pm 0.3$

**SM-22**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$4.3 \pm 0.1$
	Width	$B_0$	$5 \pm 0.1$
	Depth	$K_0$	$2.8 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

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**SM-24**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$10.5 \pm 0.1$
	Width	$B_0$	$8.28 \pm 0.1$
	Depth	$K_0$	$5.5 \pm 0.1$
	Pitch	$P_1$	$16 \pm 0.1$
Carrier Tape	Width	W	$24 \pm 0.3$

**SM-26**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$12.1 \pm 0.1$
	Width	$B_0$	$19.8 \pm 0.1$
	Depth	$K_0$	$5.5 \pm 0.1$
	Pitch	$P_1$	$16 \pm 0.1$
Carrier Tape	Width	W	$32 \pm 0.3$

**SM-28**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$12.1 \pm 0.1$
	Width	$B_0$	$21.1 \pm 0.1$
	Depth	$K_0$	$6.5 \pm 0.1$
	Pitch	$P_1$	$24 \pm 0.1$
Carrier Tape	Width	W	$32 \pm 0.3$

**SM-41**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$6.9 \pm 0.1$
	Width	$B_0$	$8.4 \pm 0.1$
	Depth	$K_0$	$7.4 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
Carrier Tape	Width	W	$24 \pm 0.3$

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**SM-44, SM-68**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$7.5 \pm 0.1$
	Width	$B_0$	$8.4 \pm 0.1$
	Depth	$K_0$	$5.5 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
Carrier Tape	Width	W	$16 \pm 0.3$

**SM-46**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$20.9 \pm 0.1$
	Width	$B_0$	$11.4 \pm 0.1$
	Depth	$K_0$	$6.8 \pm 0.1$
	Pitch	$P_1$	$24 \pm 0.1$
Carrier Tape	Width	W	$32 \pm 0.3$

**SM-52**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$5.6 \pm 0.1$
	Width	$B_0$	$5.6 \pm 0.1$
	Depth	$K_0$	$3 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Carrier Tape	Width	W	$12 \pm 0.3$

**SM-55**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$6.8 \pm 0.1$
	Width	$B_0$	$7.6 \pm 0.1$
	Depth	$K_0$	$3.5 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
Carrier Tape	Width	W	$16 \pm 0.3$

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**SM-106**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$10.7 \pm 0.1$
	Width	$B_0$	$20.8 \pm 0.1$
	Depth	$K_0$	$6 \pm 0.1$
	Pitch	$P_1$	$24 \pm 0.1$
<b>Carrier Tape</b>	Width	W	$32 \pm 0.3$

**SOD-323**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$1.46 \pm 0.1$
	Width	$B_0$	$2.9 \pm 0.05$
	Depth	$K_0$	$1.25 \pm 0.05$
	Pitch	$P_1$	$4 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.05$
	Cavity to Perforation (width)	F	$3.5 \pm 0.05$
<b>Cover Tape</b>	Width	C	$5.4 \pm 0.1$
<b>Carrier Tape</b>	Width	W	$8 +0.3/-0.1$

**SOIC-8 (SO-8)**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$6.4 \pm 0.1$
	Width	$B_0$	$5.2 \pm 0.1$
	Depth	$K_0$	$2.1 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	F	$5.5 \pm 0.1$
<b>Cover Tape</b>	Width	C	$9.2 \pm 0.1$
<b>Carrier Tape</b>	Width	W	$12 \pm 0.3$

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**SOIC-14 (SO-14), SSOP-24**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	6.5 ± 0.1
	Width	B <sub>0</sub>	9 ± 0.1
	Depth	K <sub>0</sub>	2.1 ± 0.1
	Pitch	P <sub>1</sub>	8 ± 0.1
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.1
	Cavity to Perforation (width)	F	7.5 ± 0.1
Cover Tape	Width	C	13.3 ± 0.1
Carrier Tape	Width	W	16 ± 0.3

**SOIC-16 (SO-16), SSOP-28**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	6.5 ± 0.1
	Width	B <sub>0</sub>	10.3 ± 0.1
	Depth	K <sub>0</sub>	2.1 ± 0.1
	Pitch	P <sub>1</sub>	8 ± 0.1
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.1
	Cavity to Perforation (width)	F	7.5 ± 0.1
Cover Tape	Width	C	13.3 ± 0.1
Carrier Tape	Width	W	16 ± 0.3

**SOT-23**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	A <sub>0</sub>	3.125 ± 0.125
	Width	B <sub>0</sub>	2.835 ± 0.165
	Depth	K <sub>0</sub>	1.23 ± 0.11
	Pitch	P <sub>1</sub>	4 ± 0.1
Distance Between Centerlines	Cavity to Perforation (length)	P <sub>2</sub>	2 ± 0.1
	Cavity to Perforation (width)	F	3.5 ± 0.1
Cover Tape	Width	C	5.4 ± 0.1
Carrier Tape	Width	W	8 ± 0.3

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**SOT-25, SOT-26**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$3.2 \pm 0.1$
	Width	$B_0$	$3.2 \pm 0.1$
	Depth	$K_0$	$1.4 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.1$
Cover Tape	Width	$C$	$5.4 \pm 0.1$
Carrier Tape	Width	$W$	$8 \pm 0.3$

**SOT-89**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$4.6 \pm 0.1$
	Width	$B_0$	$4.78 \pm 0.1$
	Depth	$K_0$	$1.9 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$5.5 \pm 0.5$
Cover Tape	Width	$C$	$9.3 \pm 0.1$
Carrier Tape	Width	$W$	$12 \pm 0.2$

