

FEATURES

- SHIELDED POWER INDUCTOR
- MOLDED METAL COMPOSITE CONSTRUCTION
- HIGH SATURATION CURRENT CHARACTERISTICS (~ 118A)
- LOW PROFILE (1.2mm ~ 4.7mm)
- MEETS THE REQUIREMENTS OF AEC-Q200

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details

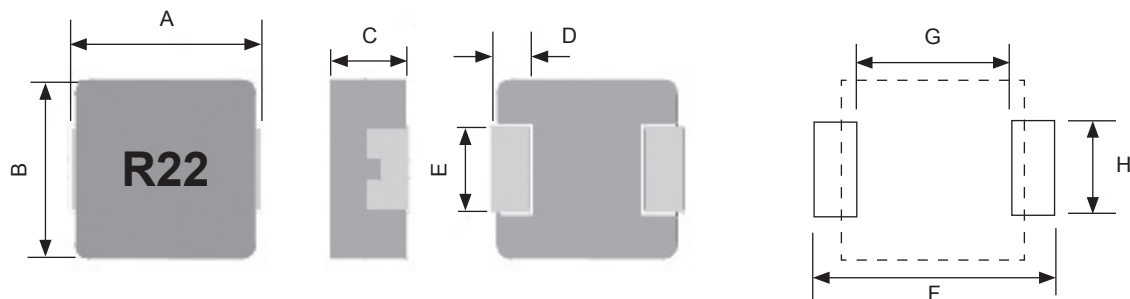


CHARACTERISTICS

Case Code	32	42	52	74	104	145	146
Inductance Range (μH)	0.1 ~ 10	0.1 ~ 22	0.33 ~ 10	0.1 ~ 47	0.15 ~ 68	1.0 ~ 220	0.15 ~ 47
Ambient Operating Temperature Range	-55°C ~ +125°C						
Maximum Component Temperature (Ambient + Self-Heating)	+125°C						
Temperature Rise at Irms	+40°C						
Inductance Change at Isat	-20%						
Inductance Tolerance	See Specifications Tables						
Resistance to Solder Heat	260°C ±5°C for 10 seconds						

DIMENSIONS (mm)

Series	A	B	C	D	E	F	G	H
NPIM32PA	3.50±0.20	3.20±0.20	1.80±0.20	0.70±0.20	1.20±0.20	4.10	1.90	1.45
NPIM42PA	4.45±0.25	4.06±0.25	1.80±0.20	0.76±0.30	2.00±0.20	5.20	2.20	2.40
NPIM52PA	5.70±0.30	5.20±0.20	1.80±0.20	1.10±0.30	2.50±0.30	6.20	2.20	2.80
NPIM74PA	7.30±0.30	6.60±0.30	2.80±0.20	1.80±0.30	3.00±0.30	8.40	2.50	3.50
NPIM104PA	11.00±0.50	10.00±0.30	3.80±0.20	2.30±0.30	3.00±0.30	13.60	5.40	3.50
NPIM145PA	13.50±0.50	12.50±0.30	5.70±0.30	2.30±0.30	4.70±0.30	14.20	8.00	5.00
NPIM146PA	13.50±0.50	12.50±0.30	6.20±0.30	2.30±0.30	4.70±0.30	14.20	8.00	5.00



PART NUMBER SYSTEM

NPIM -- PA4R7 M TR QY F

RoHS Compliant

Packaging: TR = Tape & Reel

Inductance Tolerance Code: M=±20%

Inductance Code (μH): 1st two digits are significant, 3rd digit is multiplier for values from 10μH and up.

