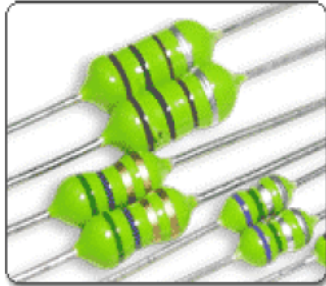


# AXIAL LEADED INDUCTORS

OPERATION TEMP.

-25~+105 (Including self-generated heat)



## FEATURES

- Extremely reliable inductors that are ideal for signal and power line applications
- Highly efficient automated production processes can provide high quality inductors in large volumes.

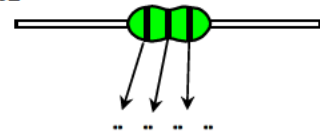
## APPLICATIONS

- Consumer electronics such as VCR, TV, Audio, and other electronic equipment

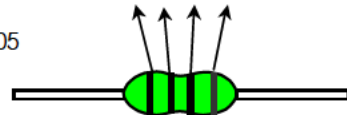
<b>A</b>	<b>L</b>	<b>03</b>	<b>T</b>	<b>R2</b>	<b>K</b>
..	..	..	..	..	..

## MARKING

AL02, AN02, ALC02



AL03, AL04, AL05



TYPE J GRADE Figure (Double coding)

## ORDERING CODE

TYPE	
A	Axial Inductor

PRODUCT SPECIFICATION	
L	Standard type
N,C	High current type

BODY SIZE (D x L) [mm]	
02	2.5 x 3.4 (AL, ALC) 2.5 x 3.7 (AN)
03	3.0 x 7.0
04	4.2 x 9.8
05	4.5 x 14.0

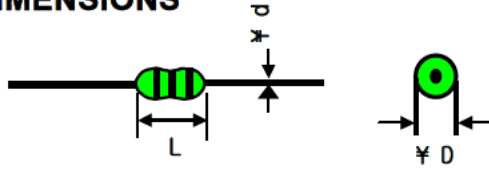
TAPING CONFIGURATIONS [mm]	
TA	Axial lead (26mm lead space) /ammo pack (02/03 type)
TB	Axial lead (52mm lead space) /ammo pack (all types)
TR	Axial lead Reel pack (all types)

NOMINAL INDUCTANCE [µH]	
R22	0.22
1R5	1.5
120	12

INDUCTANCE TOLERANCE [%]	
J	±5
K	±10
M	±20

COLOR	INDUCTANCE [µH]			
	1st figure	second figure	Multiplier	Tolerance
	..	..	..	..
Black	0		±1	±20%
Brown	1		±10	-
Red	2		±100	-
Orange	3		±1000	-
Yellow	4		-	-
Green	5		-	-
Blue	6		-	-
Purple	7		-	-
Gray	8		-	-
White	9		-	-
Gold			±0.1	±5%
Silver			±0.01	±10%