**SOT-143**

Tape Dimensions	Description	Symbol	Size (mm)
Cavity	Length	$A_0$	$3.1 \pm 0.1$
	Width	$B_0$	$2.69 \pm 0.1$
	Depth	$K_0$	$1.3 \pm 0.1$
	Pitch	$P_1$	$4 \pm 0.1$
Distance Between Centerlines	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$3.5 \pm 0.1$
Cover Tape	Width	$C$	$5.4 \pm 0.1$
Carrier Tape	Width	$W$	$8 \pm 0.3$

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**SOW-16 (SOIC-16 Wide Body)**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$10.9 \pm 0.1$
	Width	$B_0$	$10.7 \pm 0.1$
	Depth	$K_0$	$3 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**SOW-24 (SOIC-24 Wide Body)**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$10.7 \pm 0.2$
	Width	$B_0$	$15.8 \pm 0.2$
	Depth	$K_0$	$3 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$11.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	20
<b>Carrier Tape</b>	Width	$W$	$24 \pm 0.3$

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**SSOP-8**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$3.4 \pm 0.1$
	Width	$B_0$	$8.3 \pm 0.1$
	Depth	$K_0$	$2.54 \pm 0.1$
	Pitch	$P_1$	8
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**SSOP-20**

Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$8.2 \pm 0.1$
	Width	$B_0$	$7.5 \pm 0.1$
	Depth	$K_0$	$2.5 \pm 0.1$
	Pitch	$P_1$	$12 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

**TSSOP-16, TSSOP-16EP**

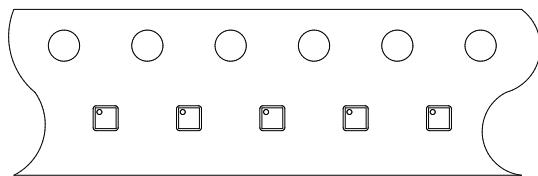
Tape Dimensions	Description	Symbol	Size (mm)
<b>Cavity</b>	Length	$A_0$	$6.95 \pm 0.1$
	Width	$B_0$	$5.6 \pm 0.1$
	Depth	$K_0$	$1.6 \pm 0.1$
	Pitch	$P_1$	$8 \pm 0.1$
<b>Distance Between Centerlines</b>	Cavity to Perforation (length)	$P_2$	$2 \pm 0.1$
	Cavity to Perforation (width)	$F$	$7.5 \pm 0.1$
<b>Cover Tape</b>	Width	$C$	$13.3 \pm 0.1$
<b>Carrier Tape</b>	Width	$W$	$16 \pm 0.3$

## Tape and Reel Packaging for Surface Mount Components

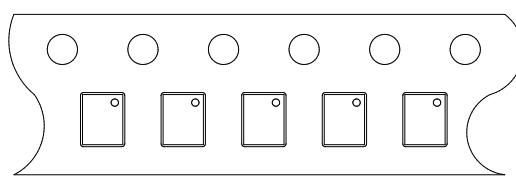
Rev. V20

### 4.0 Component Orientation for Tape and Reel

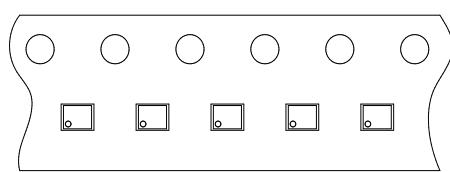
1 mm X1DFN-6LD



2 x 2.5 mm STQFN-14LD

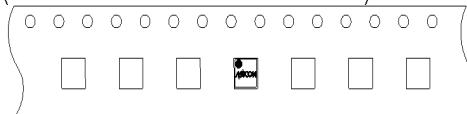


1.2 x 1.5 mm TDFN-6LD (0.5 mm Lead Pitch)



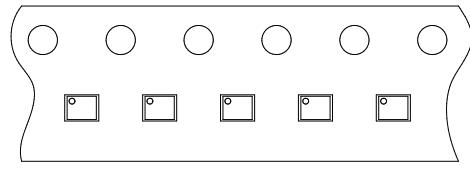
3 mm PQFN-12LD,  
3 mm PQFN-16LD

(ADVANTEK CARRIER TAPE ML0303-AC99.0P2)

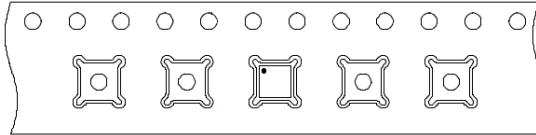


3.3(A0), 3.3(B0), 1.1(K0), 8(P1), 12(W)

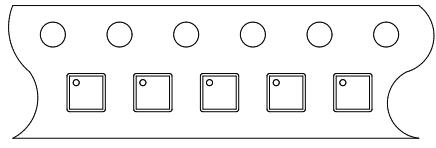
1.5 x 1.2 mm TDFN-6LD (0.4 mm Lead Pitch)



3 mm PQFN-12LD (1.1 mm Height)

