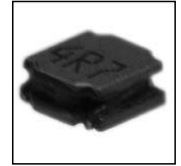


## FEATURES

- SHIELDED POWER INDUCTOR
- HIGH CURRENT (UP TO 7.8 AMPS)
- 30% LOWER DCR THAN NPIS\_LS SERIES
- ROBUST CONSTRUCTION
- TAPED AND REELED FOR AUTOMATIC INSERTION
- FOR USE IN DC/DC CONVERTERS

**RoHS Compliant**  
includes all homogeneous materials



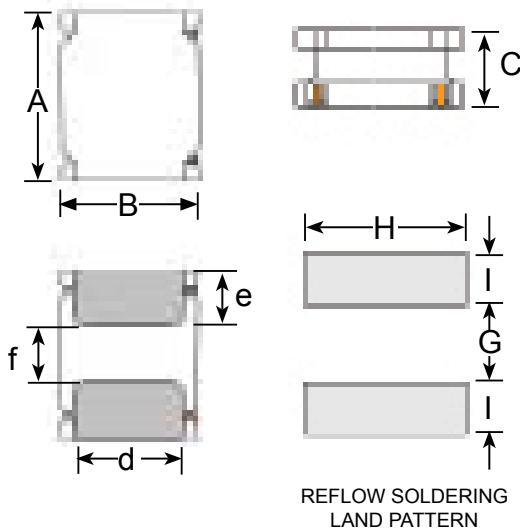
\*See Part Number System for Details

## CHARACTERISTICS

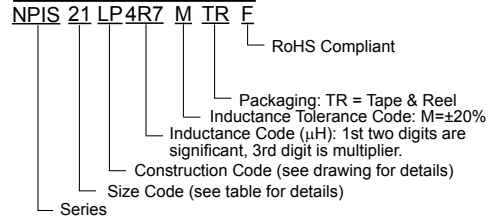
Case Size	NPIS26LP	NPIS22LP	NPIS20LP	NPIS21LP	NPIS32LP
Inductance Range	0.16 ~ 10 $\mu$ H	0.16 ~ 33 $\mu$ H	0.24 ~ 22 $\mu$ H	0.16 ~ 22 $\mu$ H	1.0 ~ 22 $\mu$ H
Case Size	NPIS35LP	NPIS41LP	NPIS48LP	NPIS83LP	
Inductance Range	0.47 ~ 22 $\mu$ H	0.47 ~ 10 $\mu$ H	1.0 ~ 330 $\mu$ H	1.0 ~ 47 $\mu$ H	
Ambient Operating Temperature Range	-40°C ~ +125°C (including self-heating)				
Temperature Rise at Irms	Maximum +40°C Temperature Rise				
Inductance Change at Isat	Maximum -30% Inductance Drop From Initial Measured Value				
Inductance Tolerance	$\pm$ 20% (M)				
Resistance to Solder Heat	+260°C for 10 seconds				