Construction Code (see drawing for details)

Size Code (see table for details)

Series

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



Part Number	STANDARD VALUES - CASE SIZE 32PA (3.5 X 3.2 X 1.8mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM32PAR10YTRQYF	0.10	±30%	9.0	14.0	10.5	100KHz/1.0V
NPIM32PAR22YTRQYF	0.22	±30%	14.0	11.2	9.0	100KHz/1.0V
NPIM32PAR33MTRQYF	0.33	±20%	21.0	10.0	8.0	100KHz/1.0V
NPIM32PAR47MTRQYF	0.47	±20%	23.0	9.0	7.0	100KHz/1.0V
NPIM32PAR68MTRQYF	0.68	±20%	29.0	7.0	5.5	100KHz/1.0V
NPIM32PA1R0MTRQYF	1.0	±20%	38.0	5.0	4.0	100KHz/1.0V
NPIM32PA1R5MTRQYF	1.5	±20%	50.0	4.0	3.8	100KHz/1.0V
NPIM32PA2R2MTRQYF	2.2	±20%	75.0	3.7	3.5	100KHz/1.0V
NPIM32PA3R3MTRQYF	3.3	±20%	145.0	3.5	3.0	100KHz/1.0V
NPIM32PA4R7MTRQYF	4.7	±20%	200.0	3.0	2.6	100KHz/1.0V
NPIM32PA5R6MTRQYF	5.6	±20%	238.0	2.6	2.2	100KHz/1.0V
NPIM32PA6R8MTRQYF	6.8	±20%	300.0	2.2	1.9	100KHz/1.0V
NPIM32PA8R2MTRQYF	8.2	±20%	390.0	1.9	1.6	100KHz/1.0V
NPIM32PA100MTRQYF	10	±20%	422.0	1.6	1.4	100KHz/1.0V

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

Part Number	STANDARD VALUES - CASE SIZE 42PA (4.45 X 4.06 X 1.8mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM42PAR10YTRQYF	0.10	±30%	4.0	35.0	12.0	100KHz/1.0V
NPIM42PAR18YTRQYF	0.18	±30%	5.4	28.0	13.5	100KHz/1.0V
NPIM42PAR22YTRQYF	0.22	±30%	7.3	24.0	13.0	100KHz/1.0V
NPIM42PAR33MTRQYF	0.33	±20%	8.6	18.0	10.0	100KHz/1.0V
NPIM42PAR47MTRQYF	0.47	±20%	14.0	12.0	8.0	100KHz/1.0V
NPIM42PAR56MTRQYF	0.56	±20%	16.0	10.0	7.3	100KHz/1.0V
NPIM42PAR68MTRQYF	0.68	±20%	19.0	10.0	7.0	100KHz/1.0V
NPIM42PA1R0MTRQYF	1.0	±20%	27.0	8.5	5.0	100KHz/1.0V
NPIM42PA1R2MTRQYF	1.2	±20%	30.0	7.8	4.8	100KHz/1.0V
NPIM42PA1R5MTRQYF	1.5	±20%	42.0	7.0	4.5	100KHz/1.0V
NPIM42PA2R2MTRQYF	2.2	±20%	61.0	6.0	4.0	100KHz/1.0V
NPIM42PA3R3MTRQYF	3.3	±20%	76.0	4.0	3.5	100KHz/1.0V
NPIM42PA4R7MTRQYF	4.7	±20%	105.0	3.5	2.6	100KHz/1.0V
NPIM42PA5R6MTRQYF	5.6	±20%	125.0	3.0	2.2	100KHz/1.0V
NPIM42PA6R8MTRQYF	6.8	±20%	172.0	2.8	2.1	100KHz/1.0V
NPIM42PA8R2MTRQYF	8.2	±20%	180.0	2.5	2.0	100KHz/1.0V
NPIM42PA100MTRQYF	10	±20%	243.0	2.3	1.8	100KHz/1.0V
NPIM42PA150MTRQYF	15	±20%	374.0	1.9	1.5	100KHz/1.0V
NPIM42PA220MTRQYF	22	±20%	500.0	1.4	1.2	100KHz/1.0V