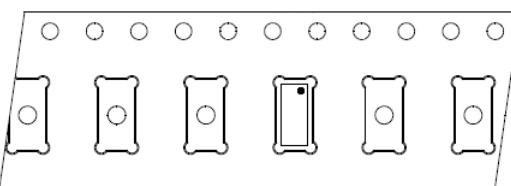


2 mm PDFN-8LD,  
2 mm STDFN-8LD,  
2 mm STQFN-12LD



3 x 6 mm PDFN-14LD

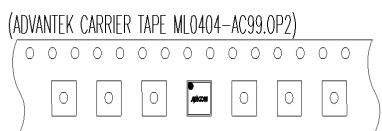
HSUAN SHAN P1608-075901



## Tape and Reel Packaging for Surface Mount Components

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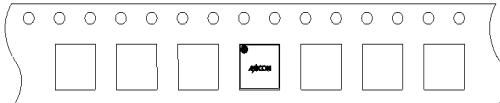
4 mm PQFN-16LD,  
4 mm PQFN-20LD,  
4 mm PQFN-24LD



4.35(Ao), 4.35(Bo), 1.1(Ko), 8(P1), 12(W)

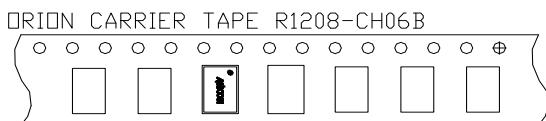
5 mm PQFN-20LD,  
5 mm PQFN-28LD,  
5 mm PQFN-32LD

ADVANTEK CARRIER TAPE ML0505-AC99.OP2



5.25(Ao), 5.25(Bo), 1.1(Ko), 8(P1), 12(W)

4 x 6 mm PQFN-32LD

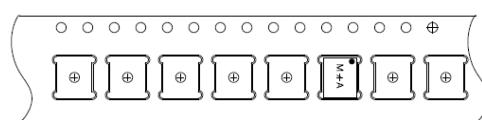


4.2(Ao), 6.2(Bo), 1.2(Ko), 8(P1), 12(W)

User direction of feed →

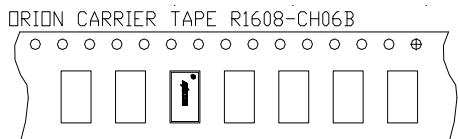
5 x 6 mm PQFN-32LD

(ADVANTEK CARRIER TAPE CCA017-AC400.P1)



5.30(Ao), 6.30(Bo), 1.20(Ko), 8(P1), 16(W)

4 x 7 mm PQFN-36LD

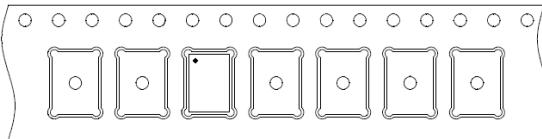


4.2(Ao), 7.2(Bo), 1.2(Ko), 8(P1), 16(W)

User direction of feed →

5 x 7 mm PQFN-40LD

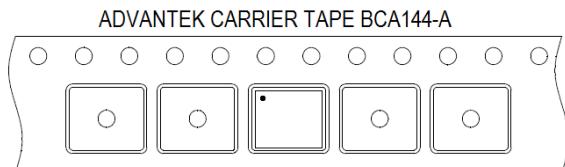
ADVANTEK CARRIER TAPE ML0507-A



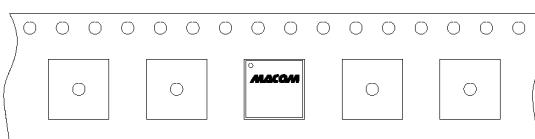
## Tape and Reel Packaging for Surface Mount Components

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6 x 5 mm PDFN-8LD

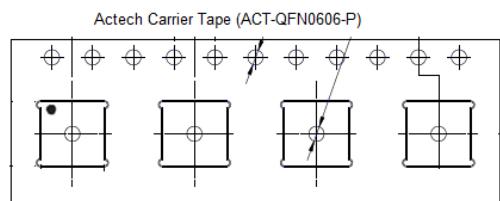


7 mm LGA-16LD



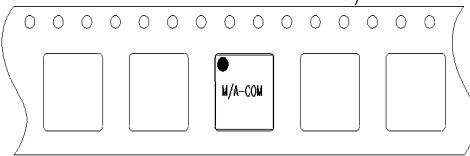
User Direction of Feed

6 x 6 mm PQFN-20LD



8 mm BGA

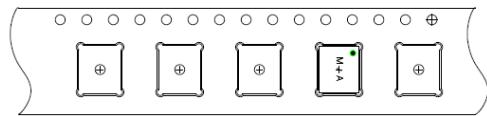
(ADVANTEK CARRIER TAPE BG0808-AC74.0P2)



8.3(Ao), 8.3(Bo), 2.7(Ko), 1.7(K1), 12(P1), 16(W)

6 x 7 mm PQFN-37LD

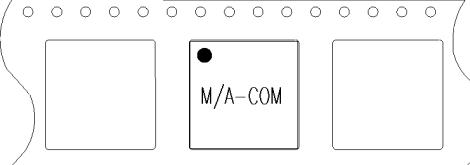
(ADVANTEK CARRIER TAPE CDA030-AC400.P1)



6.40(Ao), 7.40(Bo), 1.20(Ko), 12(P1), 16(W)

