

FEATURES

- SHIELDED POWER INDUCTOR
- SMALL SIZE WITH CURRENT RATINGS TO 3.0 AMPS)
- SURFACE MOUNTABLE CONSTRUCTION
- HIGH INDUCTANCE (UP TO 100μH)
- TAPED AND REELED FOR AUTOMATIC INSERTION
- FOR USE IN DC/DC CONVERTERS

RoHS Compliant
includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

Case Size	NPIS21D	NPIS24D	NPIS28D	NPIS36D	NPIS42D	NPIS43D	NPIS52D	NPIS53D	NPIS63D	NPIS64D
Inductance Range	1.5 ~ 10μH	1.5 ~ 12μH	2.2 ~ 47μH	2.2 ~ 47μH	10 ~ 180μH	1.2 ~ 180μH	2.5 ~ 100μH	2.6 ~ 100μH	3.0 ~ 100μH	3.3 ~ 100μH
Ambient Operating Temperature Range	-55°C ~ +125°C									
Maximum Component Temperature (Ambient + Self-Heating)	+155°C									
Temperature Rise at I _{rms}	+40°C max.									
Inductance Change at I _{sat}	-35% typical									
Inductance Tolerance	±20% (M), ±30% (Y)									
Resistance to Solder Heat	250°C for 10 seconds									

DIMENSIONS (mm)

Series	A	B	C	D	E	F
NPIS21D	3.2 max	3.2 max	1.3 max	1.0 typ	3.8 ref	0.68 ref
NPIS24D	3.2 max	3.2 max	1.6 max	1.0 typ	3.8 ref	0.68 ref
NPIS28D	3.2 max	3.2 max	2.0 max	1.0 typ	3.8 ref	0.78 ref
NPIS36D	4.1 max	4.1 max	1.9 max	1.2 typ	-	-
NPIS42D	4.8 ± 0.5	4.8 ± 0.5	2.0 max	1.6 ref	-	-
NPIS43D	4.8 ± 0.5	4.8 ± 0.5	3.0 max	1.6 ref	-	-
NPIS52D	5.6 ± 0.5	5.6 ± 0.5	2.0 max	2.0 ref	-	-
NPIS53D	5.6 ± 0.5	5.6 ± 0.5	3.0 max	2.0 ref	-	-
NPIS63D	6.6 ± 0.5	6.6 ± 0.5	3.0 max	2.0 ref	-	-
NPIS64D	6.6 ± 0.5	6.6 ± 0.5	4.0 max	2.0 ref	-	-

PART NUMBER SYSTEM

NPIS 42 D 150 M TR N F

Termination Finish:
F = Standard Pb-free (100%Sn)

Packaging: TR = Tape & Reel

Packaging: TR = Tape & Reel

Inductance Tolerance Code: M=±20%, Y=±30%

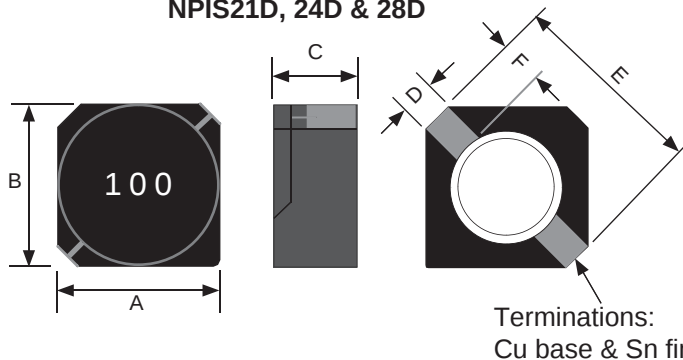
Inductance Code (μH): 1st two digits are significant, 3rd digit is multiplier.