## i EXTERNAL DIMENSIONS

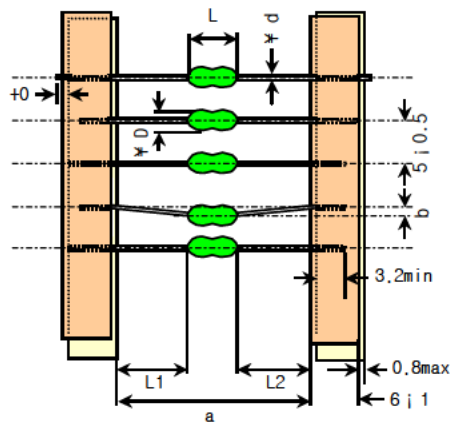


Unit:mm

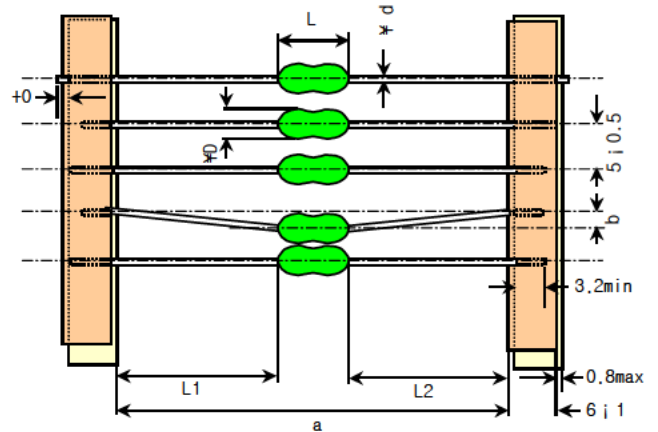
Type	Dimensions [mm]			Taped Straight
	L	$\varnothing D$	$\varnothing d$	
AL02,ALC02	3.4max	2.5max	0.5 j 0.05	TB
AL02,ALC02	3.4max	2.5max	0.45 j 0.05	TA
AN02	3.7max	2.5max		
AL03	7.0max	3.0max	0.5 j 0.05	TA
				TB
AL04	9.8max	4.2max	0.65 j 0.05	TB
AL05	14.0max	4.5max	0.65 j 0.05	TB

## i EXTERNAL DIMENSIONS

$\varnothing$  TA(26mm)



$\varnothing$  TB(52mm)



Type	Dimensions						Pitch Minimum insertion pitch
	$\varnothing D$	L	a	b	L1-L2l	$\varnothing d$	
AL02 ALC02	2.5max	3.4max	+0.5 -0	0.8max	0.5max	0.45 j 0.05	5.0
AN02	2.5max	3.7max	+0.5 -0	0.8max	0.5max	0.45 j 0.05	5.0
AL03	3.0max	7.0max	+1 -0.5	0.8max	1.0max	0.50 j 0.05	10.0

Type	Dimensions						Pitch Minimum insertion pitch
	$\varnothing D$	L	a	b	L1-L2l	$\varnothing d$	
AL02 ALC02	2.5max	3.4max	+2 -1	1.2max	1.0max	0.50 j 0.05	5.0
AL03	3.0max	7.0max	+2 -1	1.2max	1.0max	0.50 j 0.05	10.0
AL04	4.2max	9.8max	+2 -1	1.2max	1.0max	0.65 j 0.05	12.5
AL05	4.5max	14max	+2 -1	1.2max	1.0max	0.65 j 0.05	17.5

