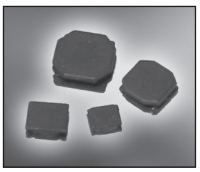
NPIS Shielded Power Inductors

NPIS_LA Series

FEATURES

- SHIELDED POWER INDUCTOR
- HIGH SATURATION CURRENT (UP TO 16.5A)
- LOW PROFILE (1.0mm ~ 4.2mm)
- TAPE & REEL PACKAGING FOR AUTOMATIC INSERTION
- MEETS THE REQUIREMENTS OF AEC-Q200

RoHS Compliant
includes all homogeneous materials



*See Part Number System for Details

CHARACTERISTICS

Case Code	30	32	35	40	42	65	84
Inductance Range (μH)	1.0 ~ 22	1.0 ~ 22	1.0 ~ 47	1.0 ~ 22	1.0 ~ 22	0.36 ~ 470	1.0 ~ 470
Ambient Operating Temperature Range	-40°C ~ +125°C						
Maximum Component Temperature (Ambient + Self-Heating)	+125°C						
Temperature Rise at Irms	+40°C						
Inductance Change at Isat	-30%						
Inductance Tolerance	±20% (M), ±30% (Y)						
Resistance to Solder Heat	260°C ±5°C for 10 seconds						

PART NUMBER SYSTEM

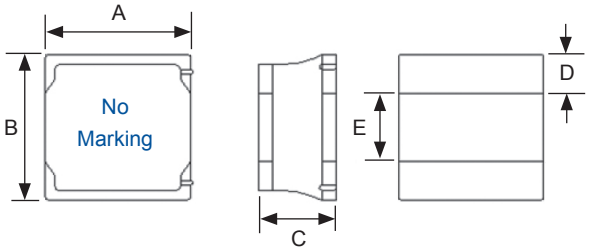
NPIS -- LA 4R7 M TR Q Y F

- F — RoHS Compliant
- Y — RoHS Compliant
- Q — Packaging: TR = Tape & Reel
- TR — Inductance Tolerance Code: M=±20%
- M — Inductance Code (μH): 1st two digits are significant, 3rd digit is multiplier for values from 10μH and up.
- 4R7 — Construction Code (see drawing for details)
- LA — Size Code (see table for details)
- -- — Series

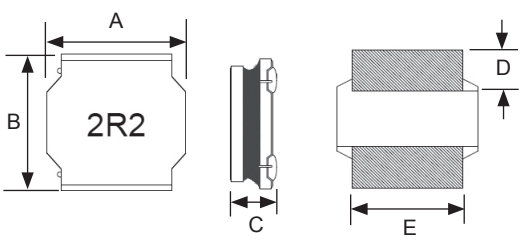
"Y" denotes suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

Series		A	B	C	D	E	F	G	H
NPIS30LA		3.0 ± 0.2	3.0 ± 0.2	1.0 max	1.0 ref	1.0 ref	3.2	1.0	3.2
NPIS32LA		3.0 ± 0.2	3.0 ± 0.2	1.2 max	1.0 ref	1.0 ref	3.2	1.0	3.2
NPIS35LA		3.0 ± 0.2	3.0 ± 0.2	1.5 max	1.0 ref	1.0 ref	3.2	1.0	3.2
NPIS40LA		4.0 ± 0.2	4.0 ± 0.2	1.0 max	1.2 ref	1.6 ref	4.2	1.2	4.2
NPIS42LA		4.0 ± 0.2	4.0 ± 0.2	1.2 max	1.2 ref	1.6 ref	4.2	1.2	4.2
NPIS65LA		6.0 ± 0.3	6.0 ± 0.3	4.2 ± 0.3	1.9 ± 0.3	4.8 ± 0.3	6.5	1.8	5.1
NPIS84LA	<1.0μH	8.0 ± 0.3	8.0 ± 0.3	4.2 max.	2.4 ± 0.3	6.3 ± 0.3	8.5	2.8	6.6
	≥1.0μH			3.7 max.					