Construction Code (see drawing for details)

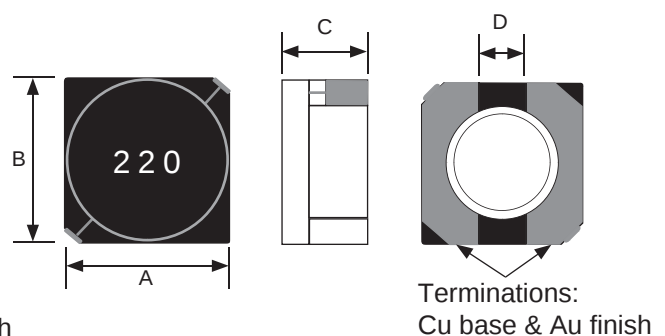
Size Code (see table for details)

Series

NPIS21D, 24D & 28D



NPIS36D, 42D, 43D, 52D, 53D, 63D & 64D



Part Number	STANDARD VALUES - CASE SIZE 21 (3.2 x 3.2 x 1.3mm)				
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIS21D1R5YTRF	1.5 ± 30%	0.068	0.90	1.48	100KHz
NPIS21D2R2YTRF	2.2 ± 30%	0.098	0.78	1.27	
NPIS21D3R3YTRF	3.3 ± 30%	0.123	0.60	1.02	
NPIS21D4R7YTRF	4.7 ± 30%	0.170	0.50	0.88	
NPIS21D6R8YTRF	6.8 ± 30%	0.260	0.44	0.78	
NPIS21D100YTRF	10 ± 30%	0.400	0.35	0.65	

Maximum +40°C temperature rise at I_{rms}. Typical -35% inductance change at I_{sat}.