# AXIAL LEADED INDUCTORS

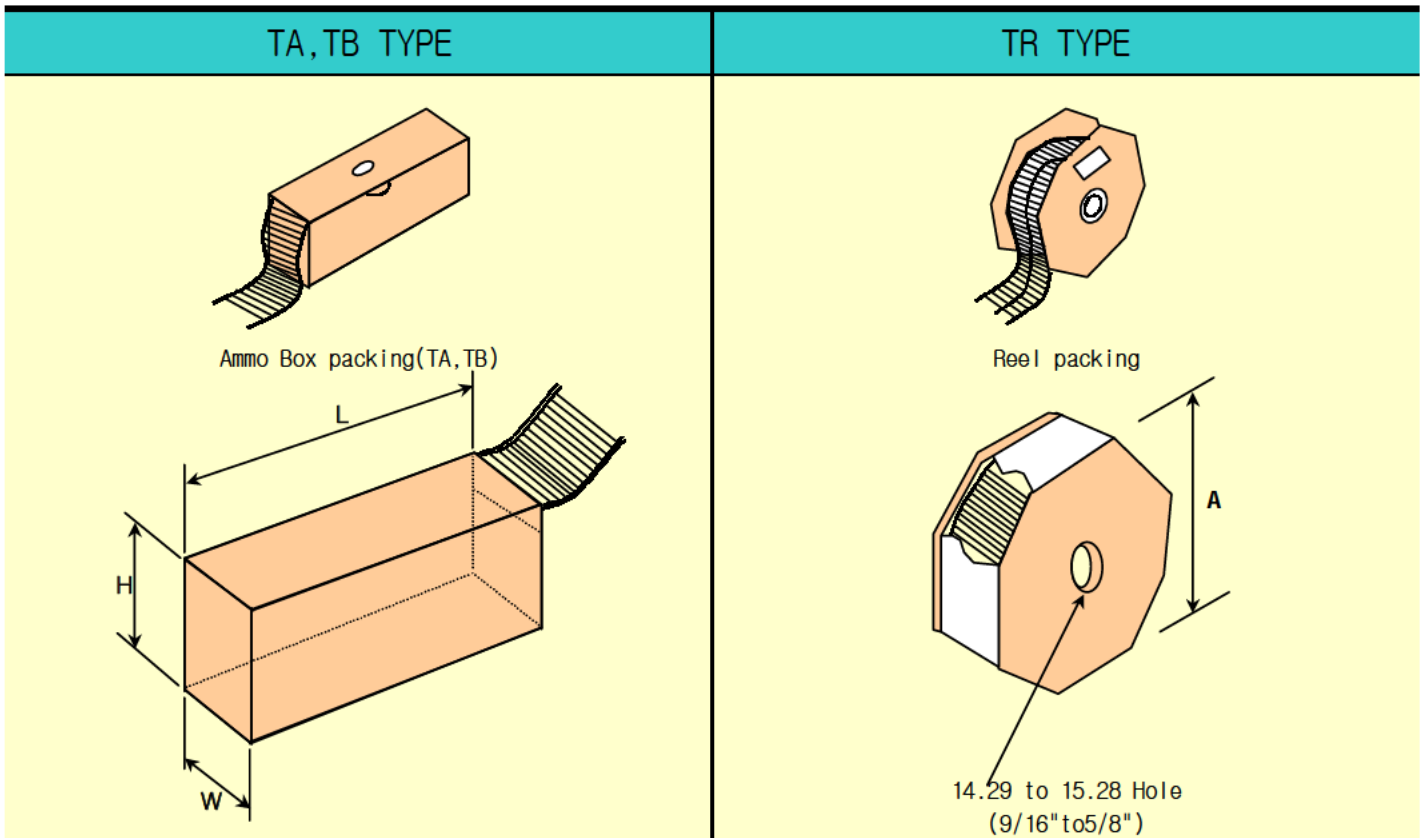
## AVAILABLE INDUCTANCE RANGE

Type	AL02	ALC02	AN02	AL03	AL04	AL05
Range						
0	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]	$I_{max}$ [mA] $R_{dcmax}$ [ $\Omega$ ]
1	0.22	0.22	0.12	0.22	0.22	1.0
10						
100	470	100	470			
1000				1000		1500
2200						
8200						
10000					10000	

### i Examples

Inductance	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]	$I_{max}$ [mA]	$R_{dc}$ max [ $\Omega$ ]
1 $\Omega$	270	0.8	510	0.4	500	0.32	270	0.8	920	0.19	5600	0.022
10 $\Omega$	160	2.5	270	1.4	280	1.0	160	2.5	500	0.58	2100	0.062
100 $\Omega$	44	12	105	9.1	120	5.6	90	7.0	275	1.8	700	0.480
1000 $\Omega$	-	-	-	-	-	-	40	33.0	100	14.0	240	5.800
2200 $\Omega$	-	-	-	-	-	-	-	-	80	40.0	-	-
8200 $\Omega$	-	-	-	-	-	-	-	-	45	116.0	-	-
10000 $\Omega$	-	-	-	-	-	-	-	-	35	148.0	-	-

**i PACKAGING**



Type	Taping Lead Style	Inner Box		Out Box			Item
		Size(m/m) (W   H   L)	Quantity	Size(m/m) (W   H   L)	Quantity	Weight (100g)	
TA	26m/m	50   65   252	2,000	285   260   455	54,000	8.5Kg	AL02
							ALC02
						9.5Kg	AN02
						11Kg	AL03
TB	52m/m	70   65   265	2,500	285   250   455	45,000	6Kg	AL02
							ALC02
						7Kg	AL03
						70   85   265	2,500
70   110   355	2,500	330   260   485	24,000	10Kg	AL05		
70   110   355	2,000						
TR	52m/m	280   280 (A   A)	5,000	460   320   600	50,000	14Kg	AL02
						ALC02	
			4,000			40,000	14Kg
	2,500		25,000	16Kg	AL04		

