MOLDED CHIP WIREWOUND INDUCTORS
- NL SERIES -

CHARACTERISTICS

- These revolutionary, high reliability winding type leadless (wound chip) inductors for automatic mounting have been developed in response to the trend toward higher density of parts in electronic circuits.
- Since metal terminals are used as the electrodes and the body is molded of heat resin, these inductors offer many superior features.

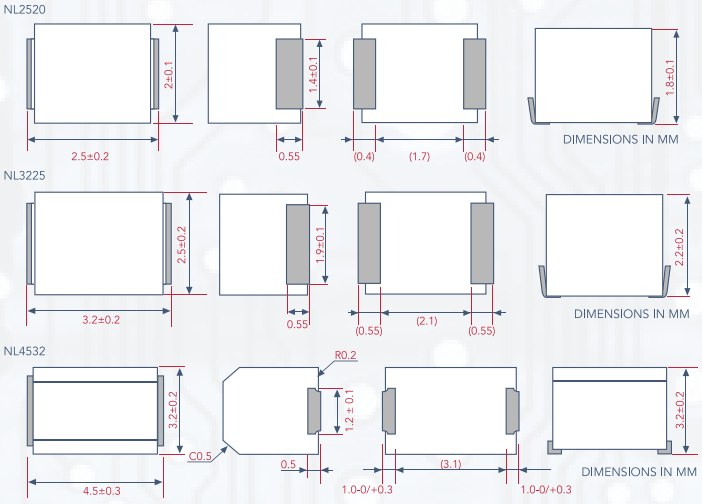
FEATURES

- Leaching resistant terminations due to metal tab electrodes.
- Coils encapsulated in heat-proof resin make high accurate dimensions and resistant to mechanical shock or pressure.
- High resistance to heat and humidity.
- Matched parts on tape and reel.

APPLICATIONS

- Microtelevisions, liquid crystal televisions, video cameras, portable VCRs, car radios, car stereos, thin type radios, television tuners, mobile telephones, radio equipment and modules such as hybrid ICs.

CONSTRUCTION & DIMENSIONS



STANDARD SPECIFICATION

TEMPERATURE RISE	20°C max.
AMBIENT TEMPERATURE	80°C
STORAGE TEMPERATURE	-40 to +100°C
OPERATING TEMPERATURE	-20 to +100°C
TERMINAL TENSILE STRENGTH	1 kg min. (0.5 kg for NL3225)
CURRENT RATING	Value obtained when current flows and the temperature has risen to 20°C or when LC current lows and the initial value of inductance has fallen by 10% whichever is smaller
RESISTANCE TO SOLDERING HEAT	260°C, 10 seconds
RESISTANCE TO SOLVENT	Conforms to ML-STD-202E

INDUCTANCE RANGE

PART NO.	INDUCTANCE (µH)	SIZE
NL2520	0.1 TO 100	1008
NL3225	0.1 TO 220	1210
NL4532	.22 TO 1000	1812

PACKAGE QUANTITY

TYPE	PCS. / BULK	PCS. / REEL
NL2520	2000	2000
NL3225	2000	2000
NL4532	500	500

PART NUMBERING

NL	2520	T	101	J
PRODUCT TYPE	DIMENSIONS (LxW) I (MM)	PACKAGING	NOMINAL INDUCTANCE	INDUCTANCE TOLERANCE
	2520 (1008): 2.5 x 2.0 3225 (1210): 3.2 x 2.5 4532 (1812): 4.5 x 3.2	T - Taped	100: 10µH 6R8: 6.8µH 82N: 82nH (0.82µH)	J- ±5 K- ±10 M- ±20

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NL2520 TYPE (nH TYPE)

