

TAPE AND REEL SPECIFICATIONS—SURFACE MOUNT

Tape and Reel Packing

Tape and reel packing is available for all SO, SOT-23, SOT-223, SSOP, TSSOP and DD packages in accordance with EIA Specification 481-A. Table 1 lists the applicable

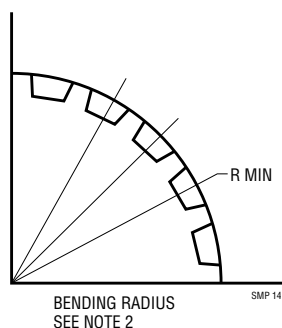
tape widths, dimensions and quantities for all LTC small outline products. Consult factory for tape and reel pricing and minimum order requirements.

Table 1. Tape and Reel Specifications

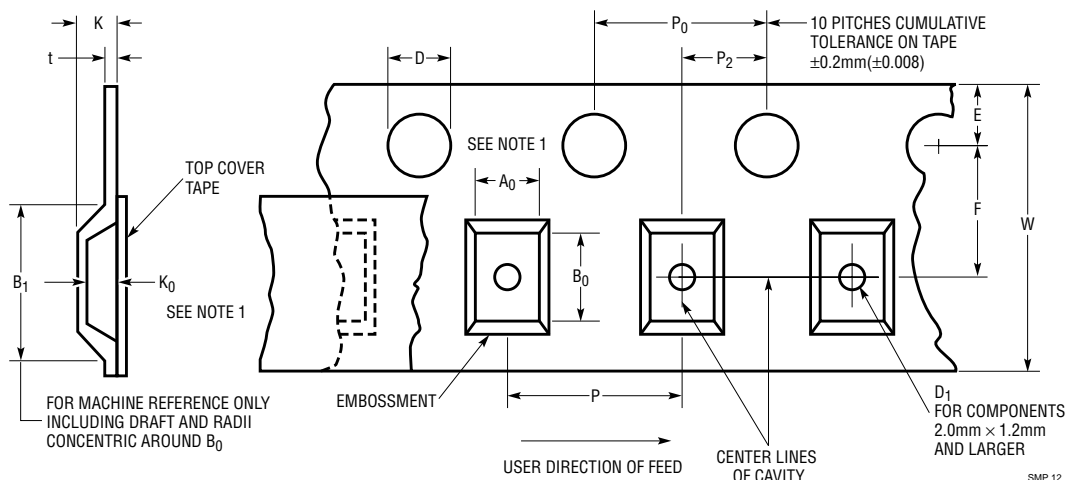
LTC Package Code Designator	LTC Package Style	Number of Leads Offered	W Tape Width	P Component Pitch	P ₀ Hole Pitch	Reel Diameter	Units per Reel
F	TSSOP (0.173)	20	16mm	8mm	4mm	13"	2,500
G	SSOP (0.209)	16	16mm	12mm	4mm	13"	2,000
G	SSOP (0.209)	20, 24	16mm	12mm	4mm	13"	1,800
G	SSOP (0.209)	28/36	24mm	12mm	4mm	13"	2,000
GN	SSOP (0.150)	16	12mm	8mm	4mm	13"	2,500
GN	SSOP (0.150)	20, 24	16mm	8mm	4mm	13"	2,500
GW	SSOP (0.300)	36, 44	24mm	12mm	4mm	13"	1,000
M, Q, R	DD	3, 5 or 7	24mm	16mm	4mm	13"	750
MS8	MSOP (0.118)	8	8mm	4mm	4mm	7"	2,500
S8	S8 (0.150)	8	12mm	8mm	4mm	13"	2,500
S	S (0.150)	14	16mm	8mm	4mm	13"	2,500
S	S (0.150)	16	16mm	8mm	4mm	13"	2,500
ST	SOT-223	3	16mm	12mm	4mm	13"	2,000
SW	SW (0.300)	16	16mm	12mm	4mm	13"	1,000
SW	SW (0.300)	18	24mm	12mm	4mm	13"	1,000
SW	SW (0.300)	20	24mm	12mm	4mm	13"	1,000
SW	SW (0.300)	24	24mm	12mm	4mm	13"	1,000
SW	SW (0.300)	28	24mm	12mm	4mm	13"	1,000
S3	SOT-23	3	8mm	4mm	4mm	7"	3,500
S4	SOT-143	4	8mm	4mm	4mm	7"	3,500
S5	SOT-23	5	8mm	4mm	4mm	7"	3,500