## ITEM-PART NUMBERS

### AL02

Ordering code	Inductance [ $\mu$ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] (max.)	Rated Current [mA] (max.)	
AL02T R22K	0.22	$\pm 10\%$ ( $\pm 5\%$ )	35	25.2	410	0.40	400	
AL02T R27K	0.27				410	0.43	380	
AL02T R33K	0.33				360	0.48	370	
AL02T R39K	0.39				300	0.51	350	
AL02T R47K	0.47				230	0.56	330	
AL02T R56K	0.56				210	0.61	320	
AL02T R68K	0.68				190	0.67	310	
AL02T R82K	0.82				170	0.74	290	
AL02T 1R0K	1.0				150	0.80	270	
AL02T 1R2K	1.2				110	0.90	260	
AL02T 1R5K	1.5				80	1.0	250	
AL02T 1R8K	1.8				60	1.1	240	
AL02T 2R2K	2.2				45	1.2	230	
AL02T 2R7K	2.7				40	1.3	220	
AL02T 3R3K	3.3				38	1.4	210	
AL02T 3R9K	3.9				35	1.6	200	
AL02T 4R7K	4.7				32	1.7	190	
AL02T 5R6K	5.6		30	1.9	180			
AL02T 6R8K	6.8		28	2.0	175			
AL02T 8R2K	8.2		26	2.2	165			
AL02T 100K	10		24	2.3	160			
AL02T 120K	12		22	2.5	150			
AL02T 150K	15		20	2.8	145			
AL02T 180K	18		18	3.1	140			
AL02T 220K	22		17	3.4	130			
AL02T 270K	27		16	4.3	80			
AL02T 330K	33		14	4.7	76			
AL02T 390K	39		13	5.2	74			
AL02T 470K	47		12	5.8	70			
AL02T 560K	56		11	6.4	68			
AL02T 680K	68		10	7.2	64			
AL02T 820K	82		9.5	11.0	46			
AL02T 101K	100		9.0	12.0	44			
AL02T 121K	120		8.0	13.0	42			
AL02T 151K	150		6.0	16.0	39			
AL02T 181K	180		5.5	18.0	37			
AL02T 221K	220		5.0	20.0	35			
AL02T 271K	270		4.6	26.0	28			
AL02T 331K	330		4.4	27.0	26			
AL02T 391K	390		4.1	28.0	25			
AL02T 471K	470		3.7	30.0	24			
				40	2.52	22	2.5	150
						20	2.8	145
						18	3.1	140
						17	3.4	130
						16	4.3	80
						14	4.7	76
			13			5.2	74	
			12			5.8	70	
			11			6.4	68	
			10			7.2	64	
			0.796	2.52	9.5	11.0	46	
					9.0	12.0	44	
					8.0	13.0	42	
					6.0	16.0	39	
					5.5	18.0	37	
					5.0	20.0	35	
					4.6	26.0	28	
			4.4	27.0	26			
			4.1	28.0	25			
			3.7	30.0	24			

Please specify the taping configuration code.

