

## FEATURES

- SHIELDED POWER INDUCTOR
- ULTRA LOW PROFILE (1.0 ~ 4.5mm MAX. HEIGHT)
- SURFACE MOUNTABLE CONSTRUCTION
- INDUCTANCE VALUES UP TO 220 $\mu$ H
- TAPED AND REELED FOR AUTOMATIC INSERTION

**RoHS**  
**Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

Case Size	NPIS30L	NPIS32L	NPIS35L	NPIS40L	NPIS42L	NPIS48L	NPIS62L	NPIS60L	NPIS65L	NPIS80L
Inductance Range	1.0 ~ 47 $\mu$ H	1.0 ~ 47 $\mu$ H	1.0 ~ 47 $\mu$ H	1.0 ~ 47 $\mu$ H	1.0 ~ 47 $\mu$ H	1.0 ~ 220 $\mu$ H	2.5 ~ 100 $\mu$ H	0.8 ~ 10 $\mu$ H	1.0 ~ 100 $\mu$ H	0.9 ~ 100 $\mu$ H
Temperature Range	-25°C ~ +120°C*									
Temperature Rise at I <sub>rms</sub>	+40°C max.									
Inductance Change at I <sub>sat</sub>	- 30% max.									
Inductance Tolerance	±20% (M), ±30% (Y)									
Resistance to Solder Heat	255°C for 10 seconds									

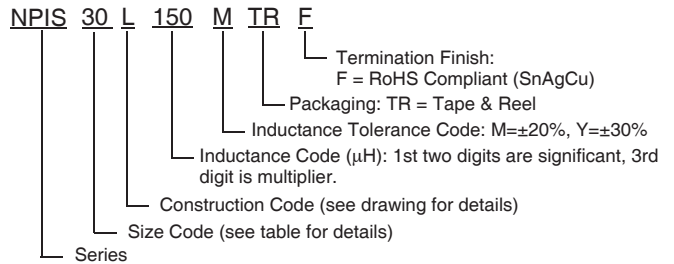
\*Ambient plus temperature rise

## DIMENSIONS (mm)

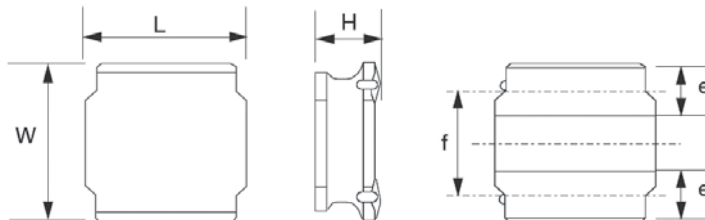
Case Size	L	W	H max.	e	e $\Delta$	f
NPIS30L	3.0 ± 0.1	3.0 ± 0.1	1.0	0.9 ± 0.2	-	1.9 ± 0.2
NPIS32L	3.0 ± 0.1	3.0 ± 0.1	1.2		-	
NPIS35L	3.0 ± 0.1	3.0 ± 0.1	1.5		-	
NPIS40L	4.0 ± 0.2	4.0 ± 0.2	1.0	1.1 ± 0.2	-	2.5 ± 0.2
NPIS42L	4.0 ± 0.2	4.0 ± 0.2	1.2		-	
NPIS48L	4.0 ± 0.2	4.0 ± 0.2	1.8		-	
NPIS62L	6.0 ± 0.2	6.0 ± 0.2	1.2	1.35 ± 0.2	0.3 ± 0.2	4.0 ± 0.2
NPIS60L	6.0 ± 0.2	6.0 ± 0.2	2.0			
NPIS65L	6.0 ± 0.2	6.0 ± 0.2	4.5			
NPIS80L	8.0 ± 0.2	8.0 ± 0.2	4.0*	1.6 ± 0.3	-	5.6 ± 0.3