TAPE AND REEL SPECIFICATIONS—SURFACE MOUNT

Bending Radius



Embossed Carrier Dimensions (8mm, 12mm, 16mm, 24mm Tape Only)



Embossed Tape — Constant Dimensions

Tape Size	D	E	P ₀	P ₂	t(Max)	A ₀ B ₀ K ₀
8mm 12mm	1.5 +0.10 -0.0 (0.059)	1.75 ± 0.10 (0.069 ± 0.004)	4.0 ± 0.10 (0.157 ± 0.004)	2.0 ± 0.05 (0.079 ± 0.002)	0.600 (0.024)	See Note 1
16mm 24mm			2.0 ± 0.10 (0.079 ± 0.004)			

Embossed Tape Variable Dimensions

Tape Size	B ₁ Max	D ₁ Min	F	K Max	R Min	W
12mm	8.2 (0.323)	1.5 (0.059)	5.5 ± 0.05 (0.217 ± 0.002)	6.5 (0.256)	30 (1.181)	12.0 ± 0.30 (0.472 ± 0.012)
16mm	12.1 (0.476)		7.5 ± 0.10 (0.295 ± 0.004)		40 (1.575)	16 ± 0.30 (0.630 ± 0.012)
24mm	20.1 (0.791)		11.5 ± 0.10 (0.453 ± 0.004)		50 (1.969)	24 ± 0.30 (0.945 ± 0.012)
8mm (1/2 Pitch)	4.55 (0.179)	1.05 (0.039)	3.5 ± 0.005	2.5 (0.098)	25 0.984	8 ± 0.30 (0.314 ± 0.012)
8mm	8.2 (0.323)	1.5 (0.059)	5.5 ± 0.05 (0.217 ± 0.002)	6.5 (0.256)	30 (1.181)	12.0 ± 0.30 (0.472 ± 0.012)

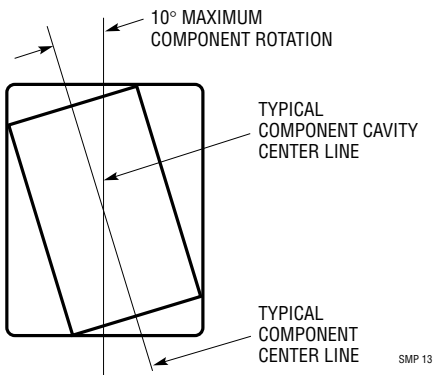
Note 1: A₀ B₀ K₀ are determined by component size. The clearance between the component and the cavity must be within 0.05 (0.002) min. to 0.65 (0.026) max. for 12mm tape, 0.05 (0.002) min. to 0.90 (0.035) max. for 16mm tape and 0.050 (0.002) min. to 1.00 (0.039) max. for 24mm tape and larger. The component cannot rotate more than 10° within the determined cavity.

Note 2: Tape and components shall pass around radius “R” without damage.

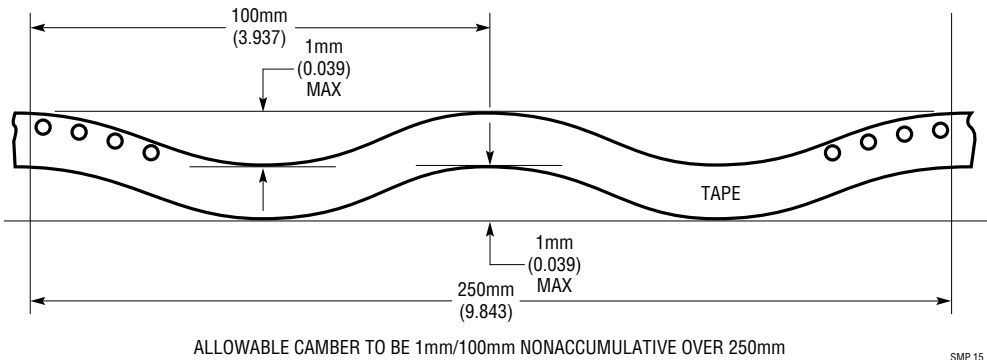
Note 3: Dimensions are in millimeters (inches) unless otherwise noted.