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

Part Number	STANDARD VALUES - CASE SIZE 52PA (5.70 X 5.20 X 1.8mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM52PAR33MTRQYF	0.33	±20%	7.3	21.3	12.0	100KHz/1.0V
NPIM52PAR47MTRQYF	0.47	±20%	8.6	18.0	11.5	100KHz/1.0V
NPIM52PAR68MTRQYF	0.68	±20%	12.4	12.8	10.0	100KHz/1.0V
NPIM52PA1R0MTRQYF	1.0	±20%	20.0	13.7	7.0	100KHz/1.0V
NPIM52PA1R2MTRQYF	1.2	±20%	28.0	11.0	6.2	100KHz/1.0V
NPIM52PA1R5MTRQYF	1.5	±20%	30.5	9.8	5.5	100KHz/1.0V
NPIM52PA2R2MTRQYF	2.2	±20%	50.0	9.0	4.2	100KHz/1.0V
NPIM52PA3R3MTRQYF	3.3	±20%	76.0	7.3	3.3	100KHz/1.0V
NPIM52PA4R7MTRQYF	4.7	±20%	116	5.0	2.8	100KHz/1.0V
NPIM52PA5R6MTRQYF	5.6	±20%	122	4.0	2.5	100KHz/1.0V
NPIM52PA6R8MTRQYF	6.8	±20%	150	3.8	2.4	100KHz/1.0V
NPIM52PA8R2MTRQYF	8.2	±20%	171	3.5	2.3	100KHz/1.0V
NPIM52PA100MTRQYF	10	±20%	199	3.4	2.3	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Approximate -20% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE 74PA (7.3 X 6.6 X 2.8mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM74PAR10YTRQYF	0.10	±30%	1.7	60.0	32.5	100KHz/1.0V
NPIM74PAR15YTRQYF	0.15	±30%	1.9	45.0	27.0	100KHz/1.0V
NPIM74PAR16YTRQYF	0.16	±30%	1.9	45.0	27.0	100KHz/1.0V
NPIM74PAR20YTRQYF	0.20	±30%	2.5	41.0	24.0	100KHz/1.0V
NPIM74PAR22YTRQYF	0.22	±30%	2.8	40.0	23.0	100KHz/1.0V
NPIM74PAR33MTRQYF	0.33	±20%	3.9	32.0	20.0	100KHz/1.0V
NPIM74PAR36MTRQYF	0.36	±20%	4.2	32.0	19.0	100KHz/1.0V
NPIM74PAR47MTRQYF	0.47	±20%	4.2	26.0	17.5	100KHz/1.0V
NPIM74PAR56MTRQYF	0.56	±20%	5.0	25.5	16.5	100KHz/1.0V
NPIM74PAR60MTRQYF	0.60	±20%	5.2	25.5	16.0	100KHz/1.0V
NPIM74PAR68MTRQYF	0.68	±20%	5.5	25.0	15.5	100KHz/1.0V
NPIM74PAR75MTRQYF	0.75	±20%	6.6	24.5	14.5	100KHz/1.0V
NPIM74PAR82MTRQYF	0.82	±20%	8.0	24.0	13.0	100KHz/1.0V
NPIM74PA1R0MTRQYF	1.0	±20%	10.0	22.0	11.0	100KHz/1.0V
NPIM74PA1R2MTRQYF	1.2	±20%	12.0	20.0	10.0	100KHz/1.0V
NPIM74PA1R5MTRQYF	1.5	±20%	15.0	18.0	9.0	100KHz/1.0V
NPIM74PA1R8MTRQYF	1.8	±20%	17.0	16.0	8.5	100KHz/1.0V
NPIM74PA2R0MTRQYF	2.0	±20%	19.0	15.0	8.2	100KHz/1.0V
NPIM74PA2R2MTRQYF	2.2	±20%	20.0	14.0	8.0	100KHz/1.0V
NPIM74PA2R5MTRQYF	2.5	±20%	22.0	13.0	7.0	100KHz/1.0V
NPIM74PA3R3MTRQYF	3.3	±20%	30.0	13.5	6.0	100KHz/1.0V
NPIM74PA4R7MTRQYF	4.7	±20%	40.0	10.0	5.5	100KHz/1.0V
NPIM74PA5R6MTRQYF	5.6	±20%	48.0	9.0	5.0	100KHz/1.0V
NPIM74PA6R8MTRQYF	6.8	±20%	60.0	8.0	4.5	100KHz/1.0V
NPIM74PA8R2MTRQYF	8.2	±20%	68.0	7.5	4.0	100KHz/1.0V
NPIM74PA100MTRQYF	10	±20%	85.0	6.0	3.5	100KHz/1.0V
NPIM74PA150MTRQYF	15	±20%	123.0	4.0	3.0	100KHz/1.0V
NPIM74PA220MTRQYF	22	±20%	190.0	3.5	2.0	100KHz/1.0V
NPIM74PA330MTRQYF	33	±20%	240.0	2.5	2.0	100KHz/1.0V
NPIM74PA470MTRQYF	47	±20%	363.0	2.0	1.75	100KHz/1.0V