## DIMENSIONS (mm)

Series	A	B	C	d	e	f	G	I	H
NPIS26LP	2.0 $\pm$ 0.2	1.6 $\pm$ 0.2	1.0 Max.	1.2 $\pm$ 0.2	0.60 $\pm$ 0.2	0.80 $\pm$ 0.2	0.7	0.7	1.7
NPIS22LP	2.0 $\pm$ 0.1	2.0 $\pm$ 0.1	1.2 Max.	1.5 $\pm$ 0.2	0.60 $\pm$ 0.2	0.80 $\pm$ 0.2	0.65	0.7	2
NPIS20LP	2.5 $\pm$ 0.2	2.0 $\pm$ 0.2	1.0 Max.	1.5 $\pm$ 0.2	0.80 $\pm$ 0.2	0.80 $\pm$ 0.2	0.8	0.85	2
NPIS21LP	2.5 $\pm$ 0.2	2.0 $\pm$ 0.2	1.2 Max.	1.5 $\pm$ 0.2	0.80 $\pm$ 0.2	0.80 $\pm$ 0.2	0.8	0.85	2
NPIS32LP	3.0 $\pm$ 0.2	3.0 $\pm$ 0.2	1.2 Max.	2.5 $\pm$ 0.2	0.75 $\pm$ 0.2	1.5 $\pm$ 0.2	1.5	0.8	2.7
NPIS35LP	3.0 $\pm$ 0.2	3.0 $\pm$ 0.2	1.5 Max.	2.5 $\pm$ 0.2	0.75 $\pm$ 0.2	1.5 $\pm$ 0.2	1.5	0.8	2.7
NPIS41LP	4.0 $\pm$ 0.2	4.0 $\pm$ 0.2	1.2 Max.	3.3 $\pm$ 0.2	0.95 $\pm$ 0.2	2.1 $\pm$ 0.2	1.9	1.1	3.7
NPIS48LP	4.0 $\pm$ 0.2	4.0 $\pm$ 0.2	1.8 Max.	3.3 $\pm$ 0.2	0.95 $\pm$ 0.2	2.1 $\pm$ 0.2	1.9	1.1	3.7
NPIS83LP	8.0 $\pm$ 0.3	8.0 $\pm$ 0.3	3.0 Max.	6.3 $\pm$ 0.3	2.00 $\pm$ 0.3	4.0 $\pm$ 0.3	3.8	2.2	7.5



## PART NUMBER SYSTEM



## NPIS26LP Size

Series	Standard Values - Case Size 26 (2.0×1.6×1.0mm)					
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)
			Max.	Typ.	Max.	Max.
NPIS26LPR16MTRF	0.16 ± 20%	1MHz, 1V	0.031	0.026	4.3	3.2
NPIS26LPR24MTRF	0.24 ± 20%		0.040	0.033	3.7	2.9
NPIS26LPR33MTRF	0.33 ± 20%		0.040	0.033	2.5	2.9
NPIS26LPR47MTRF	0.47 ± 20%		0.059	0.049	2.3	2.35
NPIS26LPR68MTRF	0.68 ± 20%		0.076	0.063	1.95	2.05
NPIS26LP1R0MTRF	1.0 ± 20%		0.114	0.095	1.65	1.45
NPIS26LP1R5MTRF	1.5 ± 20%		0.174	0.145	1.35	1.25
NPIS26LP2R2MTRF	2.2 ± 20%		0.264	0.22	1.20	1.10
NPIS26LP3R3MTRF	3.3 ± 20%		0.335	0.279	0.90	0.88
NPIS26LP4R7MTRF	4.7 ± 20%		0.479	0.399	0.70	0.74
NPIS26LP6R8MTRF	6.8 ± 20%		0.816	0.68	0.60	0.52
NPIS26LP100MTRF	10 ± 20%		1.02	0.85	0.50	0.45

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.

## NPIS22LP Size

Series	Standard Values - Case Size 22 (2.0×2.0×1.2mm)					
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)
			Max.	Typ.	Max.	Max.
NPIS22LPR16MTRF	0.16 ± 20%	1MHz, 1V	0.031	0.026	5.2	2.5
NPIS22LPR24MTRF	0.24 ± 20%		0.042	0.035	4.7	2.2
NPIS22LPR33MTRF	0.33 ± 20%		0.042	0.035	3.5	2.2
NPIS22LPR47MTRF	0.47 ± 20%		0.05	0.042	3.55	2
NPIS22LPR68MTRF	0.68 ± 20%		0.06	0.05	2.95	1.8
NPIS22LP1R0MTRF	1 ± 20%		0.088	0.073	2.7	1.5
NPIS22LP1R5MTRF	1.5 ± 20%		0.112	0.093	2.0	1.3
NPIS22LP2R2MTRF	2.2 ± 20%		0.127	0.106	1.4	1.2
NPIS22LP3R3MTRF	3.3 ± 20%		0.276	0.23	1.2	0.85
NPIS22LP4R7MTRF	4.7 ± 20%		0.294	0.245	0.97	0.82
NPIS22LP6R8MTRF	6.8 ± 20%		0.479	0.399	0.82	0.64
NPIS22LP100MTRF	10 ± 20%		0.785	0.654	0.72	0.49
NPIS22LP150MTRF	15 ± 20%		1.368	1.14	0.55	0.38
NPIS22LP220MTRF	22 ± 20%		1.68	1.4	0.40	0.35
NPIS22LP330MTRF	33 ± 20%		2.16	1.8	0.35	0.30

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.