TAPE AND REEL SPECIFICATIONS—SURFACE MOUNT

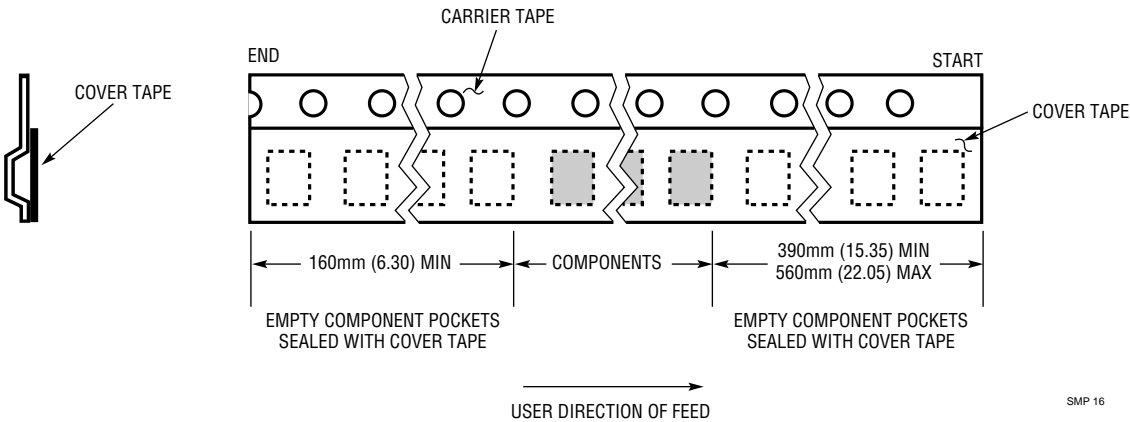
Component Rotation



Tape Camber (Top View)

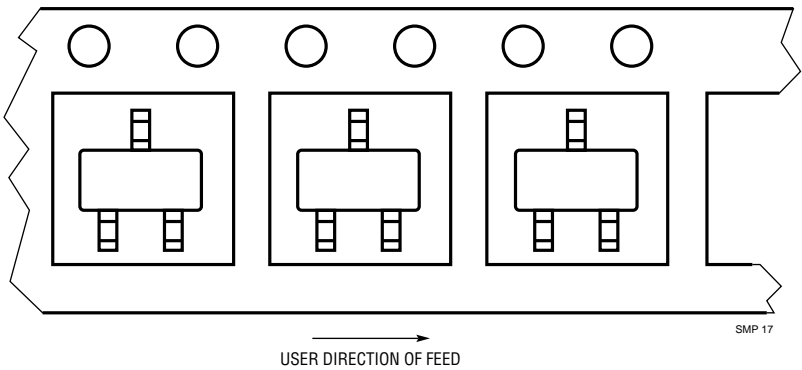


Tape Leader (Start/End) Specification

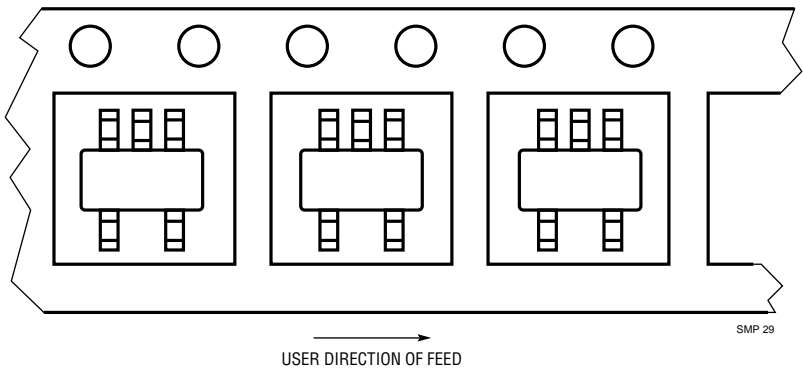


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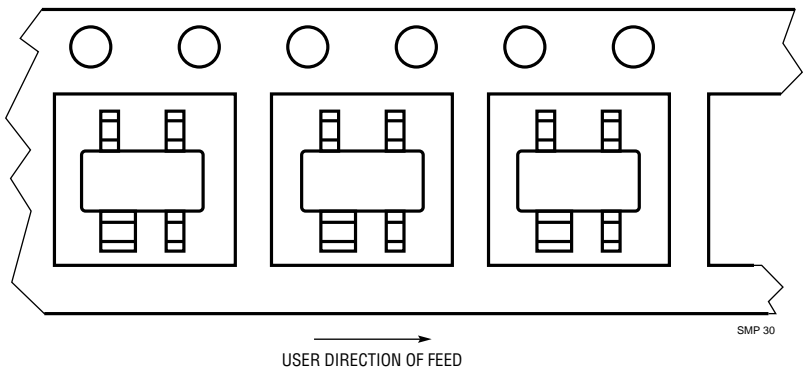
S3
SOT-23 Devices