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



Part Number	STANDARD VALUES - CASE SIZE 104PA (11.0 X 10.0 X 3.8mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM104PAR15MTRQYF	0.15	±20%	0.6	75.0	43.0	100KHz/1.0V
NPIM104PAR22MTRQYF	0.22	±20%	1.0	60.0	35.0	100KHz/1.0V
NPIM104PAR27MTRQYF	0.27	±20%	1.0	60.0	33.0	100KHz/1.0V
NPIM104PAR30MTRQYF	0.30	±20%	1.1	60.0	32.0	100KHz/1.0V
NPIM104PAR36MTRQYF	0.36	±20%	1.2	60.0	31.0	100KHz/1.0V
NPIM104PAR39MTRQYF	0.39	±20%	1.3	60.0	30.0	100KHz/1.0V
NPIM104PAR45MTRQYF	0.45	±20%	1.5	45.0	29.0	100KHz/1.0V
NPIM104PAR47MTRQYF	0.47	±20%	1.5	43.0	28.0	100KHz/1.0V
NPIM104PAR56MTRQYF	0.56	±20%	1.8	40.0	25.0	100KHz/1.0V
NPIM104PAR68MTRQYF	0.68	±20%	2.7	39.0	22.0	100KHz/1.0V
NPIM104PA1R0MTRQYF	1.0	±20%	3.3	36.0	18.0	100KHz/1.0V
NPIM104PA1R5MTRQYF	1.5	±20%	4.6	33.0	16.0	100KHz/1.0V
NPIM104PA2R2MTRQYF	2.2	±20%	7.0	27.0	12.0	100KHz/1.0V
NPIM104PA2R5MTRQYF	2.5	±20%	8.7	23.0	11.5	100KHz/1.0V
NPIM104PA3R3MTRQYF	3.3	±20%	11.8	20.0	11.0	100KHz/1.0V
NPIM104PA4R0MTRQYF	4.0	±20%	15.0	18.0	10.2	100KHz/1.0V
NPIM104PA4R7MTRQYF	4.7	±20%	15.5	17.0	10.0	100KHz/1.0V
NPIM104PA5R6MTRQYF	5.6	±20%	19.3	14.0	9.0	100KHz/1.0V
NPIM104PA6R8MTRQYF	6.8	±20%	23.3	13.5	8.5	100KHz/1.0V
NPIM104PA8R2MTRQYF	8.2	±20%	22.5	12.5	8.0	100KHz/1.0V
NPIM104PA100MTRQYF	10	±20%	30.0	12.0	7.5	100KHz/1.0V
NPIM104PA150MTRQYF	15	±20%	45.0	10.0	6.25	100KHz/1.0V
NPIM104PA220MTRQYF	22	±20%	74.0	7.0	5.0	100KHz/1.0V
NPIM104PA270MTRQYF	27	±20%	100.0	6.0	4.0	100KHz/1.0V
NPIM104PA330MTRQYF	33	±20%	112.0	5.0	3.5	100KHz/1.0V
NPIM104PA470MTRQYF	47	±20%	167.0	4.5	3.0	100KHz/1.0V
NPIM104PA680MTRQYF	68	±20%	240.0	3.0	2.0	100KHz/1.0V