\*NPIS80L 0.9 $\mu$ H - 6R8 $\mu$ H is 4.2mm height

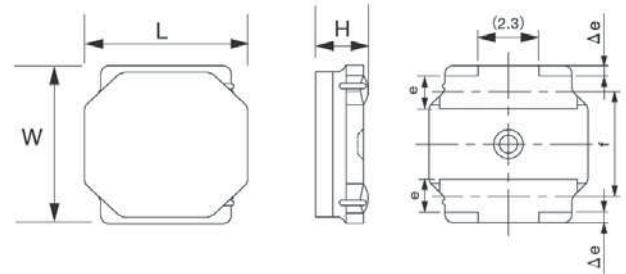
## PART NUMBER SYSTEM



### NPIS30L, 32L, 35L, 40L, 42L, 48L & 80L



### NPIS62, 60L & 65L



Part Number	STANDARD VALUES - CASE SIZE (3.0 x 3.0 x 1.0mm)				Test Frequency
	Inductance Value ( $\mu$ H)	DC Resistance ( $\Omega$ ) ±20%	DC Current I <sub>sat</sub> (Amps)	DC Current I <sub>rms</sub> (Amps)	
NPIS30L1R0YTRF	1.0 ± 30%	0.065	1.30	1.40	100KHz
NPIS30L1R5YTRF	1.5 ± 30%	0.080	1.20	1.30	
NPIS30L2R2MTRF	2.2 ± 20%	0.095	1.10	1.10	
NPIS30L3R3MTRF	3.3 ± 20%	0.14	0.87	0.94	
NPIS30L4R7MTRF	4.7 ± 20%	0.19	0.75	0.78	
NPIS30L6R8MTRF	6.8 ± 20%	0.30	0.61	0.63	
NPIS30L100MTRF	10 ± 20%	0.45	0.50	0.51	
NPIS30L150MTRF	15 ± 20%	0.74	0.40	0.40	
NPIS30L220MTRF	22 ± 20%	1.03	0.35	0.35	
NPIS30L330MTRF	33 ± 20%	1.55	0.26	0.275	
NPIS30L470MTRF	47 ± 20%	2.05	0.22	0.235	

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



Part Number	STANDARD VALUES - CASE SIZE 30 (3.0 x 3.0 x 1.2mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS32L1R0YTRF	1.0 ± 30%	0.05	1.50	1.49	100KHz
NPIS32L1R5YTRF	1.5 ± 30%	0.06	1.36	1.40	
NPIS32L2R2MTRF	2.2 ± 20%	0.08	1.10	1.20	
NPIS32L3R3MTRF	3.3 ± 20%	0.10	0.91	1.05	
NPIS32L4R7MTRF	4.7 ± 20%	0.13	0.77	0.98	
NPIS32L6R8MTRF	6.8 ± 20%	0.19	0.67	0.74	
NPIS32L100MTRF	10 ± 20%	0.29	0.54	0.63	
NPIS32L150MTRF	15 ± 20%	0.45	0.44	0.485	
NPIS32L220MTRF	22 ± 20%	0.63	0.375	0.42	
NPIS32L330MTRF	33 ± 20%	1.03	0.31	0.33	
NPIS32L470MTRF	47 ± 20%	1.45	0.25	0.28	

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

Part Number	STANDARD VALUES - CASE SIZE (3.0 x 3.0 x 1.5mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS35L1R0YTRF	1.0 ± 30%	0.03	2.10	2.10	100KHz
NPIS35L1R5YTRF	1.5 ± 30%	0.04	1.80	1.82	
NPIS35L2R2MTRF	2.2 ± 20%	0.06	1.48	1.50	
NPIS35L3R3MTRF	3.3 ± 20%	0.08	1.21	1.23	
NPIS35L4R7MTRF	4.7 ± 20%	0.12	1.02	1.04	
NPIS35L6R8MTRF	6.8 ± 20%	0.16	0.87	0.88	
NPIS35L100MTRF	10 ± 20%	0.23	0.70	0.71	
NPIS35L150MTRF	15 ± 20%	0.36	0.56	0.56	
NPIS35L220MTRF	22 ± 20%	0.52	0.47	0.47	
NPIS35L330MTRF	33 ± 20%	0.84	0.39	0.37	
NPIS35L470MTRF	47 ± 20%	1.34	0.32	0.30	

