

## FEATURES

- SHIELDED POWER INDUCTOR
- MOLDED METAL COMPOSITE CONSTRUCTION
- HIGH SATURATION CURRENT CHARACTERISTICS (~ 110A\*)
- HIGH EFFICIENCY (2X IMPROVEMENT OVER FERRITE CORE INDUCTORS)
- LOW PROFILE (1.8mm ~ 5.2mm)

\*For Current Ratings Above 75A contact NIC

**RoHS Compliant**  
includes all homogeneous materials



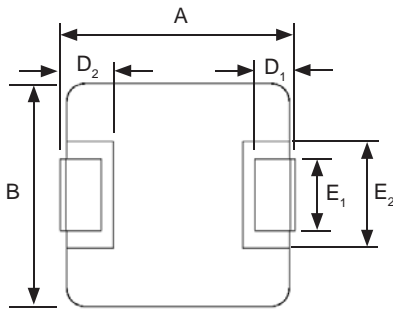
\*See Part Number System for Details

## CHARACTERISTICS

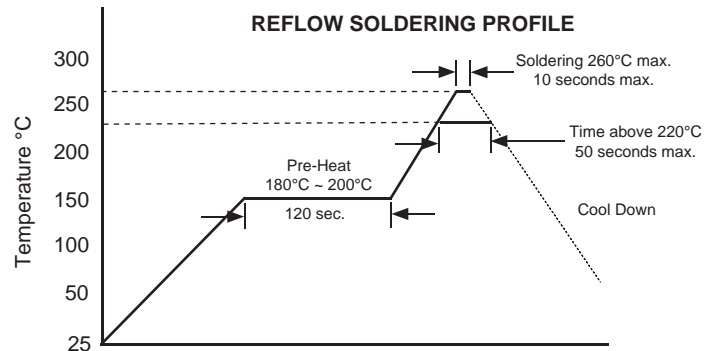
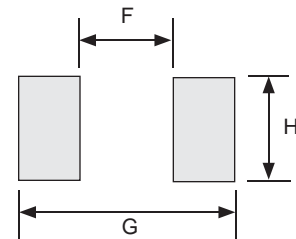
Case Code	42	53	72	73	74	103	104	143	145
Inductance Range (µF)	0.1 ~ 2.2	0.68 ~ 3.3	0.1 ~ 4.7	0.1 ~ 4.7	0.1 ~ 10	0.36 ~ 8.2	0.22 ~ 10	0.56 ~ 2.2	0.36~6.8
Ambient Operating Temperature Range	-55°C ~ +85°C								
Maximum Component Temperature (Ambient + Self-Heating)	+125°C								
Temperature Rise at Irms	+40°C								
Inductance Change at Isat	-20% (-30% for some values)								
Inductance Tolerance	±20%								
Resistance to Solder Heat	260°C ±5°C for 10 seconds								

## DIMENSIONS (mm)

Series	A	B	C	D <sub>1</sub>	D <sub>2</sub>	E <sub>1</sub>	E <sub>2</sub>	t	F	G	H
NPIM42C	4.15 ± 0.35	4.0 ± 0.3	1.8 ± 0.2	0.8 ± 0.3	1.0 ± 0.1	1.5 ± 0.3	2.2 ± 0.2	0 ~ +0.15	2.2	5.2	2.5
NPIM53C	4.85 ± 0.35	4.7 ± 0.2	2.8 ± 0.2	1.0 ± 0.3	1.5 ± 0.1	1.5 ± 0.3	2.2 ± 0.2	0 ~ +0.15	3.0	7.0	2.5
NPIM72C	7.05 ± 0.35	6.6 ± 0.2	1.6 ± 0.2	1.6 ± 0.2	2.0 ± 0.1	3.0 ± 0.3	3.6 ± 0.2	0 ~ +0.15	3.7	8.4	3.5
NPIM73C	6.95 ± 0.35	6.6 ± 0.2	2.2 ± 0.2	1.6 ± 0.3	2.0 ± 0.1	3.0 ± 0.3	3.6 ± 0.2	0 ~ +0.15	3.7	8.4	3.5
NPIM74C	6.95 ± 0.35	6.6 ± 0.2	2.8 ± 0.2	1.6 ± 0.3	2.0 ± 0.1	3.0 ± 0.3	3.6 ± 0.2	0 ~ +0.15	3.7	8.4	3.5
NPIM103C	See Individual Case Sizes Tables for These Case Sizes										
NPIM104C											
NPIM143C											
NPIM145C											

