

# 72000 Series

15 $\mu$ H - 1000 $\mu$ H, Up to 10A, Axial Power Inductor

**PICO**  
Electronics, Inc.

## PRODUCT OVERVIEW

Pico power inductors are built to smoothly transmit direct current across various DC-DC converters and switching regulators. They can provide low core losses and are used to store energy, which the electromotive force can filter out frequency noise and reduce signal loss. Energy storage can also allow higher power consumption in system designs. These power inductors are ideal for filtering out noise and ripple spikes in many applications. Pico has a diverse portfolio of power inductors ranging in mechanical size, mounting options, current rating, and inductance rating.

Typical applications:

- DC-DC Converters
- Switching Regulators
- Radar & Communication Systems
- Step-up or Step-down Transformers
- Aviation Power Systems
- Automotive & EVs
- Medical Equipment

## FEATURES

- Extreme resistance to impact, shock, and vibration
- Manufactured to MIL-PRF-27 Grade 5, Class S
- High reliability for space and mission critical applications
- Miniature in size and minimalistic design
- Mountable to PCB or to posts
- Capable for reel-mounting assembly

Contact Pico for part number of available options:

- Screening and qualification criteria to flight standard
- Fully RoHS compliant or with exemption 7(a)
- Modifications to mechanical design and electrical characteristics
- Custom new design and parameters



## SPECIFICATIONS

### SIZE A

Part Number	Inductance [ $\mu$ H]	10% drop in L [A]	DC Current			DC Resistance [ $\Omega$ ]	Self Resonant Frequency [MHz]	Q @ 100kHz
			20% drop in L [A]	30% drop in L [A]				
72205	500	0.425	0.64	0.848	0.74	1.4	25	
72215	375	0.49	0.74	0.98	0.55	1.6	25	
72225	250	0.6	0.906	1.2	0.36	2	25	
72235	150	0.775	1.17	1.55	0.22	2.5	25	
72245	100	0.95	1.43	1.9	0.15	3	25	
72255	75	1.01	1.65	2.2	0.11	3.6	25	
72265	50	1.34	2.02	2.7	0.075	4.4	25	

### SIZE B

Part Number	Inductance [ $\mu$ H]	10% drop in L [A]	DC Current			DC Resistance [ $\Omega$ ]	Self Resonant Frequency [MHz]	Q @ 100kHz
			20% drop in L [A]	30% drop in L [A]				
72310	1000	0.45	0.6	0.75	0.85	0.9	25	
72320	750	0.52	0.693	0.866	0.64	1.04	25	
72330	500	0.63	0.848	1.06	0.43	1.3	25	
72340	375	0.73	0.98	1.22	0.32	1.5	25	
72350	250	0.9	1.2	1.5	0.22	1.8	25	
72360	150	1.16	1.55	1.93	0.13	2.3	25	
72370	100	1.42	1.9	2.37	0.11	2.8	25	
72380	75	1.64	2.2	2.73	0.064	3.3	25	
72390	50	2	2.7	3.35	0.043	4	25	

## SPECIFICATIONS

### SIZE C

Part Number	Inductance [ $\mu$ H]	DC Current			DC Resistance [ $\Omega$ ]	Self Resonant Frequency [MHz]	Q @ 100kHz
		10% drop in L [A]	20% drop in L [A]	30% drop in L [A]			
72405	1000	0.5	0.75	1	0.7	0.85	25
72415	750	0.58	0.866	1.15	0.52	1	25
72425	500	0.707	1.06	1.41	0.35	1.2	25
72435	375	0.816	1.22	1.63	0.26	1.4	25
72445	250	1	1.5	2	0.175	1.7	25
72455	150	1.29	1.93	2.58	0.105	2.2	25
72465	100	1.58	2.37	3.16	0.07	2.7	25
72475	75	1.82	2.73	3.65	0.053	3.1	25
72485	50	2.25	3.35	4.5	0.035	4	25

### SIZE D

Part Number	Inductance [ $\mu$ H]	DC Current			DC Resistance [ $\Omega$ ]	Self Resonant Frequency [MHz]	Q @ 100kHz
		10% drop in L [A]	20% drop in L [A]	30% drop in L [A]			
72500	200	1.4	2.14	2.76	0.107	1.7	35
72510	175	1.5	2.29	2.95	0.093	2	35
72520	150	1.6	2.47	3.18	0.08	2.2	35
72530	125	1.78	2.7	3.49	0.066	2.5	35
72540	100	1.99	3.03	3.9	0.053	2.7	35
72550	75	2.3	3.5	4.5	0.04	3.1	35
72560	50	2.8	4.3	5.5	0.027	4	35
72570	25	3.98	6.06	7.79	0.014	4.5	35
72580	15	5.14	7.82	10	0.007	5.1	35

Note 1: Inductance measured at 0.1V<sub>RMS</sub>, 100kHz and zero DC current.