15 mm BGA

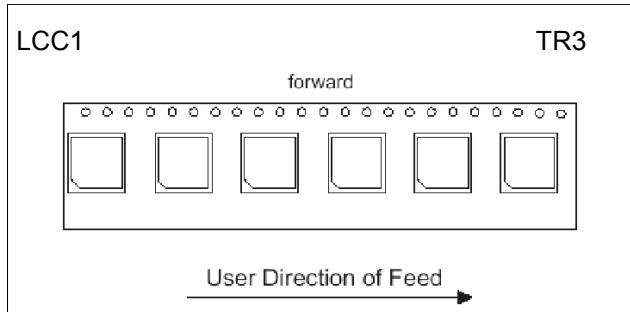
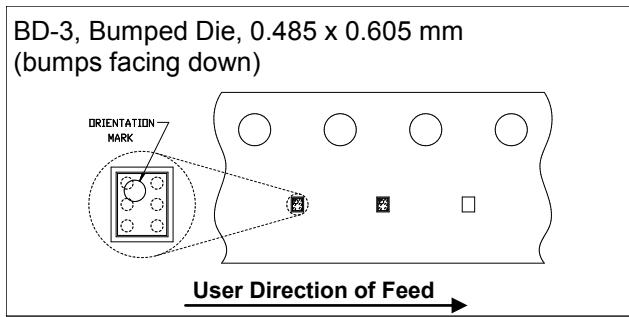
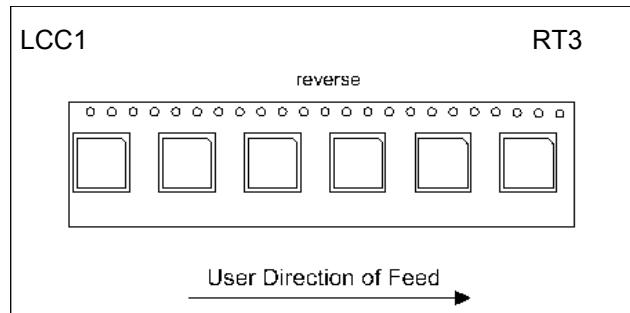
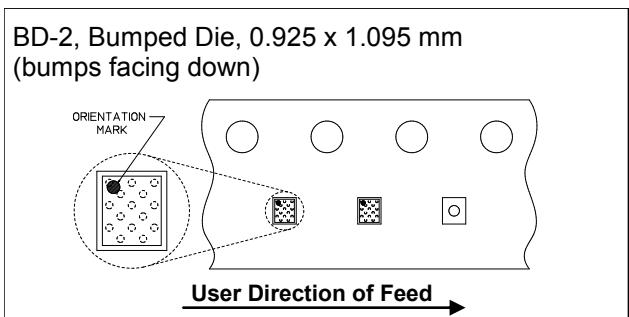
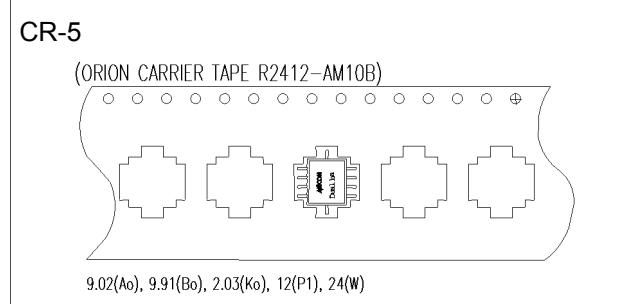
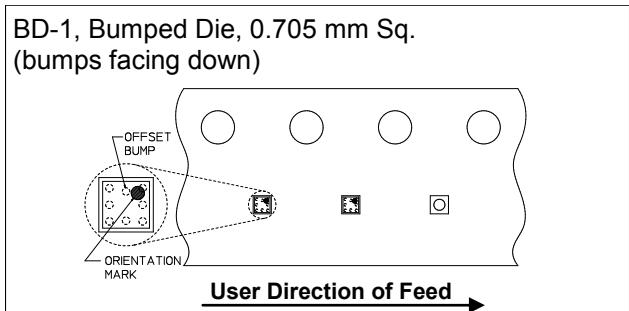
(ADVANTEK CARRIER TAPE BG1515-DC60.0P2)



15.3(Ao), 15.3(Bo), 3.8(Ko), 2.8(K1), 20(P1), 24(W)