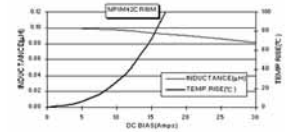


## LAND PATTERN



Part Number	STANDARD VALUES - CASE SIZE 42 ( 4.15 X 4.0 X 1.8mm)				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	Test Frequency
NPIM42CR10MTRF	0.1	5.0	11	30	100KHz
NPIM42CR22MTRF	0.22	8.0	9	17	
NPIM42CR47MTRF	0.47	15.5	6	11.5	
NPIM42C1R0MTRF	1.0	36	3.8	8.5	
NPIM42C1R5MTRF	1.5	46	4.0	6.0*	
NPIM42C2R2MTRF	2.2	58	3.0	5.0*	

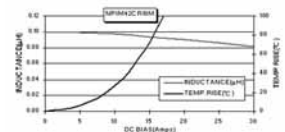
Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -20% inductance change at I<sub>sat</sub> (\*-30%)



[Link to NPIM42 Performance Curves](#)

Part Number	STANDARD VALUES - CASE SIZE 53 (4.85 X 4.7 X 2.8mm)				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	Test Frequency
NPIM53CR68MTRF	0.68	12	8.5	14	100KHz
NPIM53C1R0MTRF	1.0	14	7	11	
NPIM53C1R2MTRF	1.2	16	6.5	11	
NPIM53C1R5MTRF	1.5	20	6.0	10	
NPIM53C2R2MTRF	2.2	35	5.5	9.0	
NPIM53C3R3MTRF	3.3	38	5.0	7.0	

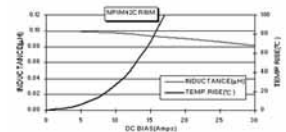
Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -20% inductance change at I<sub>sat</sub>.



[Link to NPIM53 Performance Curves](#)

Part Number	STANDARD VALUES - CASE SIZE 72 (7.05 X 6.6 X 1.6mm)				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	Test Frequency
NPIM72CR10MTRF	0.1	2.5	18	45	100KHz
NPIM72CR33MTRF	0.33	6.8	12	22	
NPIM72CR47MTRF	0.47	8.4	11	18	
NPIM72CR68MTRF	0.68	12.7	9.0	17	
NPIM72C1R0MTRF	1.0	17	7.0	14	
NPIM72C2R0MTRF	2.0	32	6.0	13	
NPIM72C2R2MTRF	2.2	35	6.0	13	
NPIM72C4R7MTRF	4.7	70	3.5	5.0	

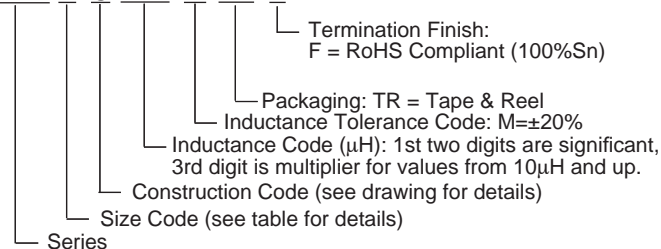
Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -30% inductance change at I<sub>sat</sub>.