Part Number	STANDARD VALUES - CASE SIZE 24 (3.2 x 3.2 x 1.6mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS24D1R5YTRF	1.5 ± 30%	0.063	1.80	2.00	100KHz
NPIS24D1R8YTRF	1.8 ± 30%	0.075	1.65	1.80	
NPIS24D2R2YTRF	2.2 ± 30%	0.094	1.50	1.60	
NPIS24D2R7YTRF	2.7 ± 30%	0.106	1.35	1.40	
NPIS24D3R3YTRF	3.3 ± 30%	0.125	1.20	1.24	
NPIS24D3R9YTRF	3.9 ± 30%	0.138	1.10	1.12	
NPIS24D4R7YTRF	4.7 ± 30%	0.169	1.00	1.00	
NPIS24D5R6YTRF	5.6 ± 30%	0.188	0.95	0.98	
NPIS24D6R8YTRF	6.8 ± 30%	0.213	0.85	0.92	
NPIS24D8R2YTRF	8.2 ± 30%	0.281	0.80	0.80	
NPIS24D100YTRF	10 ± 30%	0.294	0.70	0.76	
NPIS24D120YTRF	12 ± 30%	0.394	0.62	0.64	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 28 (3.2 x 3.2 x 2.0mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS28D2R2YTRF	2.2 ± 30%	0.041	0.85	2.30	100KHz
NPIS28D3R3YTRF	3.3 ± 30%	0.054	0.75	2.10	
NPIS28D4R7YTRF	4.7 ± 30%	0.078	0.63	1.65	
NPIS28D6R8YTRF	6.8 ± 30%	0.106	0.52	1.32	
NPIS28D100YTRF	10 ± 30%	0.180	0.43	1.00	
NPIS28D150YTRF	15 ± 30%	0.220	0.35	0.80	
NPIS28D220YTRF	22 ± 30%	0.320	0.30	0.68	
NPIS28D330YTRF	33 ± 30%	0.460	0.24	0.56	
NPIS28D470YTRF	47 ± 30%	0.660	0.20	0.48	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 36 (4.1 x 4.1 x 1.9mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS36D2R2YTRF	2.2 ± 30%	0.072	1.20	2.10	100KHz
NPIS36D3R3YTRF	3.3 ± 30%	0.066	0.80	2.00	
NPIS36D3R9YTRF	3.9 ± 30%	0.081	0.75	1.75	
NPIS36D4R7YTRF	4.7 ± 30%	0.091	0.68	1.72	
NPIS36D5R6YTRF	5.6 ± 30%	0.102	0.62	1.64	
NPIS36D6R8YTRF	6.8 ± 30%	0.130	0.58	1.30	
NPIS36D8R2YTRF	8.2 ± 30%	0.140	0.51	1.28	
NPIS36D100YTRF	10 ± 30%	0.190	0.46	1.07	
NPIS36D120YTRF	12 ± 30%	0.205	0.42	0.98	
NPIS36D150YTRF	15 ± 30%	0.272	0.38	0.87	
NPIS36D180YTRF	18 ± 30%	0.327	0.34	0.76	
NPIS36D220YTRF	22 ± 30%	0.356	0.31	0.66	
NPIS36D270YTRF	27 ± 30%	0.470	0.28	0.60	
NPIS36D330YTRF	33 ± 30%	0.560	0.26	0.55	
NPIS36D390YTRF	39 ± 30%	0.700	0.24	0.47	
NPIS36D470YTRF	47 ± 30%	0.775	0.21	0.45	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 42 (4.8 x 4.8 x 2.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS42D100MTRF	10 ± 20%	0.2	0.61	100KHz
NPIS42D120MTRF	12 ± 20%	0.21	0.55	
NPIS42D150MTRF	15 ± 20%	0.24	0.5	
NPIS42D180MTRF	18 ± 20%	0.338	0.48	
NPIS42D220MTRF	22 ± 20%	0.397	0.41	
NPIS42D270MTRF	27 ± 20%	0.441	0.35	
NPIS42D330MTRF	33 ± 20%	0.69	0.32	
NPIS42D390MTRF	39 ± 20%	0.709	0.3	
NPIS42D470MTRF	47 ± 20%	0.992	0.28	
NPIS42D560MTRF	56 ± 20%	1.08	0.26	
NPIS42D680MTRF	68 ± 20%	1.3	0.24	
NPIS42D820MTRF	82 ± 20%	1.56	0.22	
NPIS42D101MTRF	100 ± 20%	1.73	0.2	
NPIS42D121MTRF	120 ± 20%	2.39	0.18	
NPIS42D151MTRF	150 ± 20%	1.35	0.15	
NPIS42D181MTRF	180 ± 20%	1.54	0.14	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 43 (4.8 x 4.8 x 3.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS43D1R2MTRF	1.2 ± 20%	0.0236	2.56	100KHz
NPIS43D1R8MTRF	1.8 ± 20%	0.0275	2.20	
NPIS43D2R2MTRF	2.2 ± 20%	0.0313	2.04	
NPIS43D2R7MTRF	2.7 ± 20%	0.0433	1.60	
NPIS43D3R3MTRF	3.3 ± 20%	0.0492	1.57	
NPIS43D3R9MTRF	3.9 ± 20%	0.0648	1.44	
NPIS43D4R7MTRF	4.7 ± 20%	0.0720	1.32	
NPIS43D5R6MTRF	5.6 ± 20%	0.1009	1.17	
NPIS43D6R8MTRF	6.8 ± 20%	0.1089	1.12	
NPIS43D8R2MTRF	8.2 ± 20%	0.1175	1.04	
NPIS43D100MTRF	10 ± 20%	0.1283	1.00	
NPIS43D120MTRF	12 ± 20%	0.1316	0.84	
NPIS43D150MTRF	15 ± 20%	0.1490	0.76	
NPIS43D180MTRF	18 ± 20%	0.1660	0.72	
NPIS43D220MTRF	22 ± 20%	0.2350	0.70	
NPIS43D270MTRF	27 ± 20%	0.2810	0.58	
NPIS43D330MTRF	33 ± 20%	0.3780	0.56	
NPIS43D390MTRF	39 ± 20%	0.3837	0.50	
NPIS43D470MTRF	47 ± 20%	0.5870	0.48	
NPIS43D560MTRF	56 ± 20%	0.6245	0.41	
NPIS43D680MTRF	68 ± 20%	0.6990	0.35	
NPIS43D820MTRF	82 ± 20%	0.9148	0.32	
NPIS43D101MTRF	100 ± 20%	1.020	0.29	
NPIS43D121MTRF	120 ± 20%	1.270	0.27	
NPIS43D151MTRF	150 ± 20%	1.350	0.24	
NPIS43D181MTRF	180 ± 20%	1.540	0.22	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.