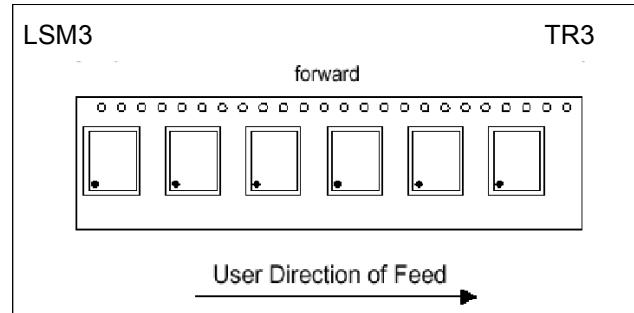
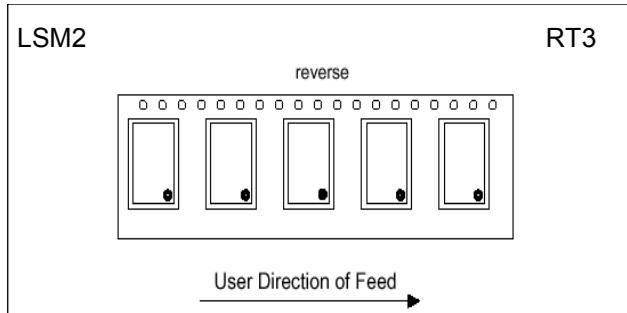
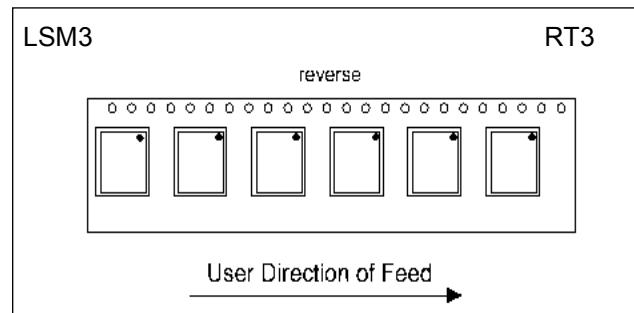
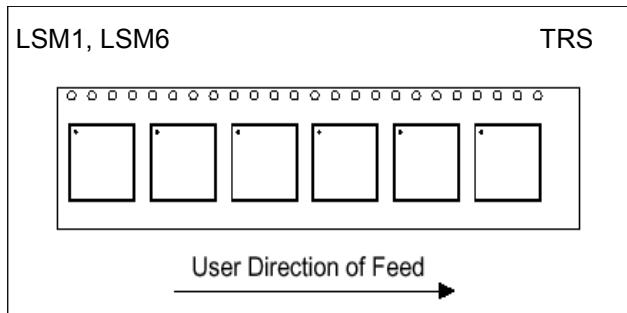
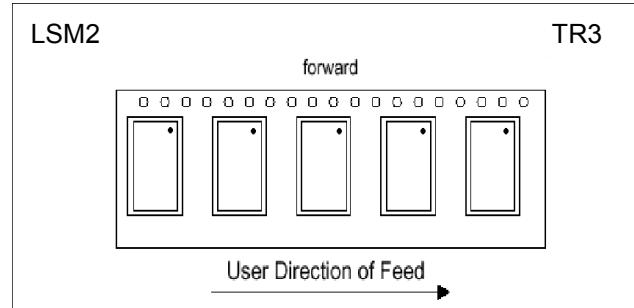
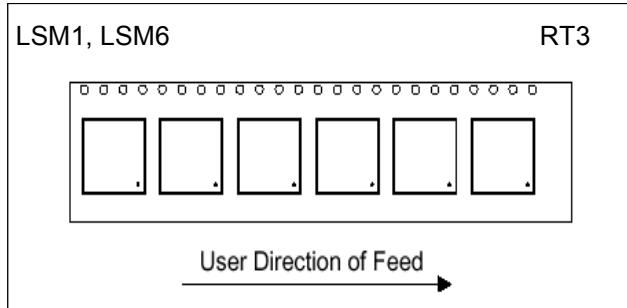
## Tape and Reel Packaging for Surface Mount Components

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Tape and Reel Packaging for Surface Mount Components

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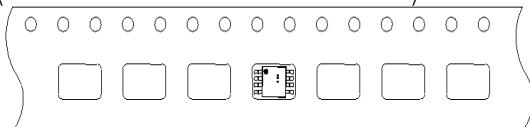


## Tape and Reel Packaging for Surface Mount Components

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MSOP-8, -10

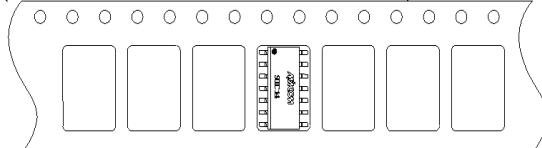
(ADVANTEK CARRIER TAPE MINS08-AC102.P2R)



5.3(Ao), 3.4(Bo), 1.4(Ko), 8(P1), 12(W)

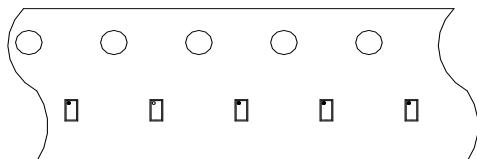
QSOP-24, SOIC-14

(ADVANTEK CARRIER TAPE SOIC14-CC92.0P2)



6.5(Ao), 9(Bo), 2.1(Ko), 8(P1), 16(W)

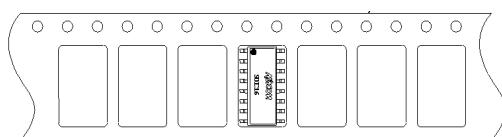
ODS-1294, 1295 & 1306



USER DIRECTION OF FEED

QSOP-28, SOIC-16

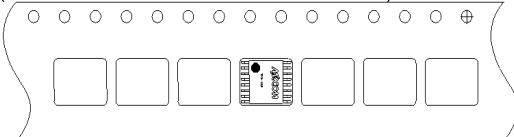
(ANDANTEK CARRIER TAPE SOIC-AC90.0P2)



6.5(Ao), 10.3(Bo), 2.1(Ko), 8(P1), 16(W)

QSOP-16, QSOP-16EP, TSSOP-16

(ADVANTEK CARRIER TAPE TSS016-AC95.0P2)

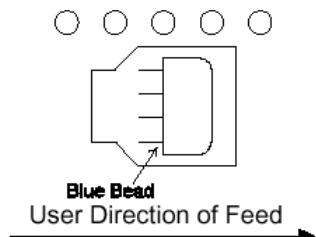


6.8(Ao), 5.4(Bo), 1.6(Ko), 1.3(K1), 8(P1), 16(W)

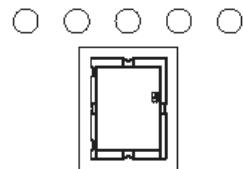
## Tape and Reel Packaging for Surface Mount Components