:TA,TB,TR

## ITEM-PART NUMBERS

### ALC02

Ordering code	Inductance [ $\mu$ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] (max.)	Rated Current [mA] (max.)						
ALC02T R22K	0.22	± 10%	50	25.2	450	0.20	730						
ALC02T R27K	0.27				400	0.21	700						
ALC02T R33K	0.33				350	0.23	670						
ALC02T R39K	0.39				320	0.25	640						
ALC02T R47K	0.47				300	0.27	620						
ALC02T R56K	0.56				280	0.30	590						
ALC02T R68K	0.68				240	0.33	570						
ALC02T R82K	0.82				210	0.35	540						
ALC02T 1R0J	1.0				± 5%	40	7.96	190	0.40	510			
ALC02T 1R2J	1.2	110	0.43	490									
ALC02T 1R5J	1.5	80	0.48	460									
ALC02T 1R8J	1.8	70	0.53	440									
ALC02T 2R2J	2.2	60	0.50	420									
ALC02T 2R7J	2.7	55	0.68	390									
ALC02T 3R3J	3.3	50	0.75	370									
ALC02T 3R9J	3.9	45	0.83	350									
ALC02T 4R7J	4.7	40	0.91	340									
ALC02T 5R6J	5.6	35	26	1.3		290							
ALC02T 6R8J	6.8												
ALC02T 8R2J	8.2												
ALC02T 100J	10	40	2.52	24		1.4	270						
ALC02T 120J	12							22	1.4	270			
ALC02T 150J	15										20	1.6	260
ALC02T 180J	18												
ALC02T 220J	22							17	1.9	230			
ALC02T 270J	27										16	2.5	200
ALC02T 330J	33												
ALC02T 390J	39							13	3.6	170			
ALC02T 470J	47										12	4.6	150
ALC02T 560J	56	11	5.1	140									
ALC02T 680J	68					10	5.6	130					
ALC02T 820J	82								9.5	7.9	115		
ALC02T 101J	100	9.0	9.1	105									

Please specify the taping configuration code.

:TA,TB,TR

## ITEM-PART NUMBERS

### AN02

Ordering code	Inductance [ $\mu$ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] (max.)	Rated Current [mA] (max.)				
AN02T R12K	0.12	$\pm 10\%$ ( $\pm 5\%$ )	50	25.2	500	0.12	850				
AN02T R15K	0.15				500	0.14	800				
AN02T R18K	0.18				500	0.15	760				
AN02T R22K	0.22				500	0.16	730				
AN02T R27K	0.27				500	0.18	690				
AN02T R33K	0.33				480	0.19	660				
AN02T R39K	0.39				430	0.21	640				
AN02T R47K	0.47				380	0.23	610				
AN02T R56K	0.56				350	0.25	580				
AN02T R68K	0.68				310	0.27	550				
AN02T R82K	0.82				270	0.29	520				
AN02T 1R0K	1.0				240	0.32	500				
AN02T 1R2K	1.2				7.96	40	2.52	210	0.35	480	
AN02T 1R5K	1.5							190	0.38	450	
AN02T 1R8K	1.8							140	0.42	430	
AN02T 2R2K	2.2							90	0.47	410	
AN02T 2R7K	2.7							70	0.52	390	
AN02T 3R3K	3.3							50	0.57	370	
AN02T 3R9K	3.9		35	0.63				360			
AN02T 4R7K	4.7		32	0.69				340			
AN02T 5R6K	5.6		30	0.75				320			
AN02T 6R8K	6.8		28	0.84				310			
AN02T 8R2K	8.2		26	0.92				290			
AN02T 100K	10		24	1.0				280			
AN02T 120K	12		50	0.796				0.796	22	1.0	280
AN02T 150K	15								20	1.2	265
AN02T 180K	18								18	1.3	250
AN02T 220K	22								17	1.5	235
AN02T 270K	27								15	1.7	220
AN02T 330K	33								14	2.2	180
AN02T 390K	39				13	2.4	170				
AN02T 470K	47				12	2.8	160				
AN02T 560K	56				10	4.1	140				
AN02T 680K	68				9.2	4.5	130				
AN02T 820K	82				8.8	5.0	125				
AN02T 101K	100				8.0	5.6	120				
AN02T 121K	120				6.6	9.2	90				
AN02T 151K	150				5.8	10.5	85				
AN02T 181K	180				5.4	11.5	80				
AN02T 221K	220				4.8	13.0	75				
AN02T 271K	270				3.6	16.0	70				
AN02T 331K	330				3.4	18.0	66				
AN02T 391K	390	3.2	20.0	63							
AN02T 471K	470	3.0	22.0	60							

Please specify the taping configuration code.