Part Number	STANDARD VALUES - CASE SIZE 52 (5.6 x 5.6 x 2.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS52D2R5MTRF	2.5 ± 20%	0.045	2.50	100KHz
NPIS52D3R9MTRF	3.9 ± 20%	0.064	2.18	
NPIS52D4R1MTRF	4.1 ± 20%	0.057	1.95	
NPIS52D5R4MTRF	5.4 ± 20%	0.076	1.60	
NPIS52D6R2MTRF	6.2 ± 20%	0.096	1.40	
NPIS52D6R8MTRF	6.8 ± 20%	0.115	1.35	
NPIS52D8R9MTRF	8.9 ± 20%	0.116	1.25	
NPIS52D100MTRF	10 ± 20%	0.124	1.20	
NPIS52D120MTRF	12 ± 20%	0.153	1.10	
NPIS52D150MTRF	15 ± 20%	0.196	0.97	
NPIS52D180MTRF	18 ± 20%	0.210	0.85	
NPIS52D220MTRF	22 ± 20%	0.290	0.80	
NPIS52D270MTRF	27 ± 20%	0.330	0.75	
NPIS52D330MTRF	33 ± 20%	0.386	0.65	
NPIS52D390MTRF	39 ± 20%	0.520	0.57	
NPIS52D470MTRF	47 ± 20%	0.595	0.54	
NPIS52D560MTRF	56 ± 20%	0.665	0.50	
NPIS52D680MTRF	68 ± 20%	0.840	0.43	
NPIS52D820MTRF	82 ± 20%	0.978	0.41	
NPIS52D101MTRF	100 ± 20%	1.200	0.36	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 53 (5.6 x 5.6 x 3.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS53D2R6MTRF	2.6 ± 20%	0.018	2.6	100KHz
NPIS53D3R0MTRF	3.0 ± 20%	0.024	2.4	
NPIS53D4R2MTRF	4.2 ± 20%	0.031	2.2	
NPIS53D5R3MTRF	5.3 ± 20%	0.038	1.9	
NPIS53D6R2MTRF	6.2 ± 20%	0.045	1.8	
NPIS53D8R2MTRF	8.2 ± 20%	0.053	1.6	
NPIS53D100MTRF	10 ± 20%	0.065	1.3	
NPIS53D120MTRF	12 ± 20%	0.076	1.2	
NPIS53D150MTRF	15 ± 20%	0.103	1.1	
NPIS53D180MTRF	18 ± 20%	0.110	1.0	
NPIS53D220MTRF	22 ± 20%	0.122	0.90	
NPIS53D270MTRF	27 ± 20%	0.175	0.85	
NPIS53D330MTRF	33 ± 20%	0.189	0.75	
NPIS53D390MTRF	39 ± 20%	0.212	0.70	
NPIS53D470MTRF	47 ± 20%	0.260	0.62	
NPIS53D560MTRF	56 ± 20%	0.305	0.58	
NPIS53D680MTRF	68 ± 20%	0.355	0.52	
NPIS53D820MTRF	82 ± 20%	0.463	0.46	
NPIS53D101MTRF	100 ± 20%	0.520	0.42	

Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.



Part Number	STANDARD VALUES - CASE SIZE 63 (6.6 x 6.6 x 3.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS63D3R0MTRF	3.0 ± 20%	0.024	3.00	100KHz
NPIS63D3R9MTRF	3.9 ± 20%	0.027	2.60	
NPIS63D4R7MTRF	4.7 ± 20%	0.031	2.40	
NPIS63D5R0MTRF	5.0 ± 20%	0.031	2.40	
NPIS63D6R0MTRF	6.0 ± 20%	0.035	2.26	
NPIS63D6R8MTRF	6.8 ± 20%	0.054	2.10	
NPIS63D7R3MTRF	7.3 ± 20%	0.054	2.10	
NPIS63D8R6MTRF	8.6 ± 20%	0.058	1.85	
NPIS63D100MTRF	10 ± 20%	0.065	1.70	
NPIS63D120MTRF	12 ± 20%	0.070	1.55	
NPIS63D150MTRF	15 ± 20%	0.084	1.40	
NPIS63D180MTRF	18 ± 20%	0.095	1.32	
NPIS63D220MTRF	22 ± 20%	0.128	1.20	
NPIS63D270MTRF	27 ± 20%	0.142	1.05	
NPIS63D330MTRF	33 ± 20%	0.165	0.97	
NPIS63D390MTRF	39 ± 20%	0.210	0.86	
NPIS63D470MTRF	47 ± 20%	0.238	0.80	
NPIS63D560MTRF	56 ± 20%	0.277	0.73	
NPIS63D680MTRF	68 ± 20%	0.304	0.65	
NPIS63D820MTRF	82 ± 20%	0.390	0.60	
NPIS63D101MTRF	100 ± 20%	0.535	0.54	