## NPIS20LP Size

Series	Standard Values - Case Size 20 (2.5×2.0×1.0mm)						
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)	SRF (MHz)
			Max.	Typ.	Max.	Max.	Min.
NPIS20LPR24MTRF	0.24 ± 20%	1MHz, 1V	0.034	0.028	3.6	2.75	360
NPIS20LPR33MTRF	0.33 ± 20%		0.043	0.036	3.8	2.4	270
NPIS20LPR47MTRF	0.47 ± 20%		0.044	0.037	2.4	2.4	170
NPIS20LPR68MTRF	0.68 ± 20%		0.061	0.051	2.75	2.1	110
NPIS20LP1R0MTRF	1.0 ± 20%		0.08	0.067	2.05	1.8	84
NPIS20LP1R5MTRF	1.5 ± 20%		0.108	0.09	1.7	1.55	60
NPIS20LP2R2MTRF	2.2 ± 20%		0.137	0.114	1.55	1.4	56
NPIS20LP3R3MTRF	3.3 ± 20%		0.228	0.17	1.1	1.1	39
NPIS20LP4R7MTRF	4.7 ± 20%		0.323	0.269	1.0	0.91	28
NPIS20LP6R8MTRF	6.8 ± 20%		0.451	0.376	0.82	0.76	25
NPIS20LP100MTRF	10 ± 20%		0.584	0.487	0.65	0.67	20
NPIS20LP150MTRF	15 ± 20%		0.954	0.795	0.55	0.50	19
NPIS20LP220MTRF	22 ± 20%		1.548	1.29	0.45	0.40	15

Maximum +40°C temperature rise at I<sub>rms</sub>. Maximum -30% inductance drop from initial measured value at I<sub>sat</sub>.

## NPIS21LP Size

Series	Standard Values - Case Size 21 (2.5×2.0×1.2mm)						
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)	SRF (MHz)
			Max.	Typ.	Max.	Max.	Min.
NPIS21LPR16MTRF	0.16 ± 20%	1MHz, 1V	0.022	0.018	6.5	4.05	380
NPIS21LPR24MTRF	0.24 ± 20%		0.022	0.018	4.0	4.05	260
NPIS21LPR33MTRF	0.33 ± 20%		0.029	0.024	4.0	3.35	230
NPIS21LPR47MTRF	0.47 ± 20%		0.036	0.03	3.7	3.0	170
NPIS21LPR68MTRF	0.68 ± 20%		0.061	0.051	3.0	2.1	150
NPIS21LP1R0MTRF	1.0 ± 20%		0.044	0.037	1.7	2.2	85
NPIS21LP1R2MTRF	1.2 ± 20%		0.078	0.065	2.2	1.95	75
NPIS21LP1R5MTRF	1.5 ± 20%		0.078	0.065	2.0	1.95	75
NPIS21LP2R2MTRF	2.2 ± 20%		0.096	0.08	1.8	1.8	55
NPIS21LP3R3MTRF	3.3 ± 20%		0.144	0.12	1.15	1.4	43
NPIS21LP4R7MTRF	4.7 ± 20%		0.21	0.175	1.1	1.12	36
NPIS21LP6R8MTRF	6.8 ± 20%		0.36	0.3	0.80	0.95	25
NPIS21LP100MTRF	10 ± 20%		0.522	0.435	0.70	0.79	21
NPIS21LP150MTRF	15 ± 20%		1.0	0.83	0.65	0.57	18
NPIS21LP180MTRF	18 ± 20%		1.0	0.83	0.65	0.63	14
NPIS21LP220MTRF	22 ± 20%		1.09	0.91	0.45	0.55	11

Maximum +40°C temperature rise at I<sub>rms</sub>. Maximum -30% inductance drop from initial measured value at I<sub>sat</sub>.