:TA,TB,TR

## ITEM-PART NUMBERS

### AL03

Ordering code	Inductance [μ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ ] (max.)	Rated Current [mA] (max.)
AL03T R22K	0.22	± 10% (± 5%)	35	25.2	450	0.40	400
AL03T R27K	0.27				410	0.43	380
AL03T R33K	0.33				360	0.48	370
AL03T R39K	0.39				300	0.51	350
AL03T R47K	0.47				230	0.56	330
AL03T R56K	0.56				210	0.61	320
AL03T R68K	0.68				190	0.67	310
AL03T R82K	0.82				170	0.74	290
AL03T 1R0K	1.0		150	0.80	270		
AL03T 1R2K	1.2		144	0.90	260		
AL03T 1R5K	1.5		131	1.0	250		
AL03T 1R8K	1.8		121	1.1	240		
AL03T 2R2K	2.2		110	1.2	230		
AL03T 2R7K	2.7		100	1.3	220		
AL03T 3R3K	3.3		94	1.4	210		
AL03T 3R9K	3.9		65	1.6	200		
AL03T 4R7K	4.7		56	1.7	190		
AL03T 5R6K	5.6		48	1.9	180		
AL03T 6R8K	6.8		37	2.0	175		
AL03T 8R2K	8.2		25	2.2	165		
AL03T 100K	10		21	2.3	160		
AL03T 120K	12		19	2.5	150		
AL03T 150K	15		17	2.8	145		
AL03T 180K	18		13	3.1	160		
AL03T 220K	22		9.6	3.4	130		
AL03T 270K	27		7.2	3.8	125		
AL03T 330K	33		6.3	4.1	120		
AL03T 390K	39		6.3	4.5	115		
AL03T 470K	47		6.3	4.9	110		
AL03T 560K	56		6.2	5.3	105		
AL03T 680K	68		5.7	5.8	100		
AL03T 820K	82		5.3	6.3	95		
AL03T 101K	100		4.8	7.0	90		
AL03T 121K	120		3.8	13	90		
AL03T 151K	150		3.5	15	85		
AL03T 181K	180		3.3	16	80		
AL03T 221K	220		3.0	17	75		
AL03T 271K	270		2.8	19	65		
AL03T 331K	330		2.6	20	60		
AL03T 391K	390		2.4	22	55		
AL03T 471K	470	2.25	24	55			
AL03T 561K	560	2.10	26	50			
AL03T 681K	680	1.95	28	45			
AL03T 821K	820	1.85	30	40			
AL03T 102K	1000	1.40	33	40			

Please specify the taping configuration code.

:TA,TB,TR



# ITEM-PART NUMBERS

## AL04

Ordering code	Inductance [ $\mu$ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] (max.)	Rated Current [mA] (max.)
AL04T R22K	0.22	± 10% (± 5%)	45	25.2	300	0.10	1400
AL04T R27K	0.27				270	0.11	1320
AL04T R33K	0.33				250	0.12	1280
AL04T R39K	0.39				230	0.13	1200
AL04T R47K	0.47				220	0.14	1150
AL04T R56K	0.56				200	0.15	1100
AL04T R68K	0.68				190	0.16	1030
AL04T R82K	0.82				172	0.17	980
AL04T 1R0K	1.0				157	0.19	920
AL04T 1R2K	1.2				144	0.21	880
AL04T 1R5K	1.5		131	0.23	830		
AL04T 1R8K	1.8		121	0.25	790		
AL04T 2R2K	2.2		110	0.28	750		
AL04T 2R7K	2.7		100	0.30	720		
AL04T 3R3K	3.3		94	0.34	670		
AL04T 3R9K	3.9		65	0.37	640		
AL04T 4R7K	4.7		56	0.39	620		
AL04T 5R6K	5.6		48	0.43	590		
AL04T 6R8K	6.8		37	0.48	550		
AL04T 8R2K	8.2		25	0.52	530		
AL04T 100K	10		21	0.58	500		
AL04T 120K	12		19	0.63	480		
AL04T 150K	15		17	0.72	460		
AL04T 180K	18		13	0.77	430		
AL04T 220K	22		9.6	0.84	410		
AL04T 270K	27		7.2	0.94	390		
AL04T 330K	33		6.3	1.03	370		
AL04T 390K	39		6.3	1.12	350		
AL04T 470K	47		6.3	1.22	340		
AL04T 560K	56		6.2	1.34	320		
AL04T 680K	68		5.7	1.47	305		
AL04T 820K	82		5.3	1.62	290		
AL04T 101K	100		4.8	1.80	275		
AL04T 121K	120		3.8	3.70	185		
AL04T 151K	150		45	4.20	175		
AL04T 181K	180		50	4.60	165		
AL04T 221K	220		55	5.10	155		
AL04T 271K	270		2.8	5.80	145		
AL04T 331K	330		65	6.40	137		
AL04T 391K	390		2.4	7.00	133		
AL04T 471K	470		60	7.70	126		
AL04T 561K	560		2.10	8.50	120		
AL04T 681K	680		55	9.40	113		
AL04T 821K	820		1.85	10.5	105		
AL04T 102K	1000		50	14.0	100		
AL04T 122K	1200		1.40	22.0	110		
AL04T 152K	1500		1.20	25.0	100		
AL04T 182K	1800		1.10	28.0	90		
AL04T 222K	2200		0.98	40.0	80		
AL04T 272K	2700		0.90	44.0	70		
AL04T 332K	3300	0.85	50.0	70			
AL04T 392K	3900	0.81	63.0	60			
AL04T 472K	4700	0.72	69.0	55			
AL04T 562K	5600	0.60	77.0	50			
AL04T 682K	6800	0.55	104.0	45			
AL04T 822K	8200	0.50	116.0	45			
AL04T 103K	10000	0.48	148.0	35			
		30	0.40	35			

