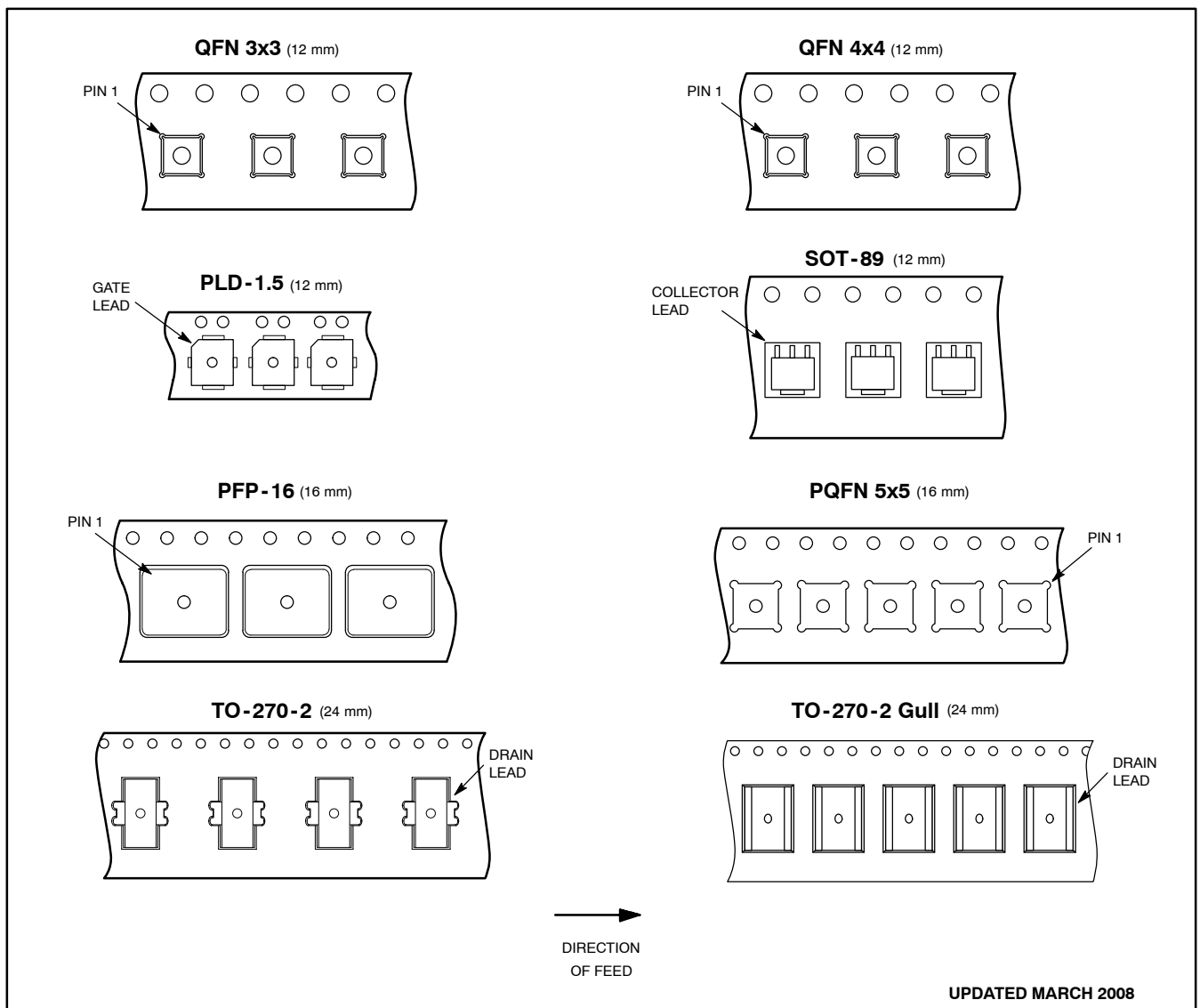


RF Tape and Reel Specifications

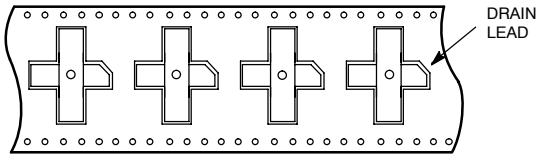
Embossed Tape and Reel is used to facilitate automatic pick and place equipment feed requirements. The tape is used as the shipping container for various products and requires a minimum of handling. The antistatic/conductive tape provides a secure cavity for the product when sealed with the “peel-back” cover tape.