Note 2: Maximum ambient plus temperature rise is limited to 130°C. (i.e. The temperature rise for Pico # 72205 at 0.425A is +12°C from the curve data, and therefore, the ambient should be limited to 118°C. At 0.64A, the temperature rise is +30°C, so ambient should be limited to 100°C.

## SPECIFICATIONS

### GENERAL

Parameter	Condition	Min.	Typ.	Max.	Units
Size	See mechanical drawings				
Operating Temperature Range	Ambient with temperature rise	-55	-	+130	°C
Storage Temperature Range	Ambient	-55	-	+130	°C
Weight	Size A	-	3	-	grams
	Size B	-	3.5	-	
	Size C	-	6.6	-	
	Size D	-	10.4	-	
Case	Molded Epoxy				
Box Packaging	Length x Width x Height	12 x 6.4 x 0.4 (304.8 x 162.56 x 10.16)			inches (mm)

### OPTIONAL DESIGN CRITERIA

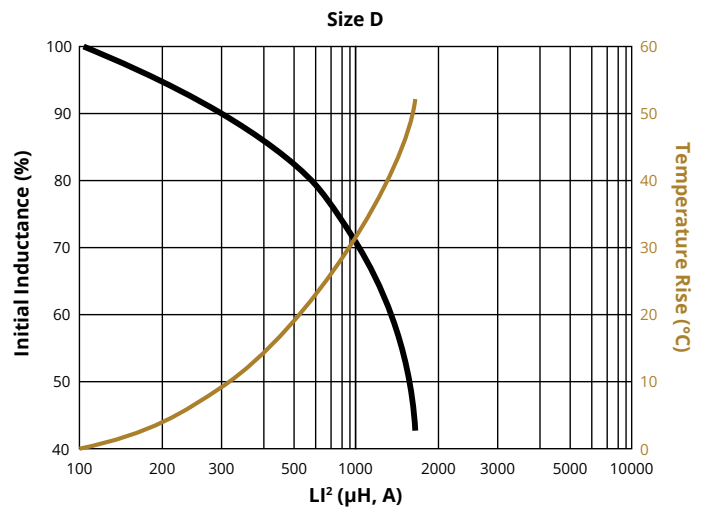
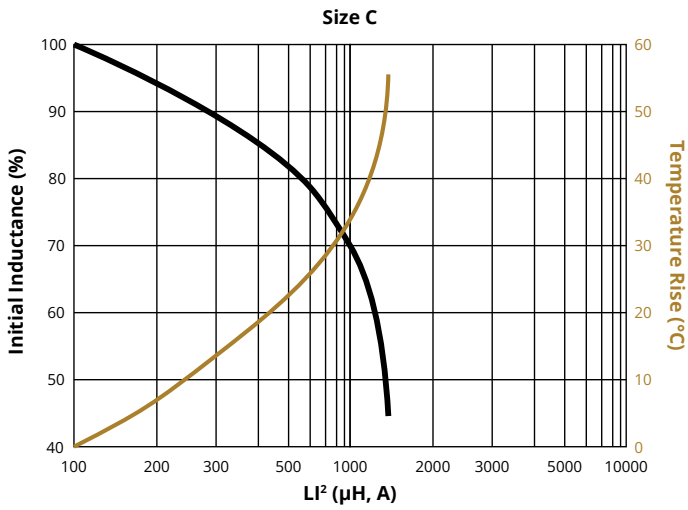
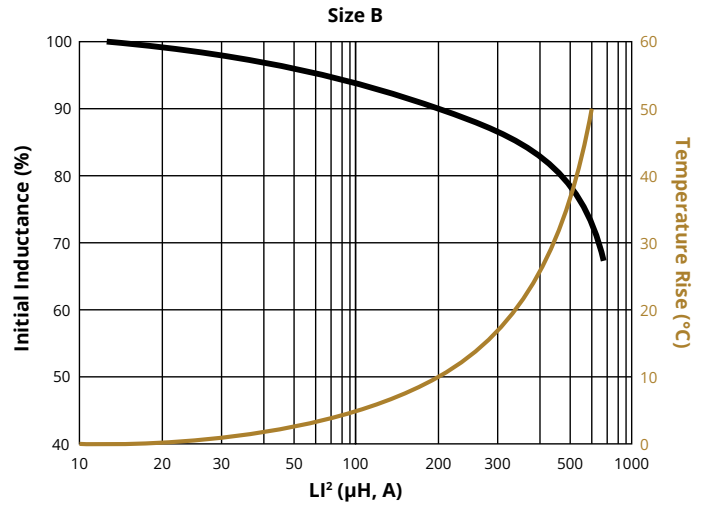
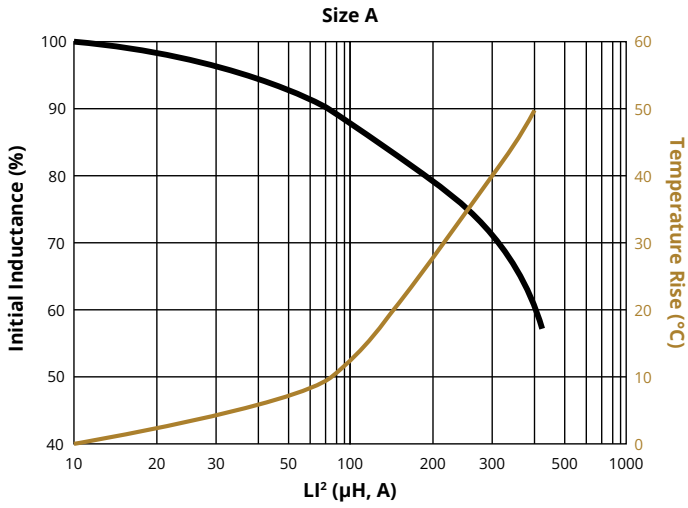
Test	Standard	Description
Vibration	MIL-STD-202	Method 204, Vibration, High Frequency
Shock	MIL-STD-202	Method 213, Shock (Specified Pulse)
Immersion	MIL-STD-202	Method 104, Immersion
Moisture Resistance	MIL-STD-202	Method 106, Moisture Resistance
Flammability	MIL-STD-202	Method 111, Flammability (External Flame)
Thermal Shock	MIL-STD-202	Method 107, Thermal Shock