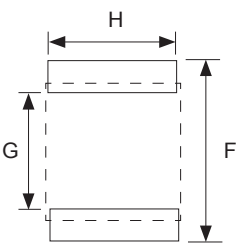
NPIS30, 32, 35, 40 AND 42



NPIS65LA and 84LA



LAND PATTERN



NPIS Shielded Power Inductors

Part Number	STANDARD VALUES - CASE SIZE 30LA (3.0 X 3.0 X 1.0mm)						
	Inductance Value (µH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) typ.	DC Current Irms (Amps) typ.	Test Frequency
NPIS30LA1R0YTRQYF	1.0	±30%	170	0.055	1.80	2.10	1MHz/0.1V
NPIS30LA1R5YTRQYF	1.5	±30%	150	0.070	1.50	1.90	1MHz/0.1V
NPIS30LA2R2MTRQYF	2.2	±20%	100	0.090	1.30	1.70	1MHz/0.1V
NPIS30LA3R3MTRQYF	3.3	±20%	85	0.130	1.10	1.50	1MHz/0.1V
NPIS30LA4R7MTRQYF	4.7	±20%	80	0.170	0.90	1.30	1MHz/0.1V
NPIS30LA6R8MTRQYF	6.8	±20%	55	0.260	0.77	1.00	1MHz/0.1V
NPIS30LA100MTRQYF	10	±20%	40	0.350	0.63	0.80	1MHz/0.1V
NPIS30LA150MTRQYF	15	±20%	35	0.510	0.54	0.70	1MHz/0.1V
NPIS30LA220MTRQYF	22	±20%	30	0.750	0.43	0.60	1MHz/0.1V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 32LA (3.0 X 3.0 X 1.2mm)						
	Inductance Value (µH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) typ.	DC Current Irms (Amps) typ.	Test Frequency
NPIS32LA1R0YTRQYF	1.0	±30%	150	0.042	2.15	2.00	1MHz/0.1V
NPIS32LA1R5YTRQYF	1.5	±30%	130	0.056	1.70	1.85	1MHz/0.1V
NPIS32LA2R2MTRQYF	2.2	±20%	90	0.080	1.50	1.70	1MHz/0.1V
NPIS32LA3R3MTRQYF	3.3	±20%	70	0.100	1.20	1.55	1MHz/0.1V
NPIS32LA4R7MTRQYF	4.7	±20%	55	0.130	1.05	1.30	1MHz/0.1V
NPIS32LA6R8MTRQYF	6.8	±20%	45	0.180	0.90	1.05	1MHz/0.1V
NPIS32LA100MTRQYF	10	±20%	40	0.245	0.76	0.89	1MHz/0.1V
NPIS32LA150MTRQYF	15	±20%	35	0.386	0.62	0.74	1MHz/0.1V
NPIS32LA220MTRQYF	22	±20%	25	0.580	0.49	0.61	1MHz/0.1V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 35LA (3.0 X 3.0 X 1.5mm)						
	Inductance Value (µH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) typ.	DC Current Irms (Amps) typ.	Test Frequency
NPIS35LA1R0YTRQYF	1.0	±30%	100	0.030	2.20	2.20	100KHz/1.0V
NPIS35LA1R5YTRQYF	1.5	±30%	87	0.040	2.00	2.00	100KHz/1.0V
NPIS35LA2R2MTRQYF	2.2	±20%	64	0.060	1.70	1.70	100KHz/1.0V
NPIS35LA3R3MTRQYF	3.3	±20%	49	0.080	1.40	1.40	100KHz/1.0V
NPIS35LA4R7MTRQYF	4.7	±20%	40	0.120	1.20	1.20	100KHz/1.0V
NPIS35LA6R8MTRQYF	6.8	±20%	36	0.160	1.00	1.00	100KHz/1.0V
NPIS35LA100MTRQYF	10	±20%	28	0.220	0.75	0.80	100KHz/1.0V
NPIS35LA150MTRQYF	15	±20%	23	0.320	0.65	0.70	100KHz/1.0V
NPIS35LA220MTRQYF	22	±20%	20	0.460	0.55	0.60	100KHz/1.0V
NPIS35LA330MTRQYF	33	±20%	18	0.800	0.40	0.45	100KHz/1.0V
NPIS35LA470MTRQYF	47	±20%	17	1.200	0.35	0.40	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 40LA (4.0 X 4.0 X 1.0mm)						
	Inductance Value (μH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) typ.	DC Current Irms (Amps) typ.	Test Frequency
NPIS40LA1R0YTRQYF	1.0	±30%	116	0.056	2.00	1.90	100KHz/1.0V
NPIS40LA2R2MTRQYF	2.2	±20%	73	0.085	1.20	1.50	100KHz/1.0V
NPIS40LA3R3MTRQYF	3.3	±20%	58	0.100	1.10	1.40	100KHz/1.0V
NPIS40LA4R7MTRQYF	4.7	±20%	47	0.140	0.95	1.20	100KHz/1.0V
NPIS40LA6R8MTRQYF	6.8	±20%	38	0.200	0.80	1.00	100KHz/1.0V
NPIS40LA100MTRQYF	10	±20%	31	0.300	0.62	0.75	100KHz/1.0V