- Two Reel Sizes Available (7” and 13”)
- Used for Automatic Pick and Place Feed Systems
- Minimizes Product Handling
- EIA 481, -1, -2
- SOT-363 in 8 mm Tape
- PLD-1.5, QFN 3x3, QFN 4x4, SOT-89 in 12 mm Tape
- PFP-16, PQFN 5x5 in 16 mm Tape
- TO-270-2, TO-270-2 Gull in 24 mm Tape
- NI-360, NI-360HF, NI-360S, NI-400, NI-400S in 32 mm Tape
- TO-270 WB-4, TO-270 WBL-4, TO-270 WB-14, TO-270 WB-14 Gull, TO-270 WB-16, TO-270 WB-16 Gull, TO-272-2, TO-272-6, TO-272-6 Wrap, TO-272-8, TO-272-8 Wrap, TO-272 WB-4, TO-272 WB-14, TO-272 WB-16, TO-272 WB-16 Gull, in 44 mm Tape
- NI-780, NI-780S, NI-860, NI-880, NI-880S, NI-1230, NI-1230S in 56 mm Tape

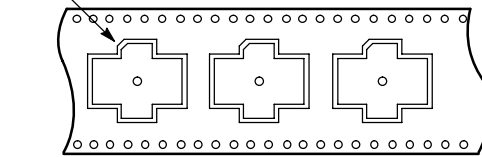
Use the standard device title and add the required suffix as listed in the option table on the following page. Note that the individual reels have a finite number of devices depending on the type of product contained in the tape. Also note the minimum lot size is one full reel for each line item, and orders are required to be in increments of the single reel quantity.



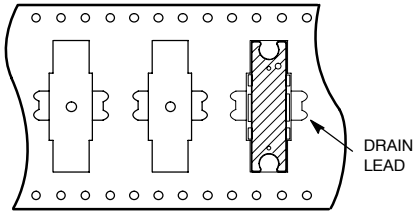
NI-360, NI-360HF, NI-360S (32 mm)



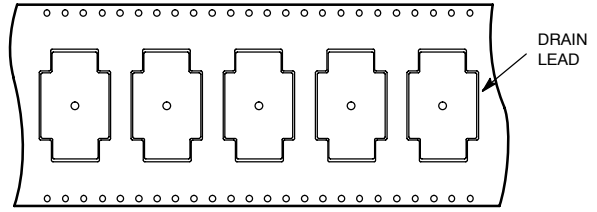
NI-400, NI-400S (32 mm)



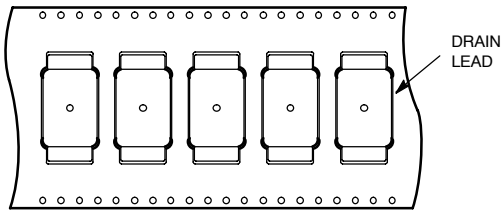
TO-272-2, TO-272-6 Wrap, TO-272-6, TO-272-8, TO-272-8 Wrap (44 mm)



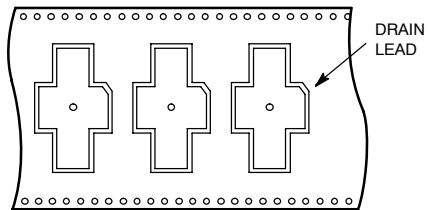
TO-270 WB-4, TO-270 WBL-4, TO-270 WB-14, TO-270 WB-16, TO-272 WB-4, TO-272 WB-14, TO-272 WB-16 (44 mm)



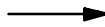
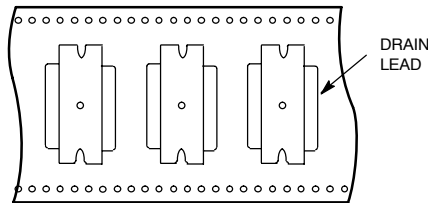
TO-270 WB-14 Gull, TO-270 WB-16 Gull, TO-272 WB-16 Gull (44 mm)