### OPTIONAL SCREENING AND QUALIFICATION

Standard	Screening & Qualification	Test <sup>(2)</sup>
MIL-PRF-27	a.) Group A inspection Level-T - Table VII b.) Qualification inspection, Grade 5 - Table V	I. Thermal Shock II. Vibration III. Burn-in IV. Induced Voltage V. Shock VI. Dielectric Withstanding Voltage (at reduced pressure) VII. Insulation Resistance VIII. Electrical Characteristics IX. Visual and Mechanical Examination (External) X. Life XI. Radiographic Inspection
MIL-STD-981	a.) Group A screening tests - Table VI b.) Group B tests - Table XII, Class S	
EEE-INST-002, Section M1	a.) Magnetics Screening Req. - Table 2 b.) Magnetics Part Qual. - Table 3	

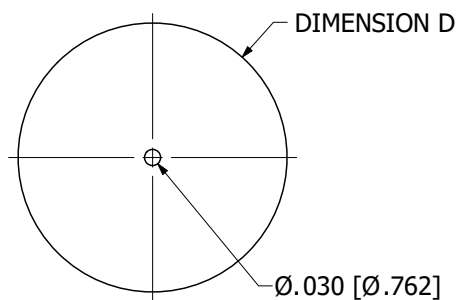
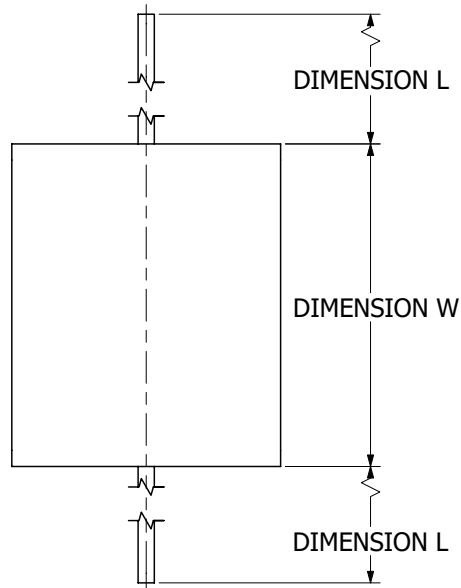
Note 4: Screening and qualification tests are not limited to the options in the chart above. Each standard may also be stringent or exclude certain tests from one another. Please contact Pico for specific application needs and for Pico part number.