## NPIS32LP Size

Series	Standard Values - Case Size 32 (3.0x3.0x1.2mm)						
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)	SRF (MHz)
			Max.	Typ.	Max.	Max.	Min.
NPIS32LP1R0MTRF	1.0 ± 20%	100KHz, 1V	0.04	0.032	2.2	2.3	74
NPIS32LP2R2MTRF	2.2 ± 20%		0.09	0.075	1.5	1.4	51
NPIS32LP3R3MTRF	3.3 ± 20%		0.134	0.112	1.23	1.4	62
NPIS32LP100MTRF	10 ± 20%		0.372	0.310	0.75	0.75	22
NPIS32LP220MTRF	22 ± 20%		0.84	0.70	0.50	0.50	14

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.

## NPIS35LP Size

Series	Standard Values - Case Size 35 (3.0x3.0x1.5mm)						
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)	SRF (MHz)
			Max.	Typ.	Max.	Max.	Min.
NPIS35LPR47MTRF	0.47 ± 20%	100KHz, 1V	0.022	.0218	2.4	3.0	216
NPIS35LP1R0MTRF	1.0 ± 20%		0.04	0.033	2.7	2.2	92
NPIS35LP1R5MTRF	1.5 ± 20%		0.048	0.04	2.0	2.0	70
NPIS35LP2R2MTRF	2.2 ± 20%		0.06	0.05	1.5	1.8	55
NPIS35LP3R3MTRF	3.3 ± 20%		0.084	0.07	1.3	1.5	51
NPIS35LP4R7MTRF	4.7 ± 20%		0.155	0.096	1.1	1.3	35
NPIS35LP6R8MTRF	6.8 ± 20%		0.144	0.12	0.80	0.90	27
NPIS35LP100MTRF	10 ± 20%		0.276	0.23	0.75	0.84	21
NPIS35LP150MTRF	15 ± 20%		0.36	0.30	0.60	0.73	18
NPIS35LP220MTRF	22 ± 20%		0.54	0.45	0.52	0.60	14

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.



## NPIS41LP Size

Series	Standard Values - Case Size 41 (4.0×4.0×1.2mm)						
	Inductance (μH)	Test Conditions	DCR (Ω)		Isat (Amps)	Irms (Amps)	SRF (MHz)
			Max.	Typ.	Max.	Max.	Min.
NPIS41LPR47MTRF	0.47 ± 20%	100KHz, 1V	0.032	0.02	3.5	2.9	193
NPIS41LPR82MTRF	0.82 ± 20%		0.042	0.035	3.0	2.5	121
NPIS41LP1R0MTRF	1.0 ± 20%		0.050	0.042	2.8	2.2	100
NPIS41LP1R5MTRF	1.5 ± 20%		0.05	0.042	2.1	2.2	72
NPIS41LP1R8MTRF	1.8 ± 20%		0.066	0.055	2.1	2.0	73
NPIS41LP2R2MTRF	2.2 ± 20%		0.066	0.055	1.7	2.0	61
NPIS41LP2R7MTRF	2.7 ± 20%		0.084	0.070	1.9	1.7	57
NPIS41LP3R3MTRF	3.3 ± 20%		0.084	0.070	1.4	1.7	55
NPIS41LP3R6MTRF	3.6 ± 20%		0.09	0.075	1.2	1.7	49
NPIS41LP4R3MTRF	4.3 ± 20%		0.108	0.09	1.2	1.5	42
NPIS41LP4R7MTRF	4.7 ± 20%		0.108	0.09	1.2	1.8	39
NPIS41LP5R1MTRF	5.1 ± 20%		0.132	0.110	1.2	1.4	35
NPIS41LP5R6MTRF	5.6 ± 20%		0.132	0.110	1.1	1.4	35
NPIS41LP6R8MTRF	6.8 ± 20%		0.150	0.125	0.9	1.3	33
NPIS41LP100MTRF	10 ± 20%		0.204	0.170	0.8	1.1	27

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.