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

Part Number	STANDARD VALUES - CASE SIZE (4.0 x 4.0 x 1.0mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS40L1R0YTRF	1.0 ± 30%	0.10	1.80	1.05	100KHz
NPIS40L2R2YTRF	2.2 ± 30%	0.15	1.15	0.89	
NPIS40L3R3MTRF	3.3 ± 20%	0.18	1.10	0.82	
NPIS40L4R7MTRF	4.7 ± 20%	0.21	0.90	0.75	
NPIS40L6R8MTRF	6.8 ± 20%	0.30	0.74	0.62	
NPIS40L100MTRF	10 ± 20%	0.38	0.56	0.60	
NPIS40L150MTRF	15 ± 20%	0.51	0.47	0.51	
NPIS40L220MTRF	22 ± 20%	0.87	0.36	0.40	
NPIS40L330MTRF	33 ± 20%	1.54	0.28	0.30	
NPIS40L470MTRF	47 ± 20%	1.81	0.24	0.28	

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



Part Number	STANDARD VALUES - CASE SIZE (4.0 x 4.0 x 1.2mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS42L1R0YTRF	1.0 ± 30%	0.06	2.50	1.50	100KHz
NPIS42L2R2MTRF	2.2 ± 20%	0.09	1.65	1.20	
NPIS42L3R3MTRF	3.3 ± 20%	0.13	1.20	0.98	
NPIS42L4R7MTRF	4.7 ± 20%	0.14	1.05	0.96	
NPIS42L6R8MTRF	6.8 ± 20%	0.18	0.90	0.84	
NPIS42L100MTRF	10 ± 20%	0.24	0.74	0.77	
NPIS42L150MTRF	15 ± 20%	0.40	0.56	0.60	
NPIS42L220MTRF	22 ± 20%	0.48	0.51	0.54	
NPIS42L330MTRF	33 ± 20%	0.81	0.40	0.42	
NPIS42L470MTRF	47 ± 20%	1.00	0.35	0.37	

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

Part Number	STANDARD VALUES - CASE SIZE (4.0 x 4.0 x 1.8mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS48L1R0YTRF	1.0 ± 30%	0.03	4.00	1.83	100KHz
NPIS48L2R2MTRF	2.2 ± 20%	0.06	2.70	1.44	
NPIS48L3R3MTRF	3.3 ± 20%	0.07	2.00	1.23	
NPIS48L4R7MTRF	4.7 ± 20%	0.09	1.70	1.20	
NPIS48L6R8MTRF	6.8 ± 20%	0.11	1.45	1.06	
NPIS48L100MTRF	10 ± 20%	0.18	1.20	0.84	
NPIS48L150MTRF	15 ± 20%	0.25	0.94	0.65	
NPIS48L220MTRF	22 ± 20%	0.36	0.80	0.59	
NPIS48L330MTRF	33 ± 20%	0.53	0.65	0.49	
NPIS48L470MTRF	47 ± 20%	0.65	0.57	0.42	
NPIS48L680MTRF	68 ± 20%	1.00	0.47	0.32	
NPIS48L101MTRF	100 ± 20%	1.50	0.40	0.27	
NPIS48L151MTRF	150 ± 20%	2.50	0.31	0.22	
NPIS48L221MTRF	220 ± 20%	4.00	0.27	0.17	