[Link to NPIM72 Performance Curves](#)

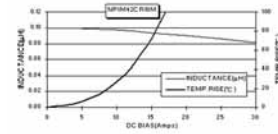
### PART NUMBER SYSTEM

NPIM -- C 5R6 M TR E



Part Number	STANDARD VALUES - CASE SIZE 73 (6.95 X 6.6 X 2.2mm)				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current Irms (Amps)	DC Current Isat (Amps)	Test Frequency
NPIM73CR10MTRF	0.1	1.7	30	70	100KHz
NPIM73CR20MTRF	0.20	2.8	25	50	
NPIM73CR47MTRF	0.47	5.5	15	22	
NPIM73C1R0MTRF	1.0	13.5	9.0	16	
NPIM73C2R2MTRF	2.2	28	7.0	14	
NPIM73C3R3MTRF	3.3	39	5.5	13	
NPIM73C4R7MTRF	4.7	50	5.0	10	

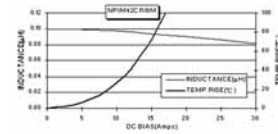
Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.



[Link to NPIM73 Performance Curves](#)

Part Number	STANDARD VALUES - CASE SIZE 74 (6.95 X 6.6 X 2.8mm)				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current Irms (Amps)	DC Current Isat (Amps)	Test Frequency
NPIM74CR10MTRF	0.1	1.7	32.5	60	100KHz
NPIM74CR20MTRF	0.2	3.0	24	41	
NPIM74CR22MTRF	0.22	2.8	23	40	
NPIM74CR33MTRF	0.33	3.9	20	30	
NPIM74CR47MTRF	0.47	4.2	17.5	26	
NPIM74CR68MTRF	0.68	5.5	15.5	25	
NPIM74CR82MTRF	0.82	8.0	13	24	
NPIM74C1R0MTRF	1.0	10	11	22	
NPIM74C1R2MTRF	1.2	12	10	20	
NPIM74C1R5MTRF	1.5	15	9.0	18	
NPIM74C2R2MTRF	2.2	20	8.0	14	
NPIM74C3R3MTRF	3.3	30	6.0	13.5	
NPIM74C4R7MTRF	4.7	40	5.5	10	
NPIM74C6R8MTRF	6.8	60	4.5	8.0	
NPIM74C8R2MTRF	8.2	60	4.5	6.0*	
NPIM74C100MTRF	10	68	4.0	5.5*	

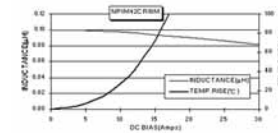
Maximum +40°C temperature rise at Irms. Typical -20% inductance change at Isat (\*-30%)



[Link to NPIM74 Performance Curves](#)

Part Number	STANDARD VALUES - CASE SIZE 103				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current Irms (Amps)	DC Current Isat (Amps)	Test Frequency
NPIM103CR36MTRF	0.36	1.6	23	28	100KHz
NPIM103CR47MTRF	0.47	2.5	20	26	
NPIM103C1R0MTRF	1.0	3.0	20	27	
NPIM103C8R2MTRF	8.2	45	5.0	8.5	

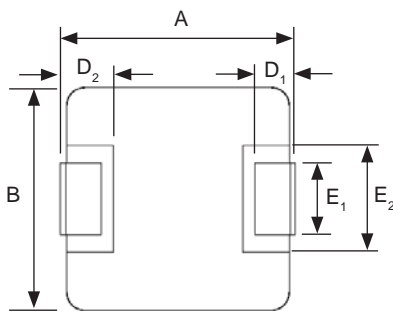
Maximum +40°C temperature rise at Irms. Typical -30% inductance change at Isat.