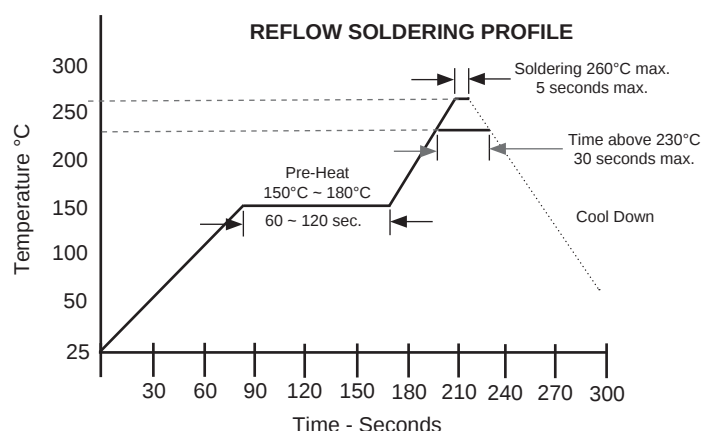
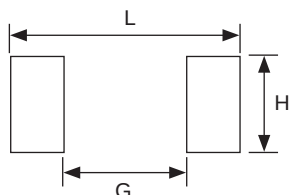
Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 64 (6.6 x 6.6 x 4.0mm)			
	Inductance Value (μH)	DC Resistance (Ω)	DC Current Isat/Irms (Amps)	Test Frequency
NPIS64D3R3YTRF	3.3 ± 30%	0.020	3.5	100KHz
NPIS64D5R0YTRF	5.0 ± 30%	0.024	2.9	
NPIS64D6R2YTRF	6.2 ± 30%	0.027	2.5	
NPIS64D7R4YTRF	7.4 ± 30%	0.031	2.3	
NPIS64D8R7YTRF	8.7 ± 30%	0.034	2.2	
NPIS64D100YTRF	10 ± 30%	0.038	2.0	
NPIS64D120YTRF	12 ± 30%	0.053	1.7	
NPIS64D150YTRF	15 ± 30%	0.057	1.6	
NPIS64D180YTRF	18 ± 30%	0.092	1.5	
NPIS64D220YTRF	22 ± 30%	0.096	1.3	
NPIS64D270YTRF	27 ± 30%	0.109	1.2	
NPIS64D330YTRF	33 ± 30%	0.124	1.1	
NPIS64D390YTRF	39 ± 30%	0.138	1.0	
NPIS64D470YTRF	47 ± 30%	0.155	0.95	
NPIS64D560YTRF	56 ± 30%	0.202	0.85	
NPIS64D680YTRF	68 ± 30%	0.234	0.75	
NPIS64D820YTRF	82 ± 30%	0.324	0.70	
NPIS64D101YTRF	100 ± 30%	0.358	0.65	

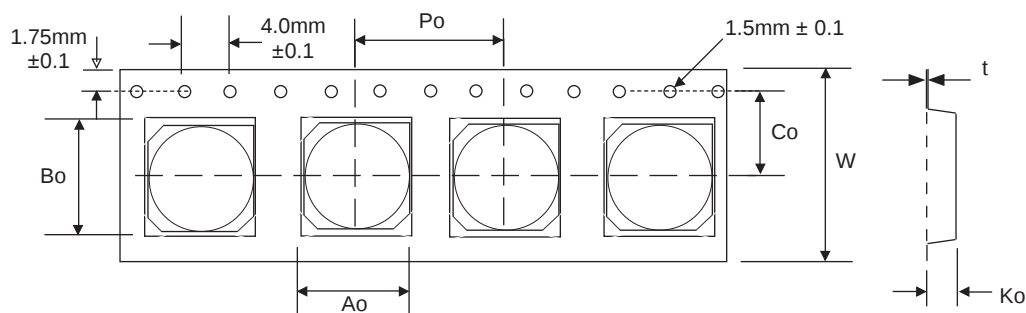
Maximum +40°C temperature rise at Irms. Typical -35% inductance change at Isat.