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

Part Number	STANDARD VALUES - CASE SIZE (6.0 x 6.0 x 1.2mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±20%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS62L2R5YTRF	2.5 ± 30%	0.090	2.10	1.60	100KHz
NPIS62L4R0YTRF	4.0 ± 30%	0.105	1.80	1.57	
NPIS62L5R3MTRF	5.3 ± 20%	0.125	1.50	1.40	
NPIS62L6R8MTRF	6.8 ± 20%	0.165	1.30	1.18	
NPIS62L100MTRF	10 ± 20%	0.235	1.00	1.00	
NPIS62L150MTRF	15 ± 20%	0.33	0.80	0.79	
NPIS62L220MTRF	22 ± 20%	0.53	0.76	0.63	
NPIS62L330MTRF	33 ± 20%	0.70	0.59	0.53	
NPIS62L470MTRF	47 ± 20%	1.05	0.52	0.46	
NPIS62L680MTRF	68 ± 20%	1.35	0.44	0.41	
NPIS62L101MTRF	100 ± 20%	2.18	0.35	0.32	

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



Part Number	STANDARD VALUES - CASE SIZE (6.0 x 6.0 x 2.0mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±30%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS60L0R8YTRF	0.8 ± 30%	0.02	5.50	3.80	100KHz
NPIS60L1R5YTRF	1.5 ± 30%	0.026	4.00	3.20	
NPIS60L2R2YTRF	2.2 ± 30%	0.034	3.20	2.70	
NPIS60L3R3YTRF	3.3 ± 30%	0.040	2.80	2.60	
NPIS60L4R7YTRF	4.7 ± 30%	0.058	2.40	2.00	
NPIS60L6R8YTRF	6.8 ± 30%	0.085	2.00	1.80	
NPIS60L100MTRF	10 ± 20%	0.125	1.70	1.40	

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

Part Number	STANDARD VALUES - CASE SIZE (6.0 x 6.0 x 4.5mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±30%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS65L1R0YTRF	1.0 ± 30%	0.014	8.50	4.20	100KHz
NPIS65L1R3YTRF	1.3 ± 30%	0.016	8.00	4.00	
NPIS65L1R8YTRF	1.8 ± 30%	0.018	7.00	3.70	
NPIS65L2R3YTRF	2.3 ± 30%	0.021	6.00	3.50	
NPIS65L3R0YTRF	3.0 ± 30%	0.024	5.00	3.20	
NPIS65L4R5MTRF	4.5 ± 20%	0.031	4.00	3.00	
NPIS65L6R3MTRF	6.3 ± 20%	0.038	3.80	2.80	
NPIS65L100MTRF	10 ± 20%	0.047	3.00	2.50	
NPIS65L150MTRF	15 ± 20%	0.077	2.30	1.90	
NPIS65L220MTRF	22 ± 20%	0.115	1.90	1.50	
NPIS65L330MTRF	33 ± 20%	0.145	1.50	1.40	
NPIS65L470MTRF	47 ± 20%	0.220	1.30	1.10	
NPIS65L680MTRF	68 ± 20%	0.330	1.00	0.90	
NPIS65L101MTRF	100 ± 20%	0.500	0.80	0.70	

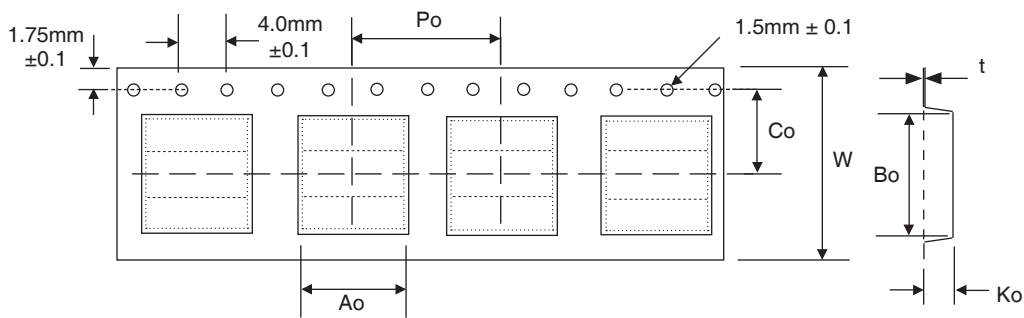
Maximum +40°C temperature rise at Irms. Maximum -30% inductance change at Isat.