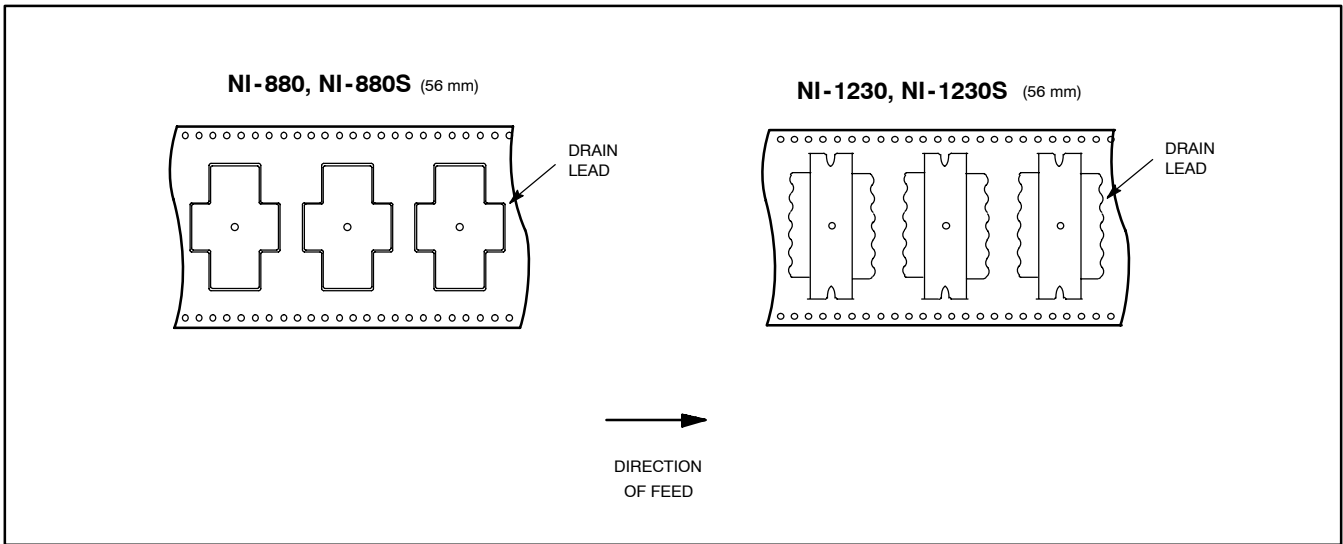
NI-780, NI-780S (56 mm)



NI-860 (56 mm)