ORDERING CODE	INDUCTANCE (nH)	L (μH)	INDUCTANCE TOLERANE	Q MIN.	L, Q MEASURING FREQUENCY (MHz)	SELF RESONANT FREQUENCY (MHz) (MIN)	(DC) RESISTANCE (Ω) (MAX.)	RATED CURRENT (mA) (MAX.)
NL2520T10N_	10	0.01	±5% ±10%	15	100	2150	0.26	530
NL2520T12N_	12	0.012				2050	0.27	500
NL2520T15N_	15	0.015				2000	0.29	480
NL2520T18N_	18	0.018				1850	0.31	450
NL2520T22N_	22	0.022				1650	0.37	420
NL2520T27N_	27	0.027				1550	0.4	410
NL2520T33N_	33	0.033		20		1450	0.42	400
NL2520T39N_	39	0.039				1350	0.45	380
NL2520T47N_	47	0.047				1200	0.5	360
NL2520T56N_	56	0.056				1100	0.6	340
NL2520T68N_	68	0.068				1050	0.65	320
NL2520T82N_	82	0.082				900	0.75	300
NL2520TR10_	100	0.1				800	0.80	280

NL2520 ORDINARY TYPE

ORDERING CODE	INDUCTANCE (nH)	INDUCTANCE TOLERANE	Q MIN.	L, Q, MEASURING FREQUENCY (MHz)	SELF RESONANT FREQUENCY (MHz) (MIN)	(DC) RESISTANCE (Ω) (MAX.)	RATED CURRENT (mA) (MAX.)
NL2520TR12__	0.12	±5% ±10%	30	25.2	700	0.3	550
NL2520TR15__	0.15			25.2	550	0.35	500
NL2520TR18__	0.18			25.2	500	0.4	475
NL2520TR22__	0.22			25.2	450	0.5	450
NL2520TR27__	0.27			25.2	425	0.55	425
NL2520TR33__	0.33			25.2	400	0.6	400
NL2520TR39__	0.39			25.2	375	0.65	375
NL2520TR47__	0.47			25.2	350	0.68	350
NL2520TR56__	0.56			25.2	325	0.75	325
NL2520TR68__	0.68			25.2	300	0.85	300
NL2520TR82__	0.82			25.2	260	1.00	260
NL2520T1R0__	1.0			7.96	245	1.10	245
NL2520T1R2__	1.2			7.96	230	1.20	230
NL2520T1R5__	1.5			7.96	182	1.30	220
NL2520T1R8__	1.8			7.96	135	1.45	210
NL2520T2R2__	2.2			7.96	105	1.55	200
NL2520T2R7__	2.7			7.96	70	1.70	195
NL2520T3R3__	3.3			7.96	55	1.90	185
NL2520T3R9__	3.9			7.96	48	2.10	180
NL2520T4R7__	4.7			7.96	43	2.30	175
NL2520T5R6__	5.6		25	7.96	42	2.50	170
NL2520T6R8__	6.8			7.96	39	2.70	165
NL2520T8R2__	8.2			7.96	36	3.05	160
NL2520T100__	10			2.52	33	3.50	155
NL2520T120__	12			2.52	30	3.80	150
NL2520T150__	15			2.52	26	4.40	140
NL2520T180__	18			2.52	24	4.80	130
NL2520T220__	22			2.52	22	5.50	125
NL2520T270__	27			2.52	21	6.30	115
NL2520T330__	33			2.52	20	7.10	110
NL2520T390__	39		20	2.52	18	9.50	90
NL2520T470__	47			2.52	17	11.10	80
NL2520T560__	56			2.52	16	12.10	75
NL2520T680__	68			2.52	15	16.60	70
NL2520T820__	82			2.52	13	19.00	66
NL2520T101__	100		15	0.796	12	21.00	60