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

Part Number	STANDARD VALUES - CASE SIZE 145PA (13.5 X 12.5 X 5.7mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM145PA1R0MTRQYF	1.0	±20%	2.4	45.0	29.0	100KHz/1.0V
NPIM145PA1R2MTRQYF	1.2	±20%	2.8	44.0	28.0	100KHz/1.0V
NPIM145PA1R5MTRQYF	1.5	±20%	3.2	43.0	26.0	100KHz/1.0V
NPIM145PA2R2MTRQYF	2.2	±20%	4.7	34.0	21.0	100KHz/1.0V
NPIM145PA3R3MTRQYF	3.3	±20%	7.1	28.0	17.0	100KHz/1.0V
NPIM145PA4R7MTRQYF	4.7	±20%	11.5	25.0	16.0	100KHz/1.0V
NPIM145PA5R6MTRQYF	5.6	±20%	12.6	22.0	15.5	100KHz/1.0V
NPIM145PA6R8MTRQYF	6.8	±20%	13.8	19.0	15.0	100KHz/1.0V
NPIM145PA8R2MTRQYF	8.2	±20%	16.0	17.0	11.0	100KHz/1.0V
NPIM145PA100MTRQYF	10	±20%	20.7	15.5	11.0	100KHz/1.0V
NPIM145PA120MTRQYF	12	±20%	23.0	13.5	9.5	100KHz/1.0V
NPIM145PA150MTRQYF	15	±20%	29.0	13.0	9.0	100KHz/1.0V
NPIM145PA180MTRQYF	18	±20%	35.0	12.0	8.5	100KHz/1.0V
NPIM145PA220MTRQYF	22	±20%	39.5	11.0	8.0	100KHz/1.0V
NPIM145PA270MTRQYF	27	±20%	56.0	9.0	7.0	100KHz/1.0V
NPIM145PA330MTRQYF	33	±20%	75.0	8.0	6.0	100KHz/1.0V
NPIM145PA470MTRQYF	47	±20%	90.0	7.0	5.5	100KHz/1.0V
NPIM145PA560MTRQYF	56	±20%	118.0	6.5	5.3	100KHz/1.0V
NPIM145PA680MTRQYF	68	±20%	140.0	6.0	5.0	100KHz/1.0V
NPIM145PA820MTRQYF	82	±20%	161.0	5.5	4.5	100KHz/1.0V
NPIM145PA101MTRQYF	100	±20%	200.0	5.0	4.0	100KHz/1.0V
NPIM145PA121MTRQYF	120	±20%	235.0	4.5	3.5	100KHz/1.0V
NPIM145PA151MTRQYF	150	±20%	350.0	4.0	3.0	100KHz/1.0V
NPIM145PA221MTRQYF	220	±20%	550.0	3.0	2.0	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Approximate -20% inductance change at Isat.