DIRECTION OF FEED

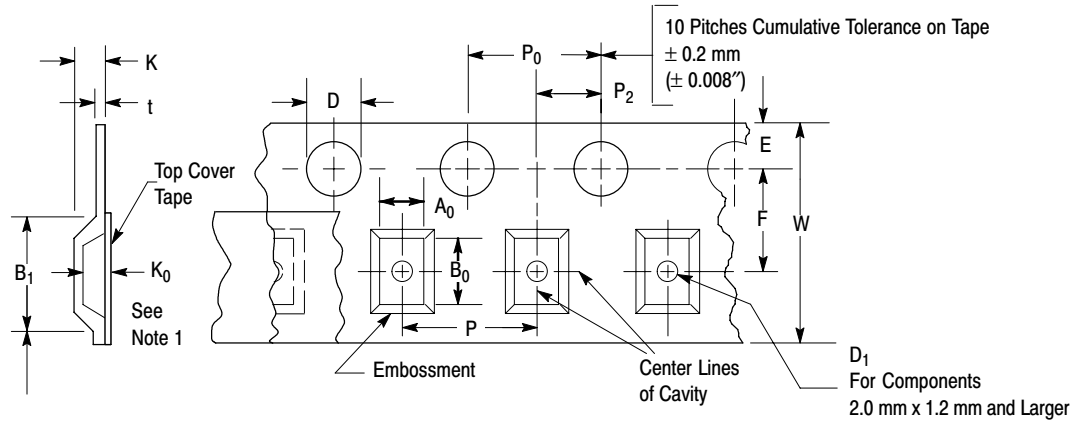


RF EMBOSSED TAPE AND REEL ORDERING INFORMATION

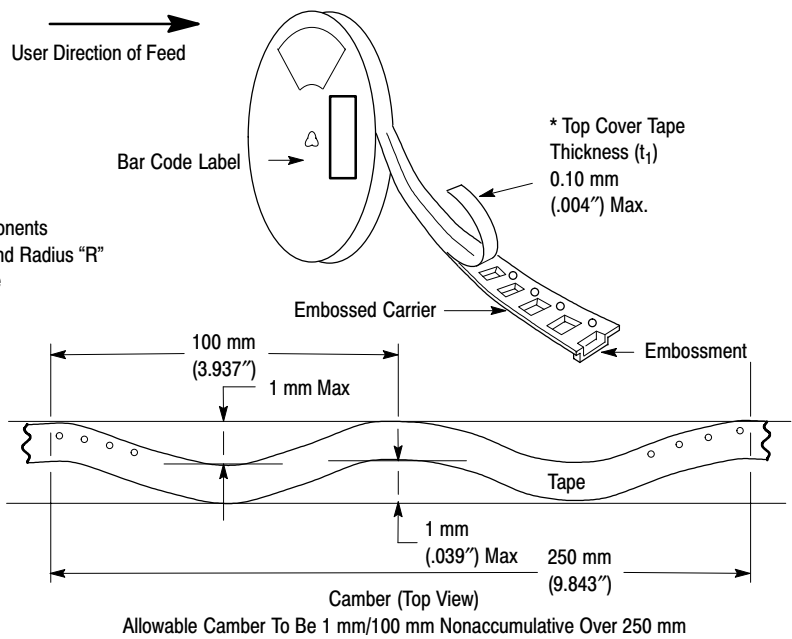
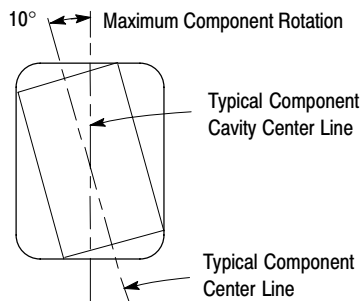
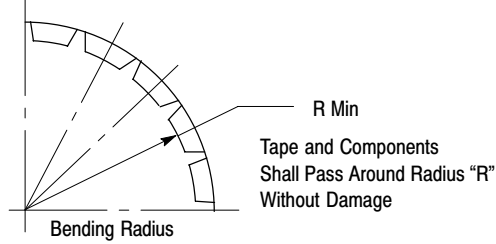
Package	Tape Width (mm)	Pitch (mm (inch))	Reel Size (mm (inch))	Devices Per Reel and Minimum Order Quantity	Device Suffix
NI-360 (360B)	32	24.0 ± 0.1 (.945 ± .004)	330 (13)	500	R1
NI-360HF (360D)	32	24.0 ± 0.1 (.945 ± .004)	330 (13)	500 50	R1 R5
NI-360S (360C)	32	24.0 ± 0.1 (.945 ± .004)	330 (13)	500	R1
NI-400 (465E)	32	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-400S (465F)	32	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-780 (465)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-780S (465A)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-860 (375B, 375G) (375G)	56 56	28.0 ± 0.1 (1.10 ± .004) 28.0 ± 0.1 (1.10 ± .004)	330 (13) 330 (13)	250 50	R3 R5
NI-880 (465B)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-880S (465C)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	250	R3
NI-1230 (375D)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	150	R6
NI-1230S (375E)	56	32.0 ± 0.1 (1.26 ± .004)	330 (13)	150	R6
PPF-16 (978)	16	12.0 ± 0.1 (.472 ± .004)	330 (13)	1,500	R2
PLD-1.5 (466)	12 12	8.0 ± 0.1 (.315 ± .004) 8.0 ± 0.1 (.315 ± .004)	178 (7) 178 (7)	1,000 100	T1 R4
PQFN 5x5 (1543)	16	8.0 ± 0.1 (.315 ± .004)	330 (13)	1,000	T1
QFN 3x3 (1483)	12	8.0 ± 0.1 (.315 ± .004)	178 (7)	1,500	R2
QFN 4x4 (1898)	12	8.0 ± 0.1 (.315 ± .004)	330 (13)	1,000	T1
SOT-89 (1514)	12	8.0 ± 0.1 (.315 ± .004)	178 (7)	1,000	T1
SOT-363	8	4.0 ± 0.1 (.157 ± .004)	178 (7)	3,000	T1
TO-270-2 (1265)	24	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	R1
TO-270-2 Gull (1265A)	24	12.0 ± 0.1 (.471 ± .004)	330 (13)	500	R1
TO-270 WB-4 (1486)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-270 WBL-4 (1730)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-270 WB-14 (1618)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-270 WB-14 Gull (1621)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	R1
TO-270 WB-16 (1886)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-270 WB-16 Gull (1887)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	R1
TO-272-2 (1337)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	R1
TO-272-6 (1264A)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	T1
TO-272-6 Wrap (1264)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	T1
TO-272-8 (1366A)	44	20.0 ± 0.1 (.787 ± .004)	330 (13)	500	T1
TO-272-8 Wrap (1366)	44	20.0 ± 0.1 (.787 ± .004)	330 (13)	500	T1
TO-272 WB-4 (1484)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-272 WB-14 (1617)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-272 WB-16 (1329)	44	20.0 ± 0.1 (.788 ± .004)	330 (13)	500	R1
TO-272 WB-16 Gull (1329A)	44	16.0 ± 0.1 (.631 ± .004)	330 (13)	500	R1