DATA CURVES



ELECTRICAL SCHEMATIC



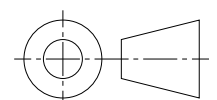


**BOTTOM VIEW**

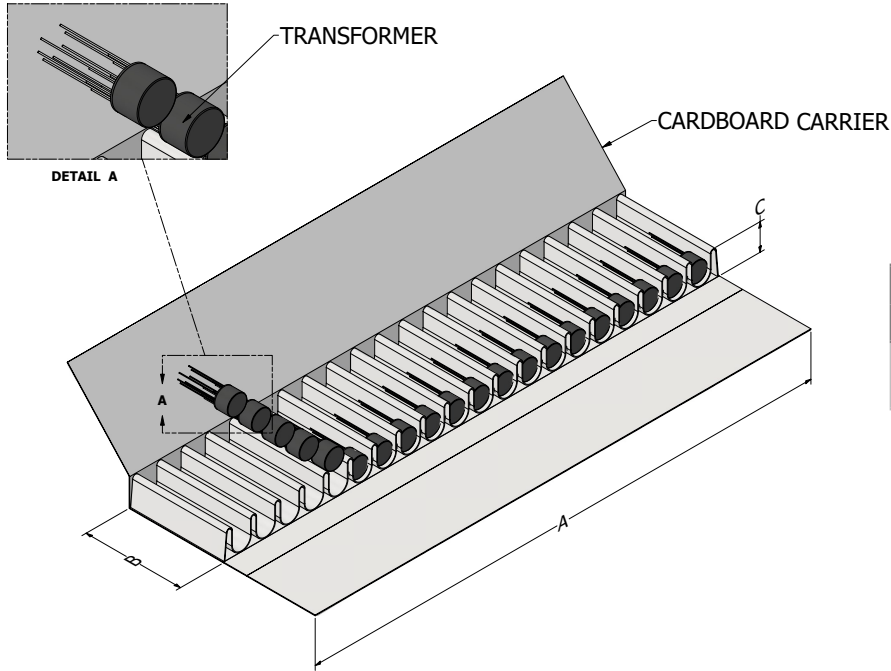
Size	Diameter Dimension			Typ. Weight (grams)
	L	W	D	
A	1.25 (31.70)	.45 (11.40)	.35 (8.90)	3
B	1.25 (31.70)	.50 (12.70)	.42 (10.70)	3.5
C	1.25 (31.70)	.60 (15.20)	.50 (12.70)	6.6
D	1.25 (31.70)	.82 (20.80)	.56 (14.20)	10.4

**NOTES**

a. ALL DIMENSIONS ARE IN INCHES, [ ] = MM



BOX PACKAGING



Dimension		
A	B	C
12	6.4	0.4
[304.8]	[162.56]	[10.16]

Pico warrants each product manufactured by us and sold by us or an authorized representative, to be free from defects in material and workmanship. If properly used, it will perform within its applicable specifications for a period of one year after original shipment. Pico's obligation under this guarantee is limited to repairing or replacing our product to the original purchaser. This warranty is in lieu of all other warranties, express or implied and constitutes fulfillment of our obligations to the purchaser. We do not guarantee that the products can be used for a particular purpose other than those solely covered by the product's specifications. Pico must be notified if the product must meet particular certifications and/or standards. We assume no liability, in any event, for consequential damages, for anticipated or lost profits, incidental damages or loss of time or other losses incurred by the purchaser or any third party in connection with products covered by this warranty or otherwise. The purchaser will indemnify and hold Pico harmless for any damages, losses, costs, etc. from usage not within the product's specifications. Pico must be consulted before usage of its products in a nuclear, radioactive or space environment.

We reserve the right to discontinue products without notice, We reserve the right to make modifications to any existing catalog products without notice, at any time, without the obligation to modify units previously sold.