## NPIS48LP Size

Series	Standard Values - Case Size 48 (4.0×4.0×1.8mm)					
	Inductance (μH)	Test Conditions	DCR (Ω)	Isat (Amps)	Irms (Amps)	SRF (MHz)
			± 20%	Max.	Max.	Min.
NPIS48LP1R0MTRF	1.0 ± 20%	100KHz, 1V	0.027	4.00	3.20	90
NPIS48LP1R5MTRF	1.5 ± 20%		0.031	3.60	2.95	70
NPIS48LP2R2MTRF	2.2 ± 20%		0.042	3.00	2.20	60
NPIS48LP3R3MTRF	3.3 ± 20%		0.055	2.30	2.00	45
NPIS48LP4R7MTRF	4.7 ± 20%		0.070	2.00	1.70	35
NPIS48LP6R8MTRF	6.8 ± 20%		0.098	1.60	1.45	30
NPIS48LP100MTRF	10 ± 20%		0.150	1.30	1.20	25
NPIS48LP150MTRF	15 ± 20%		0.210	1.10	0.85	18
NPIS48LP220MTRF	22 ± 20%		0.290	0.90	0.70	15
NPIS48LP330MTRF	33 ± 20%		0.460	0.70	0.55	12
NPIS48LP470MTRF	47 ± 20%		0.620	0.57	0.65	11
NPIS48LP680MTRF	68 ± 20%		0.810	0.53	0.55	7.1
NPIS48LP101MTRF	100 ± 20%		1.30	0.49	0.45	5.2
NPIS48LP151MTRF	150 ± 20%		2.60	0.41	0.33	5.1
NPIS48LP221MTRF	220 ± 20%		3.20	0.33	0.25	4.2
NPIS48LP331MTRF	330 ± 20%	4.90	0.26	0.22	3.2	

Maximum +40°C temperature rise at Irms. Maximum -30% inductance drop from initial measured value at Isat.



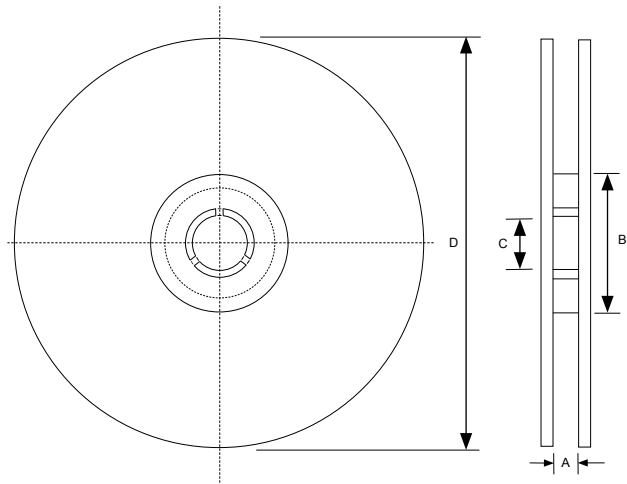
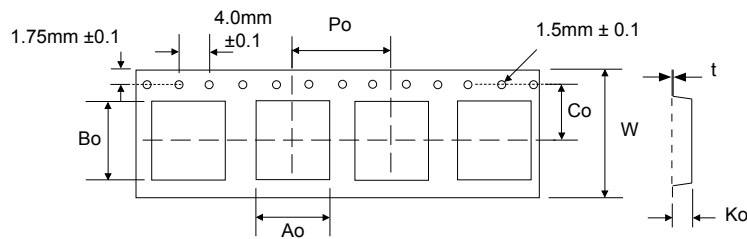
## NPIS83LP Size