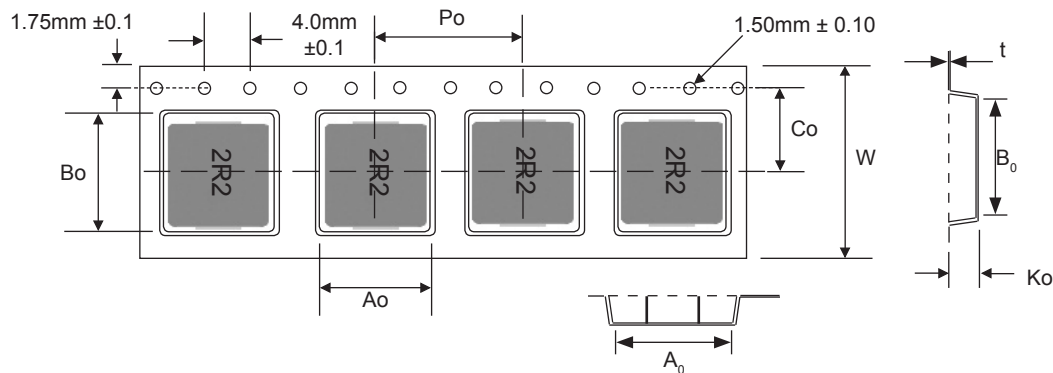
Part Number	STANDARD VALUES - CASE SIZE 146PA (13.5 X 12.5 X 6.2mm)					
	Inductance Value (μH)	Tolerance	DC Resistance (mΩ) Max.	DC Current Isat (Amps)	DC Current Irms (Amps)	Test Frequency
NPIM146PAR15MTRQYF	0.15	±20%	0.60	118.0	55.0	100KHz/1.0V
NPIM146PAR22MTRQYF	0.22	±20%	0.60	112.0	53.0	100KHz/1.0V
NPIM146PAR30MTRQYF	0.30	±20%	0.72	72.0	48.0	100KHz/1.0V
NPIM146PAR33MTRQYF	0.33	±20%	0.80	68.0	46.0	100KHz/1.0V
NPIM146PAR36MTRQYF	0.36	±20%	0.90	66.0	45.0	100KHz/1.0V
NPIM146PAR40MTRQYF	0.40	±20%	1.00	64.0	44.0	100KHz/1.0V
NPIM146PAR47MTRQYF	0.47	±20%	1.20	63.0	41.0	100KHz/1.0V
NPIM146PAR50MTRQYF	0.50	±20%	1.25	60.0	40.0	100KHz/1.0V
NPIM146PAR56MTRQYF	0.56	±20%	1.20	58.0	37.0	100KHz/1.0V
NPIM146PAR68MTRQYF	0.68	±20%	1.50	55.0	35.0	100KHz/1.0V
NPIM146PAR82MTRQYF	0.82	±20%	1.90	50.0	33.0	100KHz/1.0V
NPIM146PA1R0MTRQYF	1.0	±20%	2.30	48.0	30.0	100KHz/1.0V
NPIM146PA1R5MTRQYF	1.5	±20%	3.00	45.0	27.0	100KHz/1.0V
NPIM146PA1R8MTRQYF	1.8	±20%	4.00	40.0	24.0	100KHz/1.0V
NPIM146PA2R2MTRQYF	2.2	±20%	4.20	37.0	22.0	100KHz/1.0V
NPIM146PA3R3MTRQYF	3.3	±20%	6.80	30.0	18.0	100KHz/1.0V
NPIM146PA4R7MTRQYF	4.7	±20%	8.40	28.0	13.5	100KHz/1.0V
NPIM146PA5R6MTRQYF	5.6	±20%	10.0	23.0	12.5	100KHz/1.0V
NPIM146PA6R8MTRQYF	6.8	±20%	11.5	18.0	11.5	100KHz/1.0V
NPIM146PA8R2MTRQYF	8.2	±20%	15.5	16.0	10.5	100KHz/1.0V
NPIM146PA100MTRQYF	10	±20%	16.5	15.5	10.0	100KHz/1.0V
NPIM146PA130MTRQYF	13	±20%	24.0	13.0	9.0	100KHz/1.0V
NPIM146PA150MTRQYF	15	±20%	28.0	12.5	9.0	100KHz/1.0V
NPIM146PA220MTRQYF	22	±20%	37.0	12.0	9.0	100KHz/1.0V
NPIM146PA330MTRQYF	33	±20%	58.0	11.0	8.0	100KHz/1.0V
NPIM146PA470MTRQYF	47	±20%	90.0	9.5	6.5	100KHz/1.0V

Maximum +40°C temperature rise at Irms. Approximate -20% inductance change at Isat.

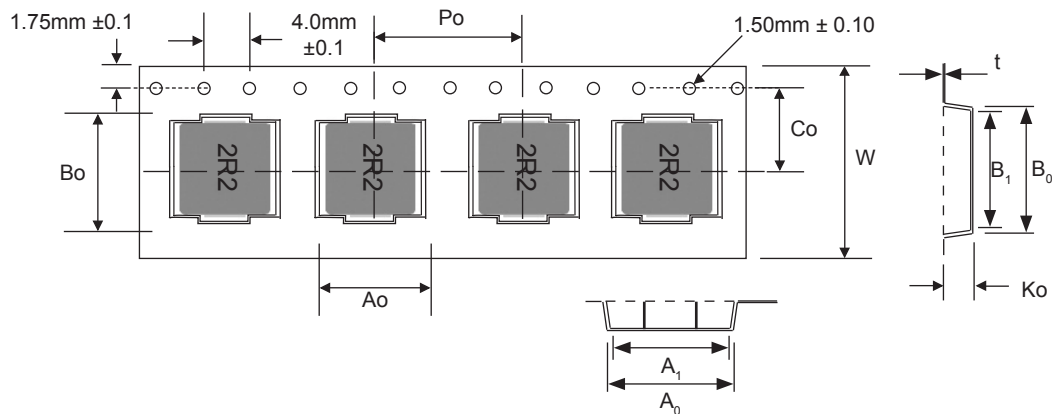
CARRIER TAPE DIMENSIONS (mm)