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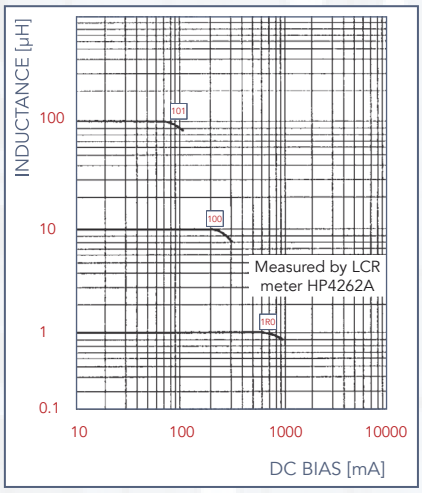
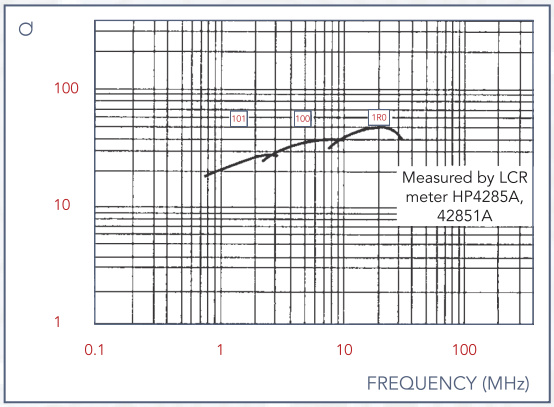
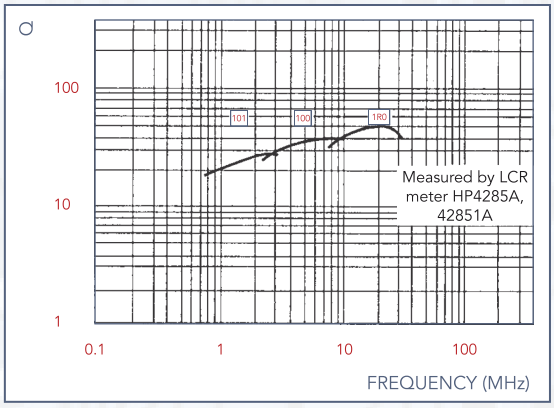
- DC BIAS CHARACTERISTICS



- Q CHARACTERISTICS



- TEMPERATURE CHARACTERISTICS



NL3225 TYPE (nH TYPE)

ORDERING CODE	INDUCTANCE (nH)	INDUCTANCE TOLERANE	Q MIN.	SELF RESONANT FREQUENCY (MHz) (MIN)	(DC) RESISTANCE (Ω) (MAX.)	RATED CURRENT (mA) (MAX.)	MEASURING FREQUENCY
NL3225T10N__	10	±5% ±10% ±20%	15	2500	0.13	450	100
NL3225T12N__	12		17	2300	0.14	450	
NL3225T15N__	15		19	2100	0.16	450	
NL3225T18N__	18		21	1900	0.18	450	
NL3225T22N__	22		23	1700	0.2	450	
NL3225T27N__	27		23	1500	0.22	450	
NL3225T33N__	33		25	1400	0.24	450	
NL3225T39N__	39		25	1300	0.27	450	
NL3225T47N__	47		26	1200	0.3	450	
NL3225T56N__	56		26	1100	0.33	450	
NL3225T68N__	68		27	1000	0.36	450	
NL3225T82N__	82		27	900	0.4	450	
NL3225TR10__	100		28	700	0.44	450	

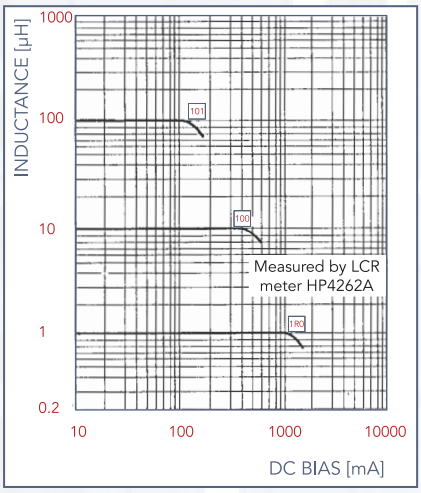
NL3225 TYPE (ORDINARY TYPE)