Rev. V20

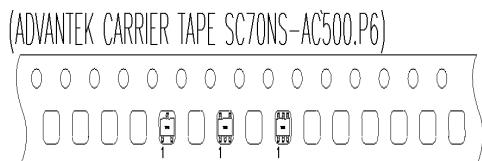
R-1, R-4, R-15



SM-2, SM-4, SM-44, SM-68, SM-74, SM-108

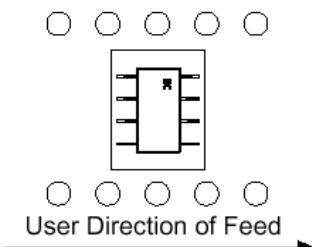


SC70-3LD, SC70-6LD

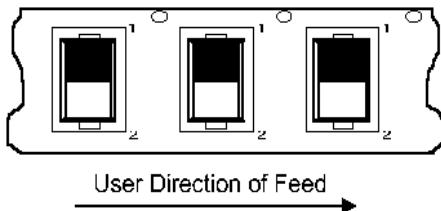


2.25(A<sub>0</sub>), 2.4(B<sub>0</sub>), 1.2(K<sub>0</sub>), 4(P<sub>1</sub>), 8(W)

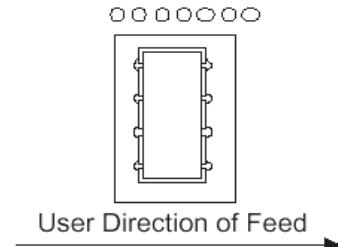
SM-3, SM-26



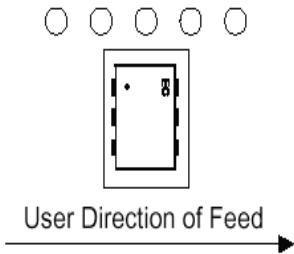
SC-79, SOD-323



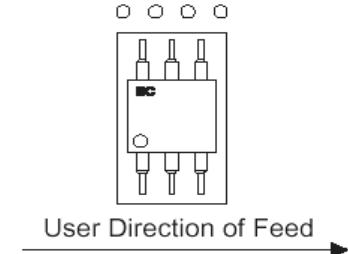
SM-7-1, SM-28, SM-55



SM-1, SM-23, SM-41, SM-69, SM-87, SM-89, SM-134

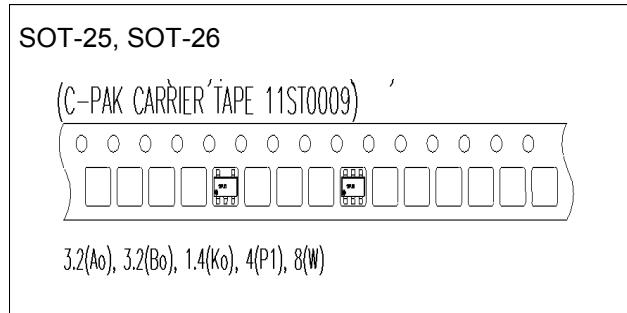
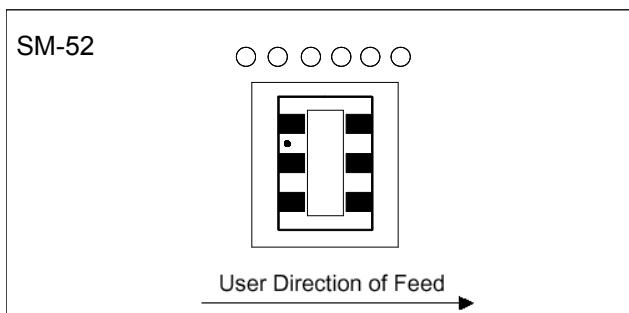
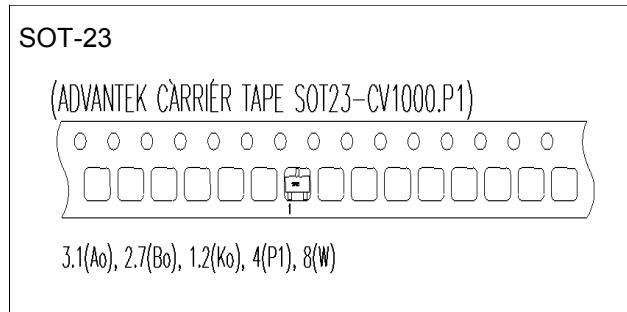
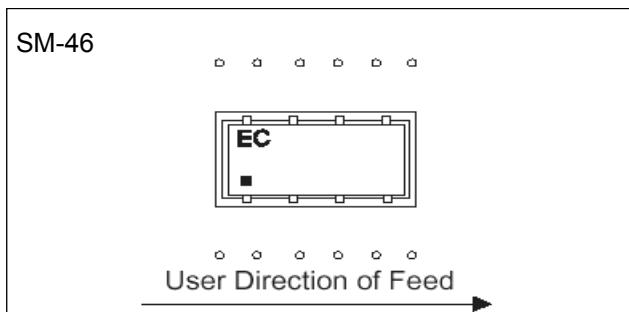
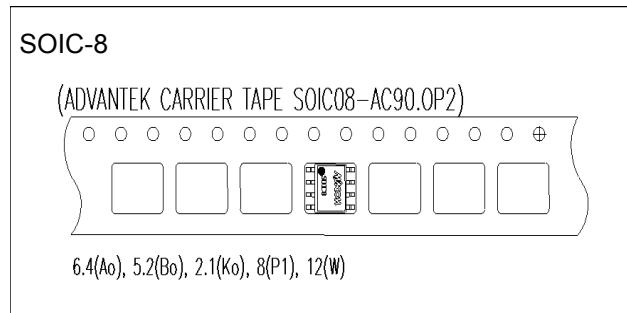
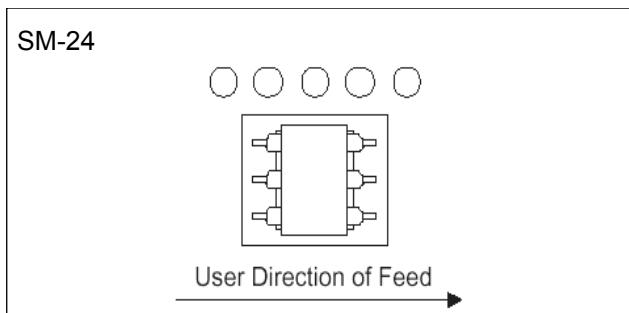
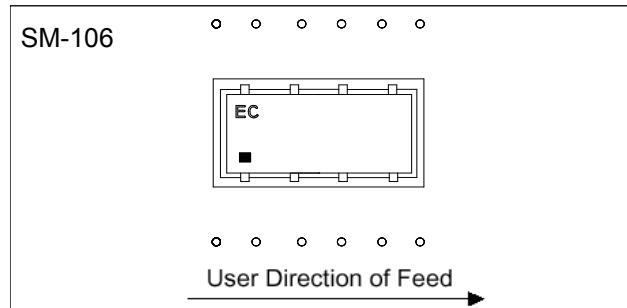
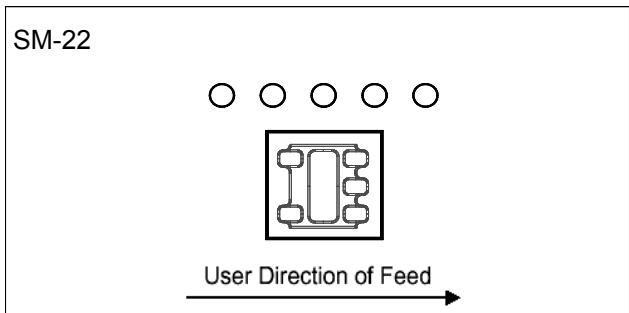