Series	B ₀	B ₁	A ₀	A ₁	K ₀	P ₀	W	Co	t
NPIM32PA	3.8±0.1	n/a	3.5±0.1	n/a	2.3±0.1	8.0±0.1	12.0±0.3	5.5±0.1	0.35±0.05
NPIM42PA	5.0±0.1	n/a	4.4±0.1	n/a	2.3±0.1	8.0±0.1	12.0±0.3	5.5±0.1	0.35±0.05
NPIM52PA	6.3±0.1	n/a	5.5±0.1	n/a	2.3±0.1	8.0±0.1	12.0±0.3	5.5±0.1	0.35±0.05
NPIM74PA	7.8±0.1	n/a	7.1±0.1	n/a	3.3±0.1	12.0±0.1	16.0±0.3	7.5±0.1	0.35±0.05
NPIM104PA	11.6±0.1	n/a	10.4±0.1	n/a	4.5±0.1	16.0±0.1	24.0±0.3	11.5±0.1	0.35±0.05
NPIM145PA	14.1±0.1	13.0±0.1	12.9±0.1	7.0±0.1	6.5±0.1	16.0±0.1	24.0±0.3	11.5±0.1	0.35±0.05
NPIM146PA	14.1±0.1	13.0±0.1	12.9±0.1	7.0±0.1	7.0±0.1	16.0±0.1	24.0±0.3	11.5±0.1	0.35±0.05

CARRIER TAPE FOR SIZES 32, 42, 52, 74 AND 104

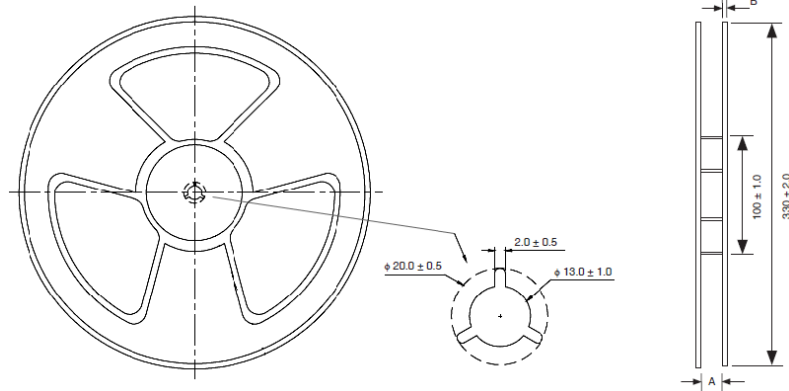


CARRIER TAPE FOR SIZES 145 AND 146



REEL DIMENSIONS (mm)

Series	A	B	C	D	Qty/Reel
NPIM32PA	12.4 +2.0/-0	100 ±2.0	13.5 ±0.5	330	3,000
NPIM42PA					3,000
NPIM52PA					3,000
NPIM74PA	16.4 +2.0/-0				1,000
NPIM104PA	24.4 +2.0/-0				500
NPIM145PA					500
NPIM146PA					500



LAND PATTERN DIMENSIONS (mm)

Series	F	G	H
NPIM32PA	1.9	4.1	1.45
NPIM42PA	2.2	5.2	2.4
NPIM52PA	2.2	6.2	2.8
NPIM74PA	2.5	8.4	3.5
NPIM104PA	5.4	13.6	3.5
NPIM145PA	8.0	14.2	5.0
NPIM146PA	8.0	14.2	5.0