Part Number	STANDARD VALUES - CASE SIZE (8.0 x 8.0 x 4.0mm)				Test Frequency
	Inductance Value (μH)	DC Resistance (Ω) ±30%	DC Current Isat (Amps)	DC Current Irms (Amps)	
NPIS80L0R9YTRF	0.9 ± 30%	0.006	11.0	7.80	100KHz
NPIS80L1R4YTRF	1.4 ± 30%	0.007	9.00	7.00	
NPIS80L2R0YTRF	2.0 ± 30%	0.009	7.40	6.30	
NPIS80L3R6YTRF	3.6 ± 30%	0.015	5.30	4.90	
NPIS80L4R7YTRF	4.7 ± 30%	0.018	4.70	4.10	
NPIS80L6R8YTRF	6.8 ± 30%	0.025	4.00	3.70	
NPIS80L100MTRF	10 ± 20%	0.034	3.40	3.10	
NPIS80L150MTRF	15 ± 20%	0.050	2.70	2.40	
NPIS80L220MTRF	22 ± 20%	0.066	2.20	2.20	
NPIS80L330MTRF	33 ± 20%	0.100	1.90	1.70	
NPIS80L470MTRF	47 ± 20%	0.150	1.50	1.40	
NPIS80L680MTRF	68 ± 20%	0.230	1.20	1.10	
NPIS80L101MTRF	100 ± 20%	0.290	1.00	1.00	

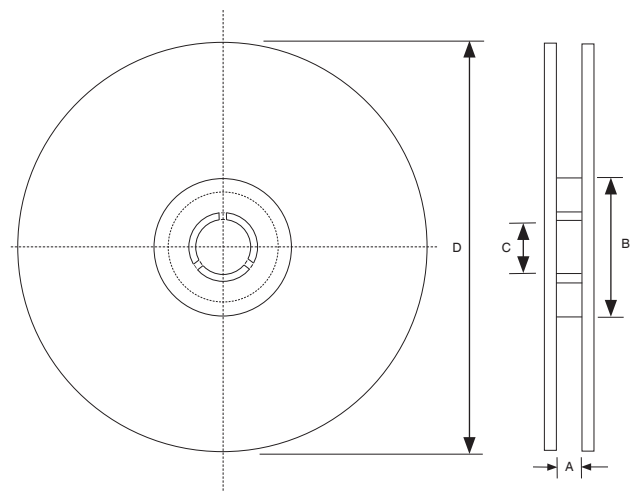
Maximum +40°C temperature rise at Irms. Maximum -30% inductance change at Isat.



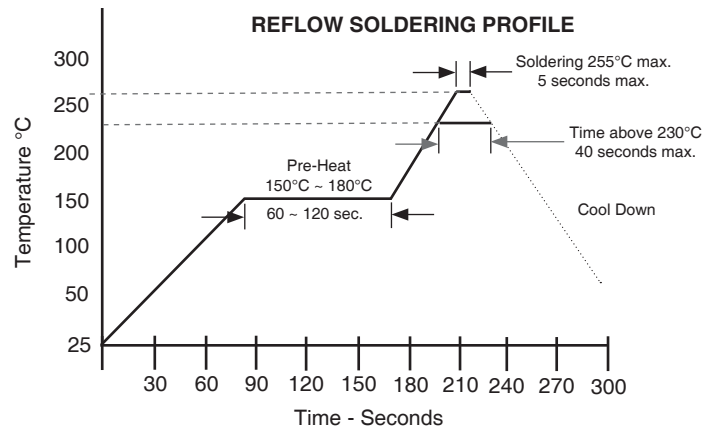
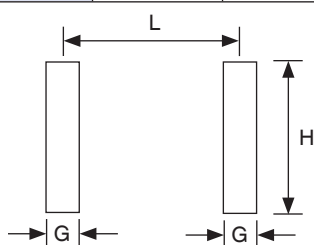
Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)							
		W	A0	B0	Co	K0	Po	t	
NPIS30L	2,000	8.0 ± 0.20	3.2 ± 0.10	3.2 ± 0.10	3.5 ± 0.10	1.4 ± 0.10	4.0 ± 0.10	0.3 ± 0.05	
NPIS32L						1.6 ± 0.10			
NPIS35L						1.9 ± 0.10			
NPIS40L	5,000	12.0 ± 0.30	4.3 ± 0.10	4.3 ± 0.10	5.5 ± 0.10	1.4 ± 0.10	8.0 ± 0.10		
NPIS42L						1.6 ± 0.10			
NPIS48L						2.1 ± 0.10			
NPIS62L						1.6 ± 0.10			
NPIS60L	2,500	6.3 ± 0.10	6.3 ± 0.10	6.3 ± 0.10	6.3 ± 0.10	2.3 ± 0.10	8.0 ± 0.10		0.4 ± 0.10
NPIS65L						4.7 ± 0.10			
NPIS80L	1,000	16.0 ± 0.30	8.3 ± 0.10	8.3 ± 0.10	7.5 ± 0.10	4.5 ± 0.10	12.0 ± 0.10	0.5 ± 0.10	