ORDERING CODE	INDUCTANCE (nH)	INDUCTANCE TOLERANE	Q MIN.	SELF RESONANT FREQUENCY (MHz) (MIN)	(DC) RESISTANCE (Ω) (MAX.)	RATED CURRENT (mA) (MAX.)	MEASURING FREQUENCY
NL3225TR12__	0.12	±20% ±10% ±5%	30	500	0.22	450	25.2
NL3225TR15__	0.15			450	0.25	450	
NL3225TR18__	0.18			400	0.28	450	
NL3225TR22__	0.22			350	0.32	450	
NL3225TR27__	0.27			320	0.36	450	
NL3225TR33__	0.33			300	0.4	450	
NL3225TR39__	0.39			250	0.45	450	
NL3225TR47__	0.47			220	0.5	450	
NL3225TR56__	0.56			180	0.55	450	
NL3225TR68__	0.68			160	0.6	450	
NL3225TR82__	0.82			140	0.65	450	
NL3225T1R0__	1.0		30	120	0.7	400	7.96
NL3225T1R2__	1.2			100	0.75	390	
NL3225T1R5__	1.5			85	0.85	370	
NL3225T1R8__	1.8			80	0.9	350	
NL3225T2R2__	2.2			75	1	320	
NL3225T2R7__	2.7			70	1.1	290	
NL3225T3R3__	3.3	±20% ±10% ±5%		60	1.2	260	
NL3225T3R9__	3.9			55	1.3	250	
NL3225T4R7__	4.7			50	1.5	220	
NL3225T5R6__	5.6			45	1.6	200	
NL3225T6R8__	6.8			40	1.8	180	
NL3225T8R2__	8.2			35	2	170	
NL3225T100__	10			30	2.1	150	2.52
NL3225T120__	12			20	2.5	140	
NL3225T150__	15			20	2.8	130	
NL3225T180__	18			20	3.3	120	
NL3225T220__	22			20	3.7	110	
NL3225T270__	27			20	5	80	
NL3225T330__	33			17	5.6	70	
NL3225T390__	39			16	6.4	65	
NL3225T470__	47			15	7	60	
NL3225T560__	56			13	8	55	
NL3225T680__	68			12	9	50	
NL3225T820__	82			11	10	45	
NL3225T101__	100		20	10	10	40	0.796
NL3225T121__	120			10	11	70	
NL3225T151__	150			8	15	65	
NL3225T181__	180			7	17	60	
NL3225T221__	220			7	21	50	
NL3225T271__	270			6	28	45	
NL3225T331__	330			5	34	40	
NL3225T391__	390			5	38	35	
NL3225T471__	470			4	40	25	