SM-20



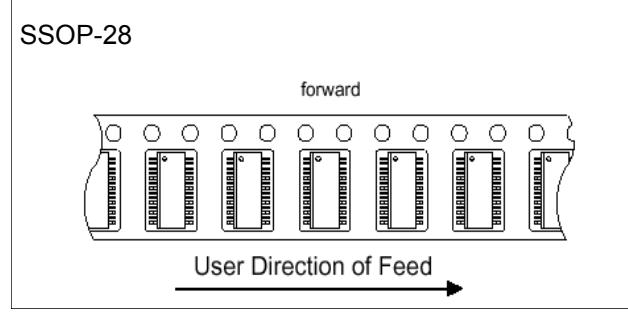
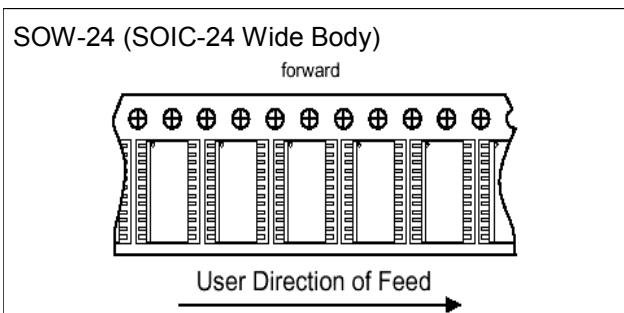
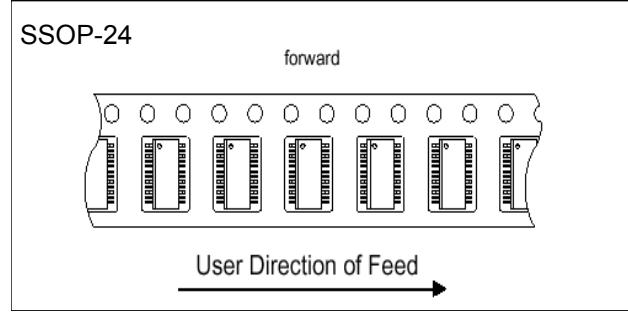
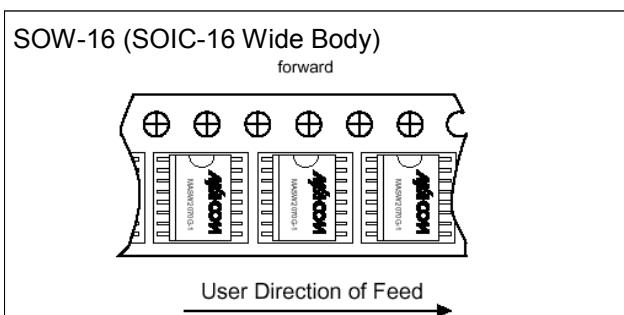
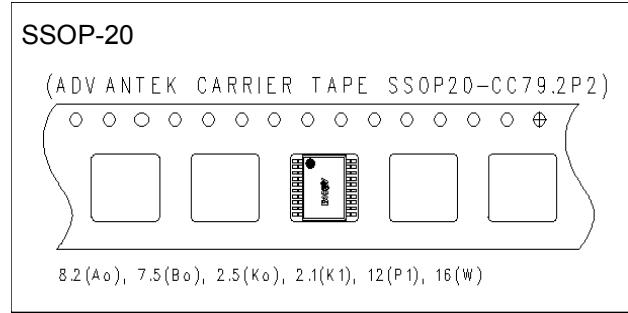
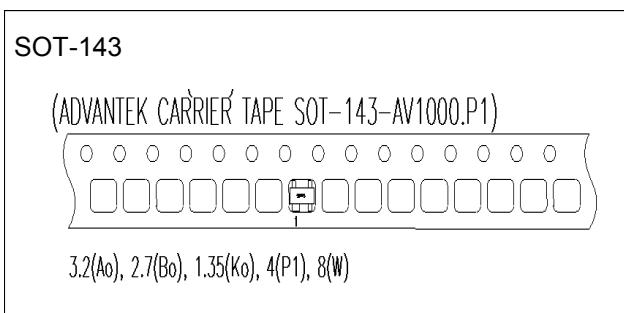
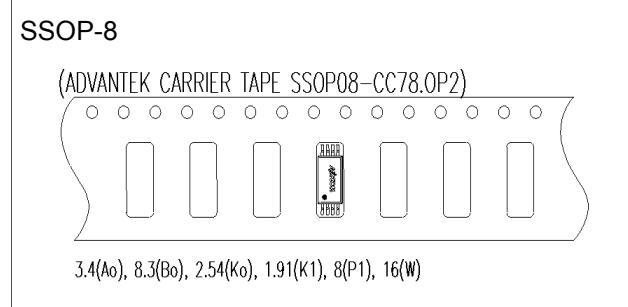
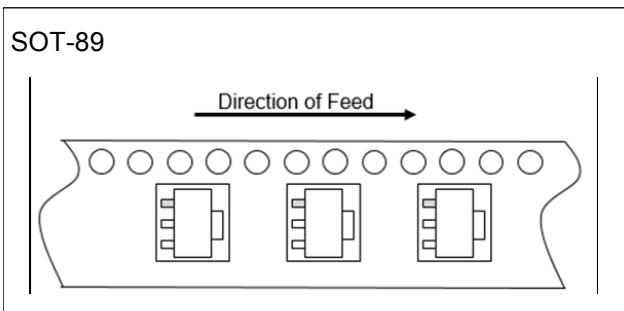
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**Tape and Reel Packaging for Surface Mount Components**