NPIS40LA150MTRQYF	15	±20%	24	0.430	0.54	0.60	100KHz/1.0V
NPIS40LA220MTRQYF	22	±20%	19	0.570	0.45	0.50	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 42LA (4.0 X 4.0 X 1.2mm)						
	Inductance Value (μH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) typ.	DC Current Irms (Amps) typ.	Test Frequency
NPIS42LA1R0YTRQYF	1.0	±30%	100	0.042	2.80	2.20	100KHz/1.0V
NPIS42LA2R2MTRQYF	2.2	±20%	70	0.060	1.65	1.90	100KHz/1.0V
NPIS42LA3R3MTRQYF	3.3	±20%	60	0.070	1.40	1.70	100KHz/1.0V
NPIS42LA4R7MTRQYF	4.7	±20%	45	0.095	1.20	1.50	100KHz/1.0V
NPIS42LA6R8MTRQYF	6.8	±20%	35	0.125	0.90	1.30	100KHz/1.0V
NPIS42LA100MTRQYF	10	±20%	30	0.180	0.80	1.10	100KHz/1.0V
NPIS42LA150MTRQYF	15	±20%	24	0.260	0.65	0.75	100KHz/1.0V
NPIS42LA220MTRQYF	22	±20%	18	0.400	0.50	0.62	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 65LA (6.0 X 6.0 X 4.2mm)						
	Inductance Value (μH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) max.	DC Current Irms (Amps) max.	Test Frequency
NPIS65LAR36MTRQYF	0.36	±20%	210	0.0048	16.5	8.5	1MHz/1.0V
NPIS65LAR47MTRQYF	0.47	±20%	220	0.0068	16.0	8.0	1MHz/1.0V
NPIS65LAR82MTRQYF	0.82	±20%	120	0.0085	13.5	7.5	1MHz/1.0V
NPIS65LA1R0MTRQYF	1.0	±20%	110	0.0100	12.5	7.3	1MHz/1.0V
NPIS65LA1R2MTRQYF	1.2	±20%	90	0.0105	11.5	7.0	1MHz/1.0V
NPIS65LA1R3MTRQYF	1.3	±20%	90	0.0105	11.5	7.0	1MHz/1.0V
NPIS65LA1R5MTRQYF	1.5	±20%	75	0.0117	11.0	6.6	1MHz/1.0V
NPIS65LA1R8MTRQYF	1.8	±20%	60	0.0120	10.0	6.2	1MHz/1.0V
NPIS65LA2R0MTRQYF	2.0	±20%	65	0.0135	9.50	5.8	1MHz/1.0V
NPIS65LA2R2MTRQYF	2.2	±20%	55	0.0150	8.55	5.3	1MHz/1.0V
NPIS65LA2R3MTRQYF	2.3	±20%	53	0.0160	8.20	5.0	1MHz/1.0V
NPIS65LA3R0MTRQYF	3.0	±20%	45	0.0200	7.50	4.6	1MHz/1.0V
NPIS65LA3R3MTRQYF	3.3	±20%	45	0.0210	7.30	4.5	1MHz/1.0V
NPIS65LA3R6MTRQYF	3.6	±20%	42	0.0225	6.90	4.3	1MHz/1.0V
NPIS65LA4R7MTRQYF	4.7	±20%	40	0.0260	6.20	4.0	1MHz/1.0V
NPIS65LA5R6MTRQYF	5.6	±20%	32	0.0310	5.70	3.7	1MHz/1.0V
NPIS65LA6R3MTRQYF	6.3	±20%	35	0.0330	5.30	3.5	1MHz/1.0V
NPIS65LA6R8MTRQYF	6.8	±20%	30	0.0340	5.15	3.3	1MHz/1.0V
NPIS65LA8R2MTRQYF	8.2	±20%	27	0.0460	4.50	2.9	1MHz/1.0V
NPIS65LA100MTRQYF	10	±20%	25	0.0520	4.20	2.6	1MHz/1.0V
NPIS65LA150MTRQYF	15	±20%	20	0.0710	3.30	2.2	1MHz/1.0V
NPIS65LA180MTRQYF	18	±20%	18	0.0800	2.90	2.1	1MHz/1.0V
NPIS65LA220MTRQYF	22	±20%	17	0.0960	2.70	1.9	1MHz/1.0V
NPIS65LA330MTRQYF	33	±20%	13	0.1450	2.10	1.5	1MHz/1.0V
NPIS65LA470MTRQYF	47	±20%	12	0.2000	1.75	1.2	1MHz/1.0V
NPIS65LA560MTRQYF	56	±20%	11	0.2300	1.65	1.0	1MHz/1.0V
NPIS65LA680MTRQYF	68	±20%	10	0.3050	1.52	0.92	1MHz/1.0V
NPIS65LA820MTRQYF	82	±20%	9.0	0.3650	1.40	0.88	1MHz/1.0V
NPIS65LA101MTRQYF	100	±20%	8.5	0.4560	1.25	0.82	1MHz/1.0V
NPIS65LA121MTRQYF	120	±20%	7.0	0.5000	1.10	0.79	1MHz/1.0V
NPIS65LA151MTRQYF	150	±20%	6.5	0.6260	1.00	0.70	1MHz/1.0V
NPIS65LA181MTRQYF	180	±20%	6.0	0.7450	0.90	0.60	1MHz/1.0V
NPIS65LA221MTRQYF	220	±20%	5.0	0.9000	0.77	0.50	1MHz/1.0V
NPIS65LA331MTRQYF	330	±20%	4.0	1.4000	0.55	0.45	1MHz/1.0V
NPIS65LA471MTRQYF	470	±20%	3.0	2.0500	0.45	0.35	1MHz/1.0V