EMBOSSED TAPE AND REEL DATA FOR DISCRETES

CARRIER TAPE SPECIFICATIONS



For Machine Reference Only
 Including Draft and RADII
 Concentric Around B_0



DIMENSIONS

Tape Size	B ₁ Max	D	D ₁	E ₁	F	K	P ₀	P ₂	R Min	t Max	W Max					
12 mm	8.2 mm (.323")	1.5±0.1 mm -0.0 (.059±.004" -0.0)	1.5 mm Min (.060")	1.75±0.1 mm (.069±.004")	5.5±0.05 mm (.217±.002")	6.4 mm Max (.252")	4.0±0.1 mm (.157±.004")	2.0±0.1 mm (.079±.004")	30 mm (1.18")	0.4 mm (.016")	12±.30 mm (.470±.012")					
	4.0 mm (.157") QFN 3x3											1.2 mm Max (.048") QFN 3x3 QFN 4x4	2.0±0.5 mm (.079±.002")	0.30 mm (.012")		
	4.45 mm (.175") QFN 4x4		1.7 mm Min (.068") SOT-89			1.9 mm Max (.076") SOT-89		2.0±0.1 mm (.079±.004")		0.4 mm (.016")		12±.2 mm (.470±.008") SOT-89				
	5.1 mm (.201") SOT-89					7.9 mm Max (.311")							2.0±0.1 mm (.079±.004")	0.4 mm (.016")	16±.3 mm (.642±.008")	
16 mm	12.1 mm (.476")	1.5 mm Min (.060")	1.5 mm Min (.060")	7.5±0.10 mm (.295±.004")	7.9 mm Max (.311")	2.8 mm Max (.110") PQFN 5x5	4.0±0.2 mm (.157±.001") PQFN 5x5	2.0±0.5 mm (.079±.002") PQFN 5x5	0.4 mm (.016")	0.30 mm (.012") PQFN 5x5	16±.3 mm (.642±.008")					
	6.1 mm (.241") PQFN 5x5											11.5±0.1 mm (.453±.004")	11.9 mm Max (.468")	4.0±0.1 mm (.157±.004")	2.0±0.1 mm (.079±.004")	0.4 mm (.016")
24 mm	20.1 mm (.791")	1.5 mm Min (.059")	1.5 mm Min (.059")	14.2±0.1 mm (.559±.004")	4.6 mm (.181") NI-360/HF/S	2.82 mm Max (.111") TO-270-2 Gull	4.0±0.1 mm (.157±.004")	2.0±0.1 mm (.079±.004")	50 mm (1.969")	0.6 mm (.024")	32.2 mm (1.272")					
	11.1 mm (.437") TO-270-2 Gull											4.3 mm (.169") NI-400/S	5.34 mm (.210") NI-600/S	0.338 mm (.013") TO-270-2 Gull		
32 mm	23.0 mm (.906")	1.5 mm Min (.059")	1.5 mm Min (.059")	14.2±0.1 mm (.559±.004")	4.6 mm (.181") NI-360/HF/S	2.82 mm Max (.111") TO-270-2 Gull	4.0±0.1 mm (.157±.004")	2.0±0.1 mm (.079±.004")	50 mm (1.969")	0.6 mm (.024")	32.2 mm (1.272")					
												4.3 mm (.169") NI-400/S	5.34 mm (.210") NI-600/S	0.338 mm (.013") TO-270-2 Gull		
															4.3 mm (.169") NI-400/S	5.34 mm (.210") NI-600/S
44 mm	35.0 mm (1.378")	2.0 mm Min (.079")	2.0 mm Min (.079")	11.5±0.1 mm (.453±.004")	15.9 mm Max (.625")	15.9 mm Max (.625")	20.0±0.1 mm (.788±.004") TO-272 WB-4, TO-272 WB-16	2.0±0.15 mm (.079±.006")	50 mm (1.969")	0.6 mm (.024")	44±.30 mm (1.732±.012")					
												20.2±0.15 mm (0.796±.006")	2.92 mm (.115") TO-272 WB-4, TO-272 WB-16	2.92 mm (.115") TO-272 WB-4, TO-272 WB-16	2.0±0.15 mm (.079±.006")	.318 mm (.012") TO-272 WB-4, TO-272 WB-16
23.77 mm (.936") TO-270 WB-14 Gull, TO-270 WB-16 Gull, TO-272 WB-16 Gull	3.20 mm (.126") TO-272 WB-16 Gull	16.0±0.1 mm (.630±.004") WB-16 Gull	2.0±0.15 mm (.079±.006")	.343 mm (.013") TO-272 WB-16 Gull												