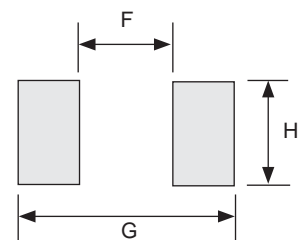
[Link to NPIM103 Performance Curves](#)

### NPIM103S CASE AND LAND PATTERN DIMENSIONS

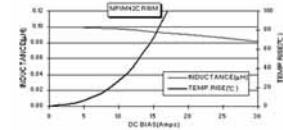
Series	Value	A	B	C	D <sub>1</sub>	D <sub>2</sub>	E <sub>1</sub>	E <sub>2</sub>	t	F	G	H
NPIM103C	R36, R47	11.15 ± 0.35	10.0 ± 0.3	2.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1
	1R0	11.15 ± 0.35	10.0 ± 0.3	3.3 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1
	8R2	10.85 ± 0.35	10.0 ± 0.3	2.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1



### LAND PATTERN



Part Number	STANDARD VALUES - CASE SIZE 104				Test Frequency
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	
NPIM104CR22MTRF	0.22	1.0	35	60	100KHz
NPIM104CR36MTRF	0.36	1.2	30	50*	
NPIM104CR56MTRF	0.56	1.8	25	33*	
NPIM104CR68MTRF	0.68	2.7	22	39	
NPIM104CR88MTRF	0.88	3.0	20	38	
NPIM104C1R0MTRF	1.0	3.3	18	28*	
NPIM104C1R5MTRF	1.5	4.2	16	33	
NPIM104C2R2MTRF	2.2	7.0	12	27	
NPIM104C3R3MTRF	3.3	11.8	10	16*	
NPIM104C4R7MTRF	4.7	15	10	13*	
NPIM104C6R8MTRF	6.8	24	7.5	9.5*	
NPIM104C100MTRF	10	30	6.0	6.0*	

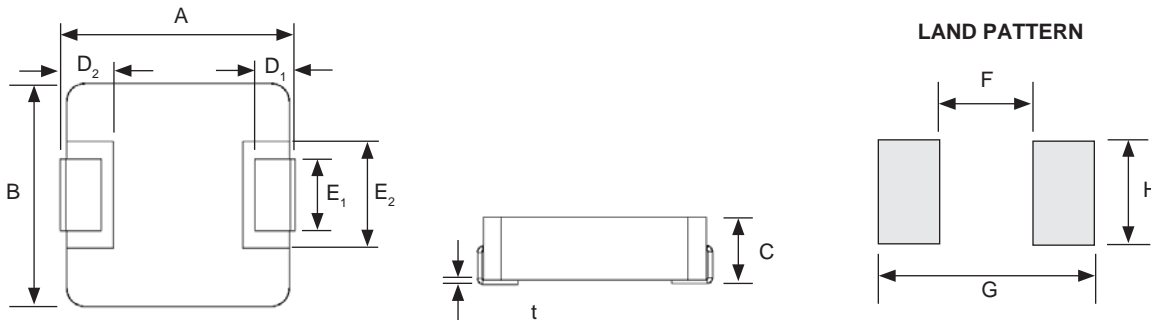


[Link to NPIM104 Performance Curves](#)

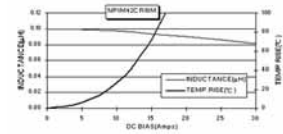
Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -20% inductance change at I<sub>sat</sub> (\*-30%)

### NPIM104S CASE AND LAND PATTERN DIMENSIONS

Series	Value	A	B	C	D <sub>1</sub>	D <sub>2</sub>	E <sub>1</sub>	E <sub>2</sub>	t	F	G	H
NPIM104C	R22, R36, R56, R68, R88, R10, 1R5	11.15 ± 0.35	10.0 ± 0.3	3.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1
	2R2, 3R3, 100	10.85 ± 0.35	10.0 ± 0.3	3.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1
	4R7, 6R8	10.85 ± 0.35	10.0 ± 0.3	4.3 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	5.0 ± 0.2	0 ~ +0.15	5.4	13.6	4.1



Part Number	STANDARD VALUES - CASE SIZE 143				
	Inductance Value (μH)	DC Resistance (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	Test Frequency
NPIM143CR56MTRF	0.56	2.20	29	51	100KHz
NPIM143CR68MTRF	0.68	2.50	28	49	
NPIM143C1R0MTRF	1.0	3.50	24	40	
NPIM143C2R2MTRF	2.2	8.00	16	29	