S5
SOT-23 Devices

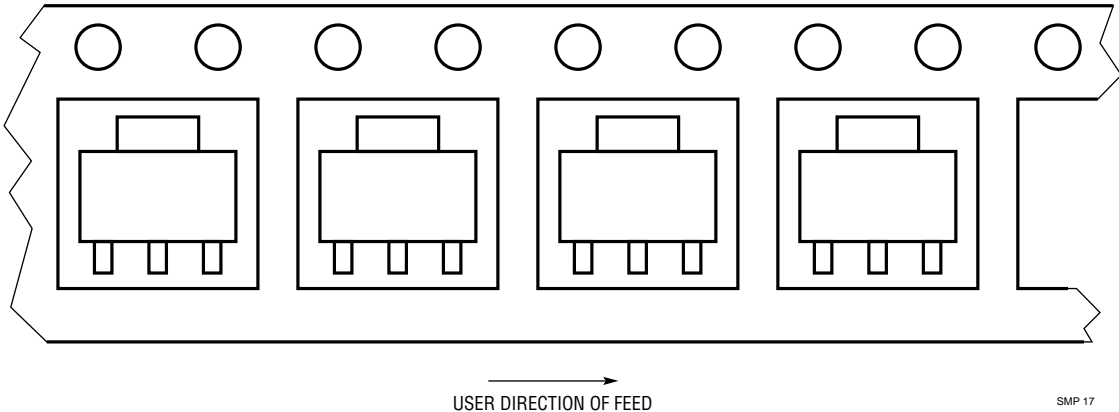


S4
SOT-143 Devices

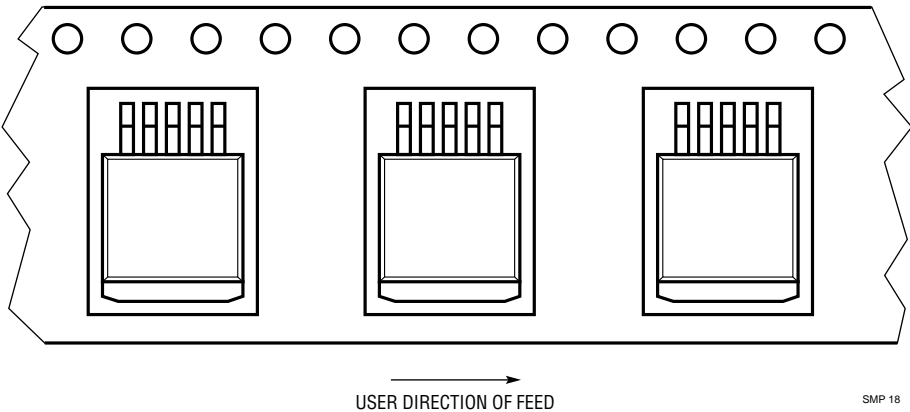


TAPE AND REEL SPECIFICATIONS—SURFACE MOUNT

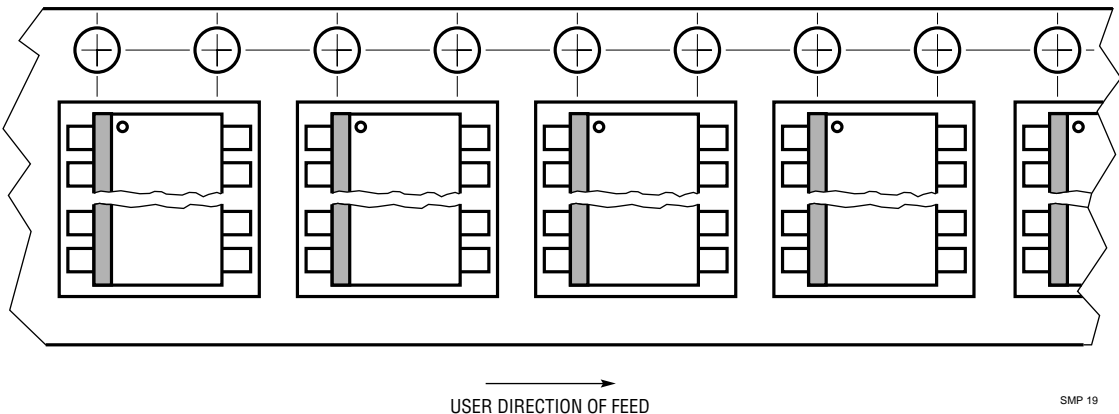
ST
SOT-223 Devices



M, Q, R
DD Pak Devices

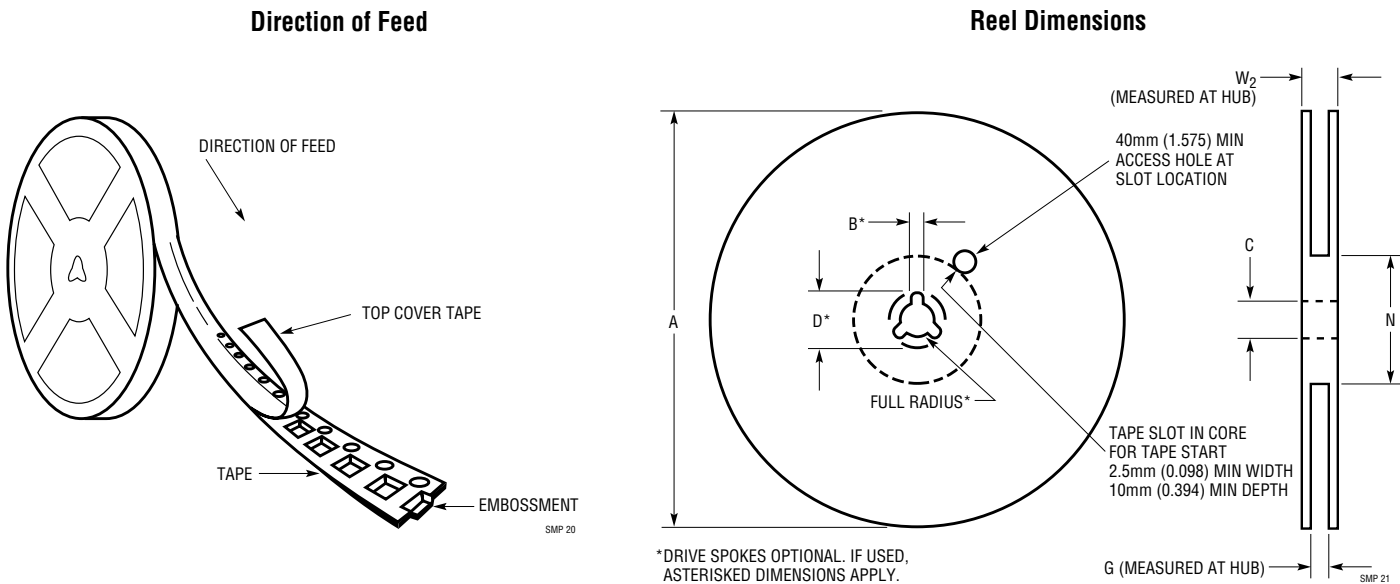


F, G, GN, GW, S8, S, SW, MS8
SSOP, TSSOP Devices



TAPE AND REEL

REEL DIMENSIONS—SURFACE MOUNT



TAPE SIZE	A MAX	B MIN	C	D* MIN	N MIN	G MAX	W ₂ MAX
8mm	180 (7.09)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	60 (2.36)	8.4 ^{+1.0} _{-0.0} (0.331 ^{+0.059} _{-0.00})	14.4 (0.567)
8mm	330 (12.922)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	50 (1.969)	8.4 ^{+1.0} _{-0.0} (0.331 ^{+0.059} _{-0.00})	14.4 (0.567)
12mm	180 (7.09)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	60 (2.36)	12.4 ^{+2.0} _{-0.0} (0.488 ^{+0.078} _{-0.00})	18.4 (0.724)
12mm	330 (12.992)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	50 (1.969)	12.4 ^{+2.0} _{-0.0} (0.488 ^{+0.078} _{-0.00})	18.4 (0.724)
16mm	330 (12.992)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	50 (1.969)	16.4 ^{+2.0} _{-0.00} (0.646 ^{+0.078} _{-0.00})	22.4 (0.882)
24mm	330 (12.992)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	50 (1.969)	24.4 ^{+2.0} _{-0.00} (0.961 ^{+0.078} _{-0.00})	30.4 (1.197)

Metric dimensions will govern.