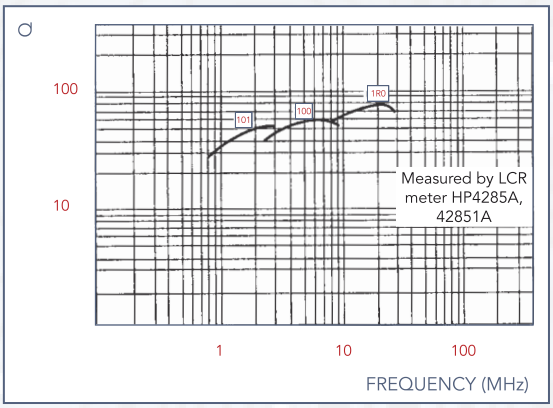
RoHS Pb HF

NL2520

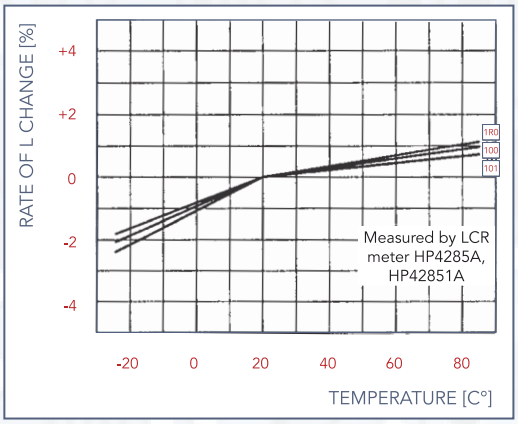
- DC BIAS CHARACTERISTICS



- Q CHARACTERISTICS



- TEMPERATURE CHARACTERISTICS



NL4532 TYPE

ORDERING CODE	INDUCTANCE (nH)	INDUCTANCE TOLERANE	Q MIN.	SELF RESONANT FREQUENCY (MHz) (MIN)	(DC) RESISTANCE (Ω) (MAX.)	IDC (mA) (MAX.)	MEASURING FREQUENCY
NL4532TR18__	0.18	±20%	35	570.0	0.24	700	25.2
NL4532TR22__	0.22		40	505.0	0.25	665	
NL4532TR27__	0.27			450.0	0.26	635	
NL4532TR33__	0.33			425.0	0.28	605	
NL4532TR39__	0.39			390.0	0.30	575	
NL4532TR47__	0.47			350.0	0.32	545	
NL4532TR56__	0.56			325.0	0.36	520	
NL4532TR68__	0.68			300.0	0.40	500	
NL4532TR82__	0.82			275.0	0.45	475	
NL4532T1R0__	1.0	±5% ±10%	50	250.0	0.50	450	7.96
NL4532T1R2__	1.2			240.0	0.55	430	
NL4532T1R5__	1.5			210.0	0.60	410	
NL4532T1R8__	1.8			190.0	0.65	390	
NL4532T2R2__	2.2			160.0	0.70	380	
NL4532T2R7__	2.7			150.0	0.75	370	
NL4532T3R3__	3.3			110.0	0.80	355	
NL4532T3R9__	3.9			100.0	0.90	330	
NL4532T4R7__	4.7			80.0	1.00	315	
NL4532T5R6__	5.6			50.0	1.10	300	
NL4532T6R8__	6.8			35.0	1.20	285	
NL4532T8R2__	8.2			28.0	1.40	270	
NL4532T100__	10			22.0	1.60	250	2.52
NL4532T120__	12			20.0	2.00	225	
NL4532T150__	15			18.0	2.50	200	
NL4532T180__	18			16.0	2.80	190	
NL4532T220__	22			14.0	3.20	180	
NL4532T270__	27			13.0	3.60	170	
NL4532T330__	33			12.0	4.00	160	
NL4532T390__	39			11.0	4.50	150	
NL4532T470__	47			10.5	5.00	140	
NL4532T560__	56			10.0	5.50	135	
NL4532T680__	68			9.5	6.00	130	
NL4532T820__	82			8.5	7.00	120	
NL4532T101__	100		40	8.0	8.00	110	0.796
NL4532T121__	120			7.0	8.00	110	
NL4532T151__	150			6.0	9.00	105	
NL4532T181__	180			5.5	9.50	102	
NL4532T221__	220			5.0	10.0	100	
NL4532T271__	270			4.5	12.0	92	
NL4532T331__	330			4.0	14.0	85	
NL4532T391__	390			3.5	18.0	80	
NL4532T471__	470			3.5	26.0	62	
NL4532T561__	560		30	3.0	30.0	50	
NL4532T681__	680			3.0	30.0	50	
NL4532T821__	820			2.5	35.0	30	

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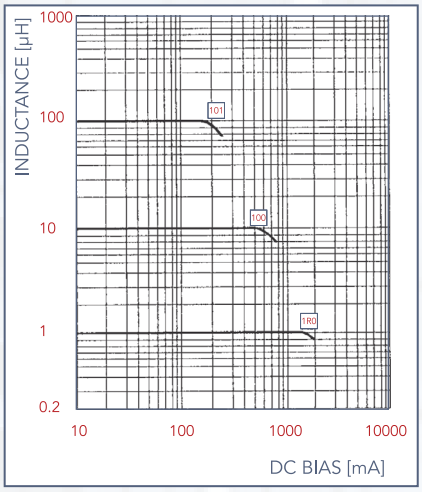
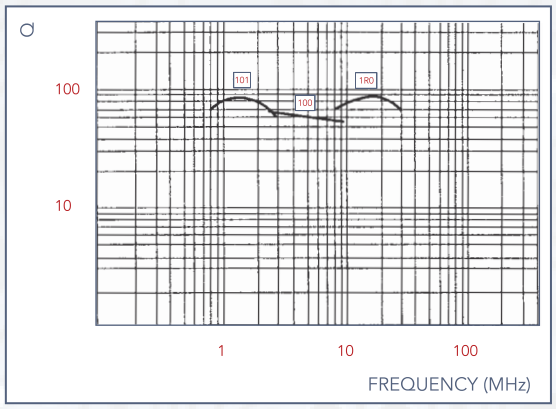
NL4532 TYPE