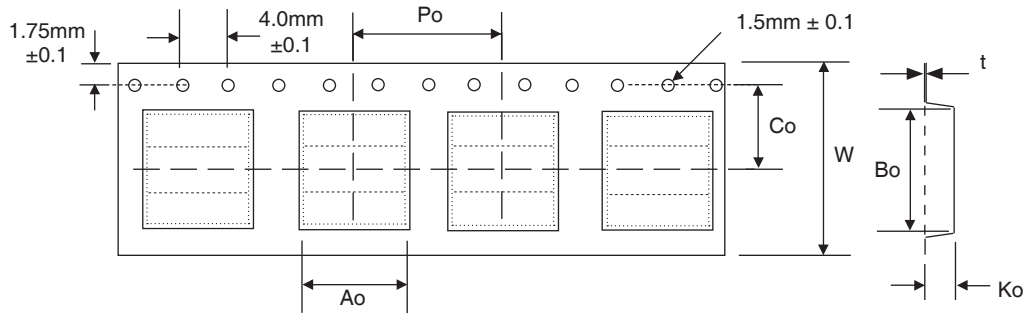
Case Size	Tape Width	REEL DIMENSIONS (mm)					
		A(mm)	B(mm)	C(mm)	D(mm)		
NPIS30L	8.0	10.0 ± 1.5	60 ± 1.0	13.0 ± 0.5	180 ± 3.0		
NPIS32L							
NPIS35L							
NPIS40L	12.0	13.5 ± 1.0	80 ± 2.0	13.0 ± 0.5	330 ± 3.0		
NPIS42L							
NPIS48L					14.0 ± 1.5	60 ± 2.0	180 ± 3.0
NPIS62L							
NPIS60L	13.5 ± 1.0	80 ± 2.0	330 ± 3.0				
NPIS65L							
NPIS80L	16.0	17.5 ± 1.0					



Case Size	LAND PATTERN DIMENSIONS (mm)		
	L	G	H
NPIS30L, 32L & 35L	2.2	0.8	2.7
NPIS40L, 42L & 48L	2.8	1.2	3.7
NPIS62L, 60L & 65L	4.7	1.6	5.7
NPIS80L	5.6	1.8	7.5



Case Size	Reel Qty	CARRIER TAPE DIMENSIONS (mm)						
		W	A0	B0	Co	K0	Po	t
NPIS32L	2,000	8.0 ± 0.30	3.3 ± 0.10	3.3 ± 0.10	3.5 ± 0.10	1.6 ± 0.10	4.0 ± 0.10	0.3 ± 0.03



Case Size	Tape Width	REEL DIMENSIONS (mm)			
		A(mm)	B(mm)	C(mm)	D(mm)
NPIS32L	8.0	9.0 ± 1.5	58 ± 2.0	13.5 ± 0.2	178 ± 2.0