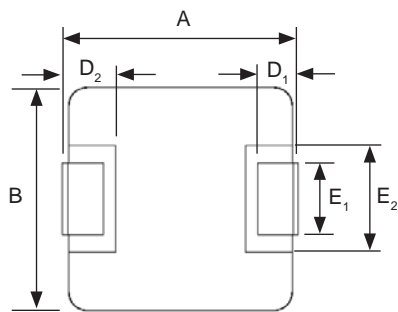


[Link to NPIM143 Performance Curves](#)

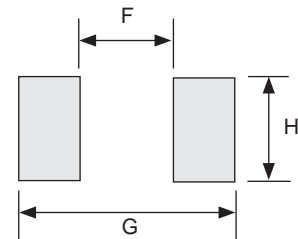
Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -20% inductance change at I<sub>sat</sub>.

### NPIM143S CASE AND LAND PATTERN DIMENSIONS

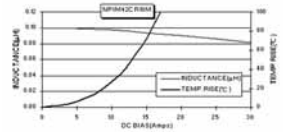
Series	Value	A	B	C	D <sub>1</sub>	D <sub>2</sub>	E <sub>1</sub>	E <sub>2</sub>	t	F	G	H
NPIM143C	R56 ~ R68	13.45 ± 0.35	12.6 ± 0.2	3.3 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	4.0 ± 0.5	6.0 ± 0.2	0 ~ +0.15	8.0	14.5	5.0
	1R0 ~ 2R2	13.45 ± 0.35	12.6 ± 0.2	3.3 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	6.0 ± 0.2	0 ~ +0.15	8.0	14.5	5.0



### LAND PATTERN



Part Number	STANDARD VALUES - CASE SIZE 145				
	Inductance Value (μH)	DC Resistance max. (mΩ)	DC Current I <sub>rms</sub> (Amps)	DC Current I <sub>sat</sub> (Amps)	Test Frequency
NPIM145CR36MTRF	0.36	1.10	41	75	100KHz
NPIM145CR47MTRF	0.47	1.30	38	65	
NPIM145CR50MTRF	0.50	1.50	36	55	
NPIM145CR56MTRF	0.56	1.50	36	55	
NPIM145CR62MTRF	0.62	1.70	34	54	
NPIM145CR68MTRF	0.68	1.70	34	54	
NPIM145C1R0MTRF	1.0	2.50	29	50	
NPIM145C1R5MTRF	1.5	4.10	23	48	
NPIM145C2R2MTRF	2.2	5.50	20	32	
NPIM145C3R3MTRF	3.3	9.20	15	32	
NPIM145C4R7MTRF	4.7	15.0	12	27	
NPIM145C6R8MTRF	6.8	18.5	11	21	



[Link to NPIM145 Performance Curves](#)

Maximum +40°C temperature rise at I<sub>rms</sub>. Typical -20% inductance change at I<sub>sat</sub>.