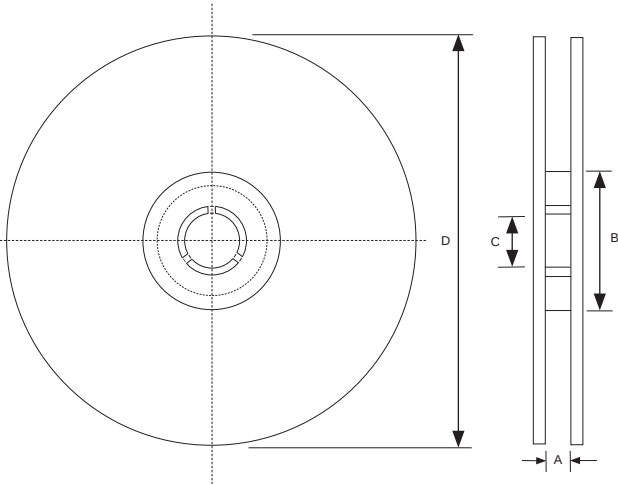
Case Size	LAND PATTERN DIMENSIONS (mm)		
	L	G	H
NPIS21D, 24D & 28D	4.3	1.7	1.3
NPIS36D	4.4	1.0	4.3
NPIS42D & 43D	5.3	1.5	5.3
NPIS52D & 53D	6.3	2	6.3
NPIS63D & 64D	7.3	2	7.3



Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)						
		W	A0	B0	Co	K0	Po	t
NPIS21D	3,000	12.0 ± 0.3	3.5 ± 0.15	3.5 ± 0.15	5.5 ± 0.1	1.5 ± 0.1	8 ± 0.1	0.3 ± 0.05
NPIS24D	3,000					1.8 ± 0.1		
NPIS28D	3,000					2.3 ± 0.1		
NPIS36D	3,000		4.3 ± 0.15	4.3 ± 0.15		2.1 ± 0.1		
NPIS42D	3,500		5.4 ± 0.15	5.4 ± 0.15		3.3 ± 0.1		
NPIS43D	2,500		6.2 ± 0.15	6.2 ± 0.15		2.2 ± 0.1		
NPIS52D	4,000					3.2 ± 0.1		
NPIS53D	2,500							
NPIS63D	1,500	16.0 ± 0.3	7.4 ± 0.15	7.4 ± 0.15	7.5 ± 0.1	3.4 ± 0.1	12 ± 0.1	0.35 ± 0.05
NPIS64D	1,000	16.0 ± 0.3			7.5 ± 0.1	4.5 ± 0.1		



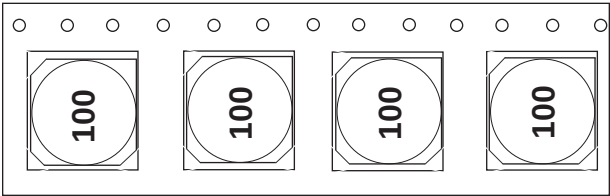
Tape Width	REEL DIMENSIONS (mm)			
	A(mm)	B(mm)	C(mm)	D(mm)
12mm	12.5 ±0.1	100 ±1	13.0 ±0.5	330
16mm	16.5 ±0.1			



Size	REEL QUANTITY (330mm Reel)									
	NPIS21D	NPIS24D	NPIS28D	NPIS36D	NPIS42D	NPIS43D	NPIS52D	NPIS53D	NPIS63D	NPIS64D
Qty./Reel	3000	3000	3000	3000	3500	2500	4000	2500	1500	1000
Tape Width	12mm	12mm	12mm	12mm	12mm	12mm	16mm	16mm	16mm	16mm

TRF

STANDARD TAPING ORIENTATION



TRNF

OPTIONAL TAPING ORIENTATION