Note 1: All dimensions in millimeters (inches) unless otherwise noted.

Note 2: English measurements rounded and for reference only.

TAPE AND REEL SPECIFICATIONS—TO-92

TO-92 Tape Dimension

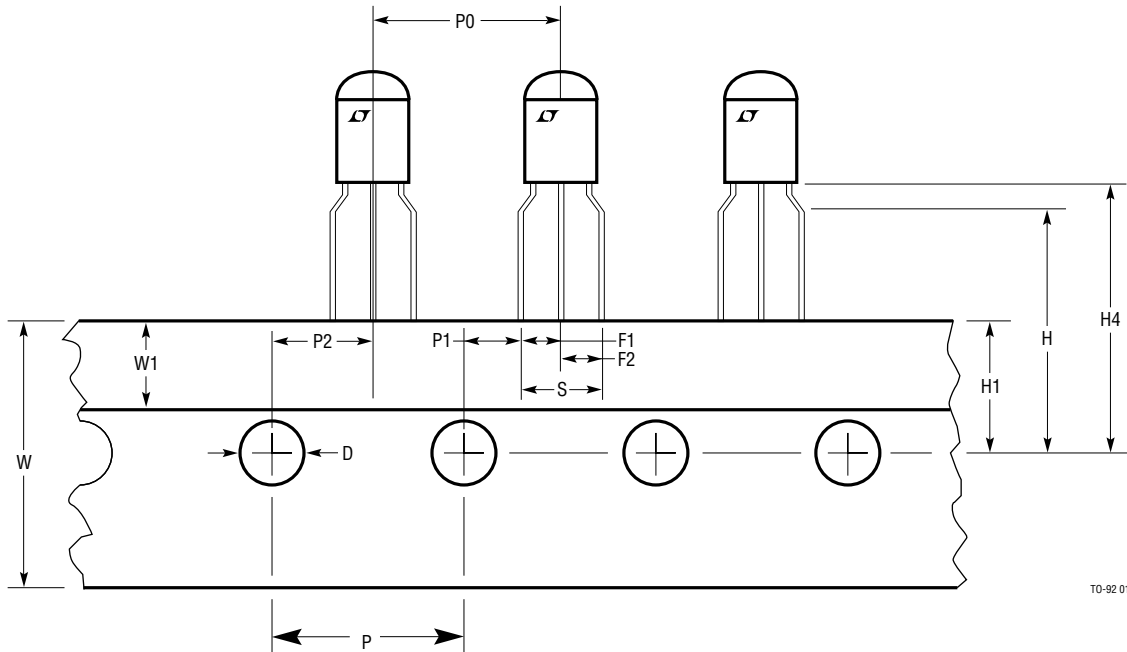
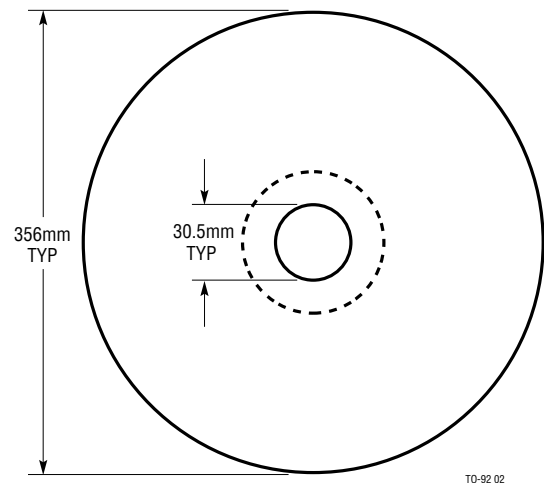