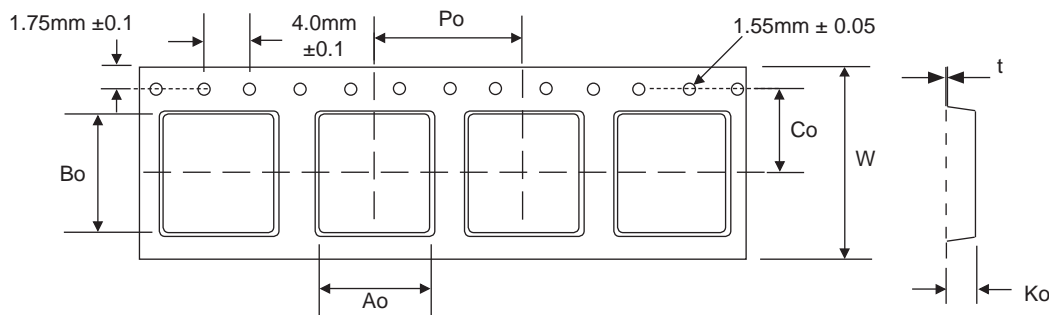
### NPIM145C CASE AND LAND PATTERN DIMENSIONS

Series	Value	A	B	C	D <sub>1</sub>	D <sub>2</sub>	E <sub>1</sub>	E <sub>2</sub>	t	F	G	H
NPIM145C	R36	13.65 ± 0.35	12.6 ± 0.2	5.0 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	4.0 ± 0.5	6.0 ± 0.2	0 ~ +0.15	8.0	14.5	5.0
	R47, R50, R56, R62, R68, 1R0, 1R5	13.45 ± 0.35	12.6 ± 0.2	4.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	4.0 ± 0.5	6.0 ± 0.2	0 ~ +0.15	8.0	14.5	5.0
	2R2, 3R3, 4R7, 6R8	13.45 ± 0.35	12.6 ± 0.2	4.8 ± 0.2	2.0 ± 0.5	2.5 ± 0.1	3.0 ± 0.5	6.0 ± 0.2	0 ~ +0.15	8.0	14.5	5.0



## CARRIER TAPE DIMENSIONS (mm)

Series	Part Thickness	Ao	Bo	Co	Po	Ko	t	W
NPIM42C	All	4.2 ± 0.10	4.5 ± 0.10	5.5 ± 0.10	8.0 ± 0.10	2.5 ± 0.15	1.55 ± 0.05	12.0 ± 0.30
NPIM53C	All	5.4 ± 0.10	5.2 ± 0.10	7.5 ± 0.10	12.0 ± 0.10	3.6 ± 0.15	0.35 ± 0.05	16.0 ± 0.30
NPIM72C	All	7.2 ± 0.10	7.5 ± 0.10	7.5 ± 0.10	12.0 ± 0.10	2.3 ± 0.10	0.30 ± 0.10	16.0 ± 0.30
NPIM73C	All	7.2 ± 0.10	7.5 ± 0.10	7.5 ± 0.10	12.0 ± 0.10	3.6 ± 0.15	0.30 ± 0.10	16.0 ± 0.30
NPIM74C	All	7.2 ± 0.10	7.5 ± 0.10	7.5 ± 0.10	12.0 ± 0.10	3.6 ± 0.15	0.30 ± 0.10	16.0 ± 0.30
NPIM103C	All	10.7 ± 0.10	12.0 ± 0.10	11.5 ± 0.10	16.0 ± 0.10	4.0 ± 0.10	0.35 ± 0.05	24.0 ± 0.30
NPIM104C	3.8mm	10.7 ± 0.10	12.0 ± 0.10	11.5 ± 0.10	16.0 ± 0.10	4.0 ± 0.10	0.35 ± 0.05	24.0 ± 0.30
	4.3mm					4.5 ± 0.10		
NPIM143C	All	13.4 ± 0.10	14.1 ± 0.10	11.5 ± 0.10	16.0 ± 0.1	3.7 ± 0.15	0.35 ± 0.05	24.0 ± 0.30
NPIM145C	All	13.4 ± 0.10	14.1 ± 0.10	11.5 ± 0.10	16.0 ± 0.1	5.1 ± 0.10	0.35 ± 0.05	24.0 ± 0.30



## REEL DIMENSIONS (mm)

Series	A	B	Qty/Reel
NPIM42C	12.5 ± 0.5	2.0 ± 0.2	1,000
NPIM53C	16.0 ± 0.5	2.0 ± 0.2	1,000
NPIM72C	16.0 ± 0.5	2.0 ± 0.2	1,000
NPIM73C	16.0 ± 0.5	2.0 ± 0.2	1,000
NPIM74C	16.0 ± 0.5	2.0 ± 0.2	1,000
NPIM103C	24.5 ± 0.5	2.0 ± 0.2	500
NPIM104C	24.5 ± 0.5	2.0 ± 0.2	500
NPIM143C	24.5 ± 0.5	2.0 ± 0.2	500
NPIM145C	24.5 ± 0.5	2.0 ± 0.2	500