Series	Standard Values - Case Size 83 (8.0×8.0×3.0mm)					
	Inductance (μH)	Test Conditions	DCR (Ω)	Isat (Amps)	Irms (Amps)	SRF (MHz)
			± 20%	Max.	Max.	Min.
NPIS83LP1R0YTRF	1.0 ± 30%	100KHz, 1V	0.009	7.80	6.20	90
NPIS83LP1R5YTRF	1.5 ± 30%		0.012	6.20	5.30	70
NPIS83LP2R2MTRF	2.2 ± 20%		0.015	4.90	4.80	60
NPIS83LP3R3MTRF	3.3 ± 20%		0.019	4.20	4.30	45
NPIS83LP4R7MTRF	4.7 ± 20%		0.022	3.60	4.00	35
NPIS83LP6R8MTRF	6.8 ± 20%		0.029	3.00	3.40	30
NPIS83LP100MTRF	10 ± 20%		0.033	2.40	3.00	25
NPIS83LP150MTRF	15 ± 20%		0.060	2.00	2.20	18
NPIS83LP220MTRF	22 ± 20%		0.070	1.75	1.90	15
NPIS83LP330MTRF	33 ± 20%		0.120	1.30	1.50	12
NPIS83LP470MTRF	47 ± 20%		0.170	1.10	1.30	11

Maximum +40°C temperature rise at I<sub>rms</sub>. Maximum -30% inductance drop from initial measured value at I<sub>sat</sub>.



Case Size	CARRIER TAPING DIMENSIONS (mm) AND REEL QUANTITY							
	Ao	Bo	Ko	Co	W	Po	t	Quantity
NPIS26LP	1.90 ± 0.05	2.20 ± 0.05	1.2 ± 0.05	3.5 ± 0.05	8.0 ± 0.1	4.0 ± 0.1	0.25 ± 0.02	2,000
NPIS22LP	2.35 ± 0.05	2.35 ± 0.05	1.4 ± 0.05	3.5 ± 0.05	8.0 ± 0.1	4.0 ± 0.1	0.25 ± 0.03	2,000
NPIS20LP	2.45 ± 0.05	2.75 ± 0.05	1.2 ± 0.05	3.5 ± 0.05	8.0 ± 0.1	4.0 ± 0.1	0.25 ± 0.03	2,000
NPIS21LP	2.45 ± 0.05	2.75 ± 0.05	1.55 ± 0.05	3.5 ± 0.05	8.0 ± 0.1	4.0 ± 0.1	0.25 ± 0.03	2,000
NPIS32LP	3.3 ± 0.1	3.3 ± 0.1	1.6 ± 0.1	3.5 ± 0.1	8.0 ± 0.3	4.0 ± 0.1	0.25 ± 0.03	2,000
NPIS35LP			1.9 ± 0.1				0.25 ± 0.03	2,000
NPIS41LP	4.3 ± 0.1	4.3 ± 0.1	1.6 ± 0.1	5.5 ± 0.1	12.0 ± 0.3	8.0 ± 0.1	0.35 ± 0.03	4,500
NPIS48LP			2.1 ± 0.1					3,000
NPIS83LP	8.35 ± 0.1	8.35 ± 0.1	3.4 ± 0.1	7.5 ± 0.1	16.0 ± 0.3	12.0 ± 0.1	0.4 ± 0.03	1,500



Tape Width	REEL DIMENSIONS (mm)			
	A(mm)	B(mm)	C(mm)	D(mm)
NPIS26LP	8.4 +1.5/-0	58 ± 2.0	13.5 ± 0.2	178 ± 2.0
NPIS22LP				
NPIS20LP				
NPIS21LP				
NPIS32LP				
NPIS35LP	12.4 +0.2/-0	100 ± 2.0	13.0 +2/-0	330 ± 2.0
NPIS41LP				
NPIS48LP				
NPIS83LP	16.4 +0.2/-0	100 ± 2.0	13.0 +2/-0	330 ± 2.0

