

DESIGN GUIDE

EXAMPLE P/N 5-1847-CA

XX NUMBER OF TURNS	XX INSIDE DIAMETER IN MILS	XX WIRE GAUGE	XXX COIL TYPE
5 FIVE TURNS	18 .018" DIAMETER	47 #47 AWG .0014 DIA .036 MM	CA COPPER COIL POLYNYLON INSULATION TURNS BONDED TOGETHER

Coil Type	Coil Description
A	Copper coil, Polynylon Insulation, Turns are not bonded together.
CA	Copper coil, Polynylon insulation. Turns are bonded together.
CAT	Copper coil, Polynylon insulation. Turns are bonded together. Leads are tinned.
SA	Copper coil, Polynylon insulation. Turns are spaced and separated one wire width.
SAT	Copper coil, Polynylon insulation. Turns are spaced and separated one wire width. Leads are tinned.
GA	Gold coil, bare wire. Turns are touching.
GSA	Gold coil, bare wire. Turns are separated one wire width.
GSCAS	Gold coil, polyimide insulation. Turns are separated one wire width. Leads are stripped
GCCA	Gold coil, polyimide insulation. Turns are bonded together.
GCCAS	Gold coil, polyimide insulation. Turns are bonded together. Leads are stripped.
CPA	Gold-plated copper wire. Polynylon insulation Turns are not bonded together.
NCA	Nickel-copper alloy wire. Polynylon insulation. Turns are bonded together.

STANDARD INSIDE COIL DIAMETER

Inch mm	.013 .33	.015 .38	.018 .45	.020 .51	.025 .64	.030 .76	.035 .89	.040 1.0	.045 1.14	.050 1.27
TYP. AWG WIRE SIZE FOR COIL DIAM	#50	#50	#50	#48	#47	#44	#42	#42	#42	#40
	#48	#48	#48	#47	#46	#42	#40	#40	#40	#38
	#47	#47	#47	#46	#44	#40	#38	#38	#38	#36
	#46	#46	#46	#44	#42	#38	#36	#36	#36	#34
	#44	#44	#44	#42	#40	#36	#34	#34	#34	#32
		#42	#42	#40	#38	#34	#32	#32	#32	#30
		#40	#40	#38	#36	#32		#30	#30	#28
		#38	#38	#36						
		#36	#36							

Typical Wire Specifications.

Wire Size(AWG)	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Bare Wire Diameter (in) Nominal	.0050	.0045	.0040	.0035	.0031	.0028	.0025	.0022	.0020	.0017	.0015	.0014	.0012	.0011	.001
Single Build increase in film	.0004	.0003	.0003	.0002	.0002	.0002	.0002	.0002	.0001	.0001	.0001	.0001	.0001	.0001	.0001
Overall Dia. (In.)	.0056	.0050	.0045	.0039	.0035	.0031	.0028	.0025	.0022	.0019	.0017	.0016	.0014	.0012	.0012
Nominal Ohms/1000' @ 20°C.	414.8	512.2	648.2	846.6	1079	1323	1659	2143	2593	3346	4199	5291	6735	8432	1058

Inductance Calculations

(Close Approximation)

$$L = \frac{1.3 \cdot 1.7 \cdot (D + D1)}{0.7 \cdot (D1 + S)}$$

L = NANOHENRIES

N = NUMBER OF TURNS

D = INSIDE DIAMETER (Inches)

D1 = BARE WIRE DIAMETER (Inches)

S = SPACE BETWEEN TURNS (Inches)