Metric dimensions govern — English are in parentheses for reference only.

NOTE 1: A₀, B₀, and K₀ are determined by component size. The clearance between the components and the cavity must be within .05 mm min. to .50 mm max., the component cannot rotate more than 10° within the determined cavity.

NOTE 2: Pitch information is contained in the Embossed Tape and Reel Ordering Information on pg. 4.

Tape and Reel Specifications

DIMENSIONS (continued)

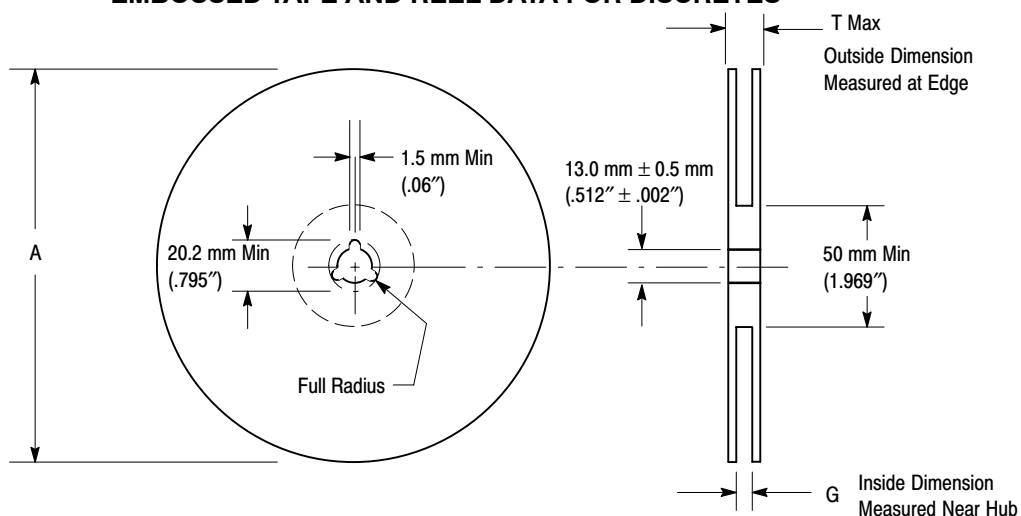
Tape Size	B ₁ Max	D	D ₁	E ₁	F	K	P ₀	P ₂	R Min	t Max	W Max	
56 mm	34.7 mm (1.366") NI-780/S NI-860 NI-880/S	1.5+0.1 mm -0.0 (.059+.004" -0.0)	2.0 mm Min (.079")	1.75±0.1 mm (.069±.004")	26.2 ±0.15 mm (1.031±.006")	4.5 mm (0.177") NI-780/S	4.0±0.1 mm (.157±.004")	2.0±0.15 mm (.079±.006")			0.6 mm (.024") NI-780/S NI-860 NI-880/S NI-1230	56±.30 mm (2.205± .012")
	5.0 mm (0.197") NI-860											
	5.23 mm (0.206") NI-880/S											
	5.2 mm (0.205") NI-1230											
	41.6 mm (1.638") NI-1230											

Metric dimensions govern — English are in parentheses for reference only.