Table 1

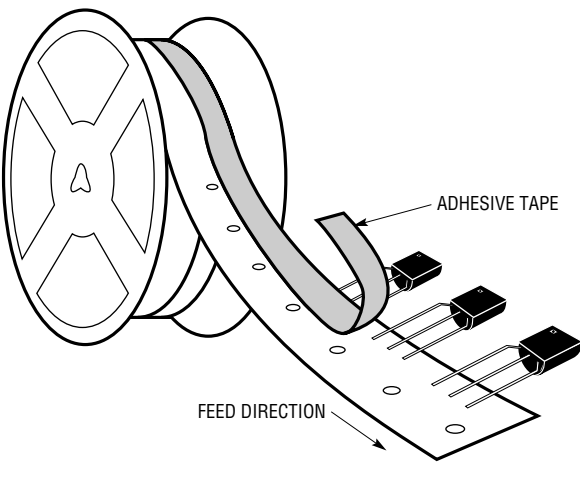
SYMBOL	DESCRIPTION	DIMENSION (mm)
D	Sprocket Hole Diameter	4 ± 0.2
H	Length from Seating Plane	16 ± 0.5
H1	Sprocket Hole Location	9 ± 0.5
H4	Component Base Height	20 Max
P	Sprocket Hole Pitch	12.7 ± 0.2
P0	Pitch of Component	12.7 ± 0.5
P1	Lead Location	3.85 ± 0.5
P2	Center of Seating Plane Location	6.35 ± 0.4
S	Component Lead Spacing	$5 + 8, -0.2$
W	Carrier Tape Width	$18 + 1, -0.5$
W1	Adhesive Tape Width	6.0 ± 1.0
F1, F2	Lead-to-Lead Distance	$2.5 + 0.4, -0.1$

TO-92 Reel Dimensions



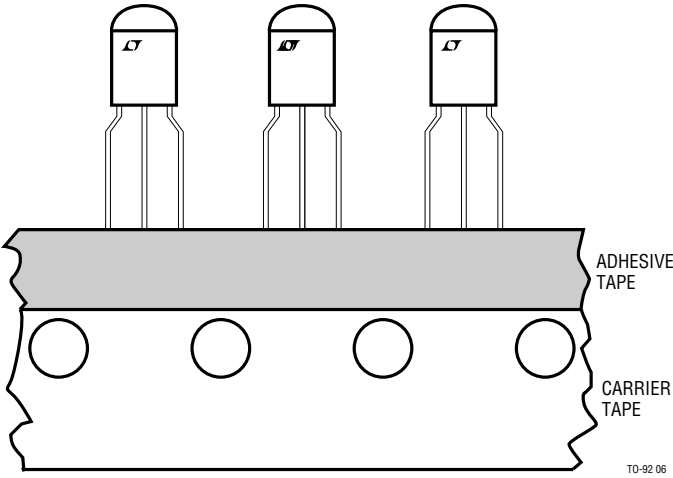
TAPE AND REEL SPECIFICATIONS—TO-92

Reel Pak Tape Orientation on Reel

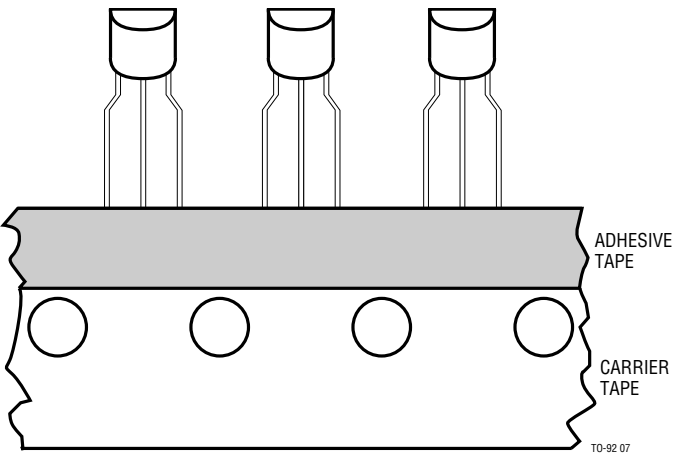


Package Orientation on Tape

STYLE E: Standard Flow TR
(Flat Side of Package Faces Toward the Adhesive Tape)



STYLE A: Special Flow TRA
(Rounded Side of Package Faces Toward the Adhesive Tape)



TAPE AND REEL SPECIFICATIONS—TO-92

Ammo Pak Tape Orientation Inside Box