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**5.0 Reel Information<sup>3,4</sup>**

Package Type	Max. Devices per Reel	Reel Diameter (inches)
1 mm X1DFN-6LD, 2 mm STDFN-8LD, 2 mm STQFN-12LD, 2 x 2.5 mm STQFN-14LD	3000	7
1.2 x 1.5 mm TDFN-6LD (0.5 mm pitch), 1.5 x 1.2 mm TDFN-6LD (0.4 mm pitch)	3000	7
2 mm PDFN-8LD	3000	13
3 mm PQFN-12LD, 3 mm PQFN-12LD (1.1 mm height), 3 mm PQFN-16LD, 3 x 6 mm PDFN-14LD 4 mm PQFN-16LD, 4 mm PQFN-20LD, 4 mm PQFN-24LD	1000 3000	7 13
4 x 6 mm PQFN-32LD, 4 x 7 mm PQFN-36LD	1000	7
5 mm PQFN-20LD, 5 mm PQFN-28LD, 5 mm PQFN-32LD	1000	7
5 x 6 mm PQFN-36LD 5 x 7 mm PQFN-40LD	1000 3000	7 13
6 x 5 mm PDFN-8LD 6 x 7 mm PQFN-37LD	1000 3000	7 13
6 x 6 mm PQFN-20LD	3000	13
7 mm LGA-16LD	500	7
8 mm BGA, 15 mm BGA	1000	13
BD-1, BD-2, BD-3	3000	7
CR-5	2500	13
LCC1, LSM1, LSM2, LSM3	500	13
MSOP8, MSOP-8EP, MSOP-10	1000 3000	7 13
ODS-120	2000	7
ODS-186	750	7
ODS-1056	2500	7
ODS-1072	5000	13
ODS-1079	750	7
ODS-1091	500	7
ODS-1269, 1294, 1295, 1305, 1306, 1402, 1411, 1500	3000	7

**Tape and Reel Packaging for Surface Mount Components**

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**5.0 Reel Information (continued)<sup>3,4</sup>**

Package Type	Max. Devices per Reel	Reel Diameter (inches)
QSOP-16, QSOP-16EP, QSOP-24, QSOP-28	1000	7
R-1, R-4, R-5, R-15	500	13
SC70-3LD, SC70-6LD, SC-79, SOT-23, SOT-25, SOT-26, SOT-89, SOT-143, SOD-323	3000	7
SM-1, SM-55, SM-69	900	13
SM-2, SM-4, SM-7-1, SM-20, SM-23, SM-24, SM-41, SM-44	500	13
SM-3, SM-26, SM-28, SM-46, LSM6	300	13
SM-22	2000	13
SM-52	2500	13
SM-68, SM-74, SM-106, SM-108	500	13
SM-87, SM-89, SM-134	900	13
SOIC-8 (SO-8)	1000 3000 2000 (E-Series)	7 13 13
SOIC 14 (SO-14), SOIC 16 (SO-16)	1000 3000	7 13
SOW-16 (SOIC-16 Wide Body), SOW-24 (SOIC-24 Wide Body)	1000	13
SSOP-8	900 3000	7 13
SSOP-20, SSOP-24, SSOP-28	1000	13
TSSOP-16, TSSOP-16EP	1000 2500	7 13

3. See individual data sheets for part number ordering information.

4. Most device in tape and reel must be ordered in multiples of 100 pieces, with a minimum order quantity of either 200 or 500 pieces per part number. Consult factory for individual package types.

## Tape and Reel Packaging for Surface Mount Components

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