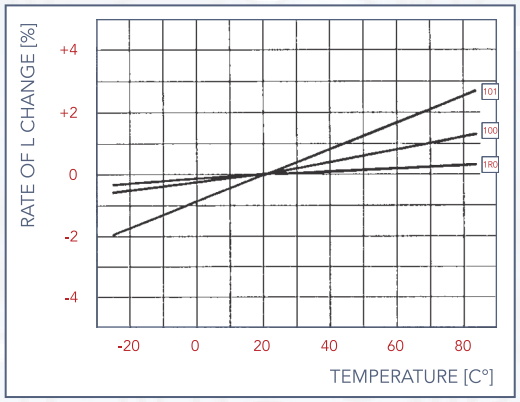
- DC BIAS CHARACTERISTICS



- Q CHARACTERISTICS



- TEMPERATURE CHARACTERISTICS

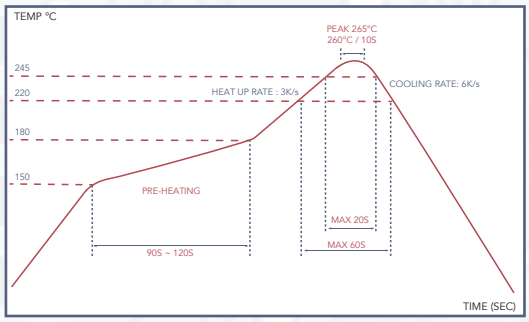


FLUX AND CLEANING

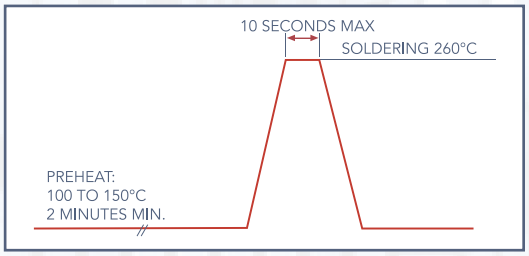
- Rosin-based flux is recommended
- Cleaning Conditions
  Solvent: Chlorine-based solvent (Do not use acid or alkali solvents)
  Time: 2 minutes min. for ultrasonic cleaning

RECOMMENDED SOLDERING CONDITIONS

- Reflow Soldering



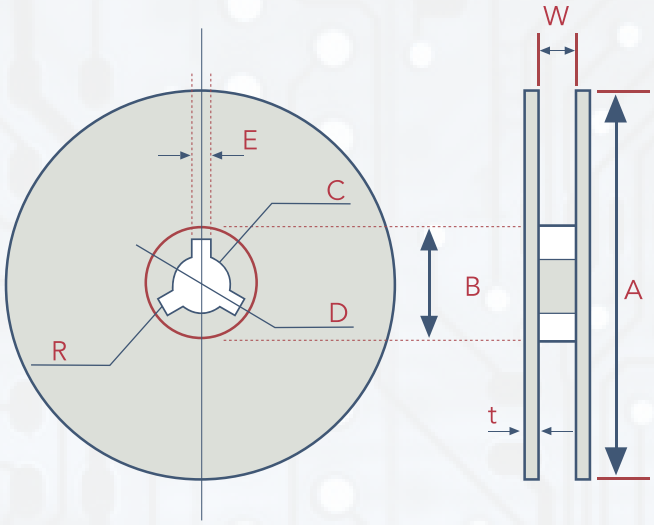
- Flow Soldering



- Iron Soldering
  Perform soldering at 250°C on 30W max. within 5 second.
  Take care not to apply the tip of soldering iron to the terminal electrode