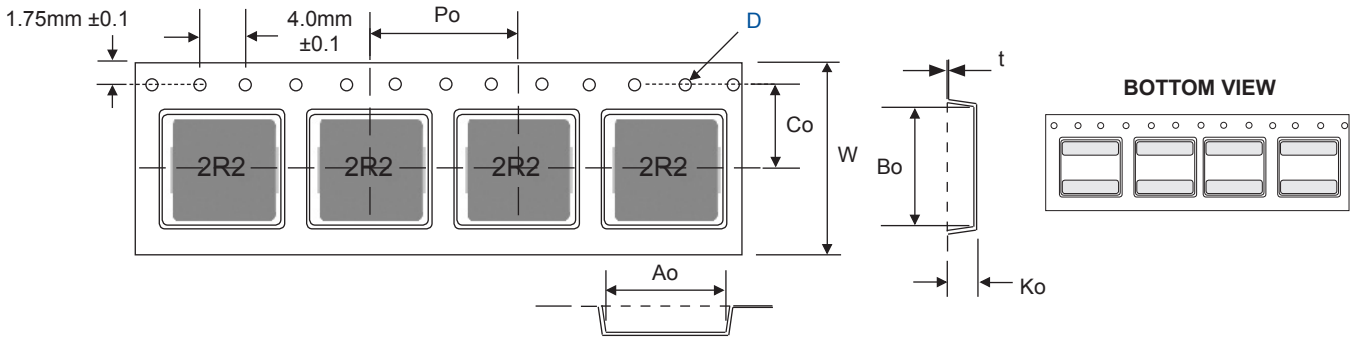
Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 84LA (8.0 X 8.0 X 3.7mm)						
	Inductance Value (µH)	Tol.	SRF (MHz)	DC Resistance (Ω) ±20%	DC Current Isat (Amps) max.	DC Current Irms (Amps) max.	Test Frequency
NPIS84LA1R0MTRQYF	1.0	±20%	85	0.0082	13.0	8.00	1MHz/1.0V
NPIS84LA1R2MTRQYF	1.2	±20%	90	0.0082	11.5	7.80	1MHz/1.0V
NPIS84LA1R4MTRQYF	1.4	±20%	78	0.01	11.2	7.80	1MHz/1.0V
NPIS84LA1R5MTRQYF	1.5	±20%	66	0.01	11.0	7.70	1MHz/1.0V
NPIS84LA1R6MTRQYF	1.6	±20%	66	0.01	11.0	7.70	1MHz/1.0V
NPIS84LA2R0MTRQYF	2.0	±20%	61	0.011	9.6	7.10	1MHz/1.0V
NPIS84LA2R2MTRQYF	2.2	±20%	57	0.0115	9.2	6.90	1MHz/1.0V
NPIS84LA2R7MTRQYF	2.7	±20%	52	0.013	8.2	6.50	1MHz/1.0V
NPIS84LA3R3MTRQYF	3.3	±20%	48	0.015	7.5	6.20	1MHz/1.0V
NPIS84LA4R7MTRQYF	4.7	±20%	38	0.0195	6.0	5.30	1MHz/1.0V
NPIS84LA5R6MTRQYF	5.6	±20%	33	0.022	5.8	5.20	1MHz/1.0V
NPIS84LA6R8MTRQYF	6.8	±20%	29	0.025	5.1	5.00	1MHz/1.0V
NPIS84LA100MTRQYF	10	±20%	25	0.033	4.3	4.20	1MHz/1.0V
NPIS84LA150MTRQYF	15	±20%	20	0.05	3.6	3.20	1MHz/1.0V
NPIS84LA220MTRQYF	22	±20%	18	0.073	2.8	2.45	1MHz/1.0V
NPIS84LA330MTRQYF	33	±20%	15	0.1	2.1	2.10	1MHz/1.0V
NPIS84LA470MTRQYF	47	±20%	12	0.135	1.9	1.70	1MHz/1.0V
NPIS84LA560MTRQYF	56	±20%	10.5	0.16	1.6	1.60	1MHz/1.0V
NPIS84LA680MTRQYF	68	±20%	9.5	0.205	1.5	1.50	1MHz/1.0V
NPIS84LA820MTRQYF	82	±20%	8.5	0.23	1.4	1.30	1MHz/1.0V
NPIS84LA101MTRQYF	100	±20%	8.0	0.3	1.2	1.10	1MHz/1.0V
NPIS84LA121MTRQYF	120	±20%	7.5	0.35	1.1	1.00	1MHz/1.0V
NPIS84LA151MTRQYF	150	±20%	7.0	0.41	1.03	0.90	1MHz/1.0V
NPIS84LA181MTRQYF	180	±20%	6.5	0.49	0.94	0.83	1MHz/1.0V
NPIS84LA221MTRQYF	220	±20%	5.5	0.61	0.90	0.76	1MHz/1.0V
NPIS84LA331MTRQYF	330	±20%	5.0	0.85	0.70	0.66	1MHz/1.0V
NPIS84LA471MTRQYF	470	±20%	3.4	1.3	0.55	0.58	1MHz/1.0V

Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.

CARRIER TAPE DIMENSIONS (mm)

Series	Bo	Ao	Co	Po	Ko	D	t	W
NPIS30LA	3.20 ± 0.05	3.20 ± 0.05	3.50 ± 0.05	4.0 ± 0.05	1.20 ± 0.20	1.5 +1.0/-0.0	0.23 ± 0.05	8.0 ± 0.10
NPIS32LA					1.40 ± 0.20			
NPIS35LA					1.70 ± 0.20			
NPIS40LA	4.35 ± 0.10	4.50 ± 0.10	5.50 ± 0.05	8.0 ± 0.10	1.55 ± 0.10		0.25 ± 0.05	12.0 ± 0.10
NPIS42LA								
NPIS65LA	6.40 ± 0.10	6.40 ± 0.10	7.50 ± 0.10	12.0 ± 0.10	4.70 ± 0.10	1.5 ± 1.0	0.40 ± 0.10	16.0 ± 0.30
NPIS84LA	8.40 ± 0.10	8.40 ± 0.10			4.30 ± 0.10			



Note: Marking on NPIS65LA and 84LA only

REEL DIMENSIONS (mm)

Series	A	B	C	D	Qty/Reel
NPIS30LA	8.4 ± 1.0	50 min.	13.0 ± 0.8	178 ± 2.0	2,000
NPIS32LA	8.4 ± 1.0	50 min.	13.0 ± 0.8	178 ± 2.0	2,000
NPIS35LA	8.4 ± 1.0	50 min.	13.0 ± 0.8	178 ± 2.0	2,000
NPIS40LA	12.0 ± 1.5	100 ± 0.5	13.2 ± 0.5	330 ± 0.5	5,000
NPIS42LA	12.0 ± 1.5	100 ± 0.5	13.2 ± 0.5	330 ± 0.5	4,500
NPIS65LA	16.4 +2.0/-0	80 ± 2.0	13.5 ± 0.5	330 ± 3.0	1,000
NPIS84LA	16.4 +2.0/-0	80 ± 2.0	13.5 ± 0.5	330 ± 3.0	1,000