NOTE 1: A₀, B₀, and K₀ are determined by component size. The clearance between the components and the cavity must be within .05 mm min. to .50 mm max., the component cannot rotate more than 10° within the determined cavity.

NOTE 2: Pitch information is contained in the Embossed Tape and Reel Ordering Information on pg. 4.

EMBOSSED TAPE AND REEL DATA FOR DISCRETES



Size	A Max	G	T Max
12 mm	330 mm (12.992")	12.4 mm + 2.0 mm, - 0.0 (.49" + .079", - 0.00)	18.4 mm (.72")
12 mm QFN 3x3 QFN 4x4	178 mm (7")	12.4 mm + 2.0 mm, - 0.0 (.49" + .079", - 0.00)	18.4 mm (.72")
12 mm SOT-89	178 mm (7")	13.5 mm (.53")	16.5 mm (.65")
16 mm	330 mm (14.173")	16.4 mm + 2.0 mm, - 0.0 (.646" + .078", - 0.00)	22.4 mm (.882")
16 mm PQFN 5x5	360 mm (14.173")	16.4 mm + 2.0 mm, - 0.0 (.646" + .078", - 0.00)	22.4 mm (.882")
24 mm	360 mm (14.173")	24.4 mm + 2.0 mm, - 0.0 (.961" + .070", - 0.00)	30.4 mm (1.197")
24 mm TO-270-2 Gull	330 mm (12.992")	24.4 mm + 2.0 mm, - 0.0 (.961" + .070", - 0.00)	30.4 mm (1.197")
32 mm	360 mm (14.163")	32.4 mm + 2.0 mm, - 0.0 (1.276" + 0.79", - 0.00)	38.4 mm (1.512")
44 mm	330 mm (12.992")	44.4 mm + 2.0 mm, - 0.0 (1.748" + 0.79", - 0.00)	50.4 mm (1.984")
44 mm TO-270 WB-4, WBL-4, WB-14, WB-14 Gull, WB-16, WB-16 Gull, TO-272 WB-4, WB-14, WB-16, WB-16 Gull	330 mm (12.992")	45.3 mm + 0.5 mm, - 0.0 (1.785" + 0.02", - 0.00)	50.4 mm (1.984")
56 mm	330 mm (12.992")	56.4 mm + 2.0 mm, - 0.0 (2.220" + 0.79", - 0.00)	62 mm (2.441")

Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

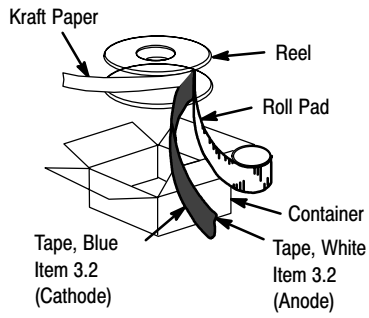


Figure 1. Reel Packing

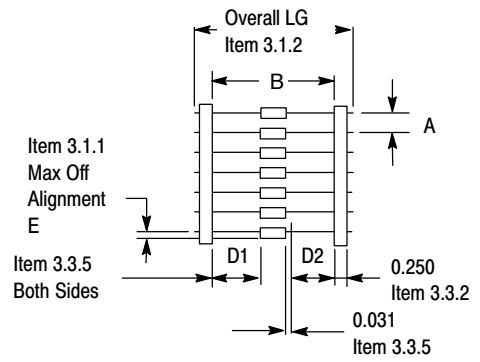


Figure 2. Component Spacing

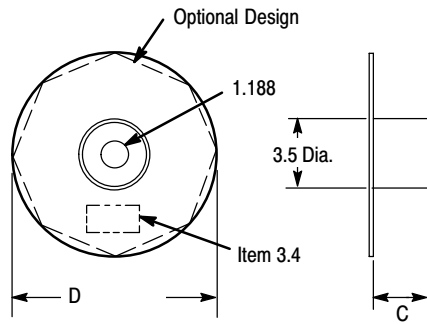


Figure 3. Reel Dimensions

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