TAPE AND REEL SPECIFICATIONS

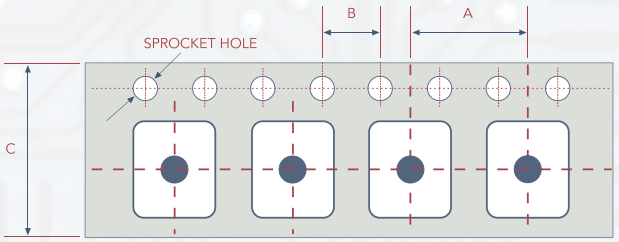
- Reel Dimensions



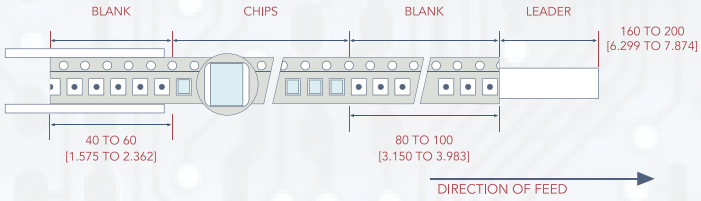
A	B	C	D	E	W	t	R
Ø178±2 (7.008 ±.079)	Ø50 (1.969) min.	Ø13±0.5 (.512±.020)	Ø21±0.8 (.827±0.04)	2±0.5 (.079±.020)	14*±0.5 (.551±.020)	2±0.5 (.079±.020)	1 (.039)

*NL2520 and NL3225 types: 10mm (.394 inches
*NL4532 type are available for 330mm (12.992 inches) reel packaging

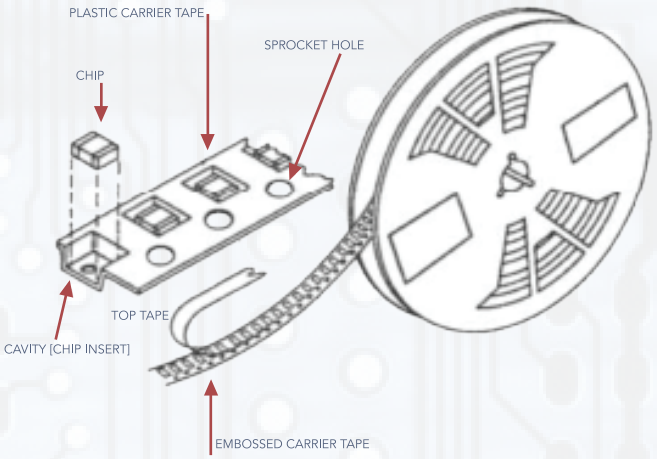
- Tape Dimensions (EIAJ RC-1009)

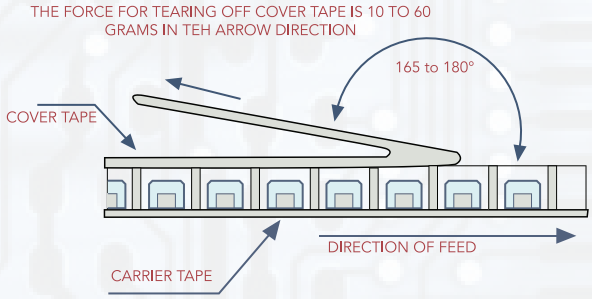


TYPE	A	B	C
NL2520	4 (.157)	4 (.157)	8 (.315)
NL3225	4 (.157)	4 (.157)	8 (.315)
NL4532	8 (.315)	4 (.157)	12 (.472)



- Taping Material





- Packaging

TYPE	QUANTITY (PCS/REEL)
NL2520	2000
NL3225	2000
NL4532	500

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REVISION: MAY '24