Please specify the taping configuration code.

:TB,TR

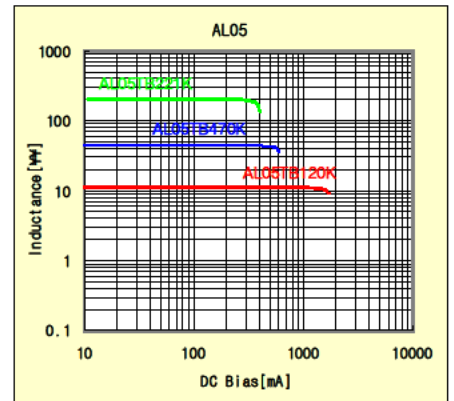
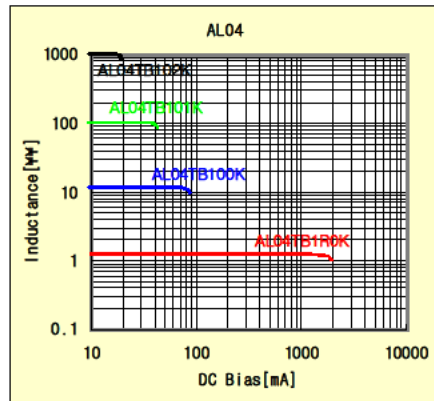
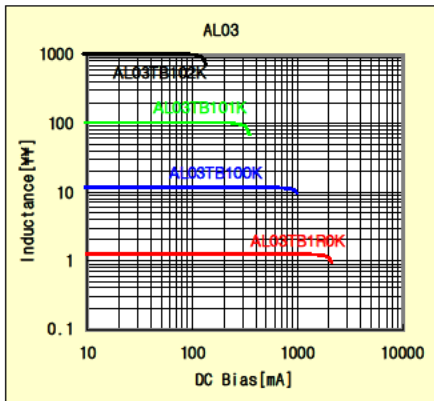
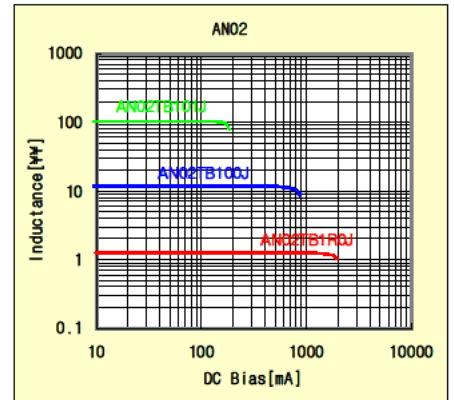
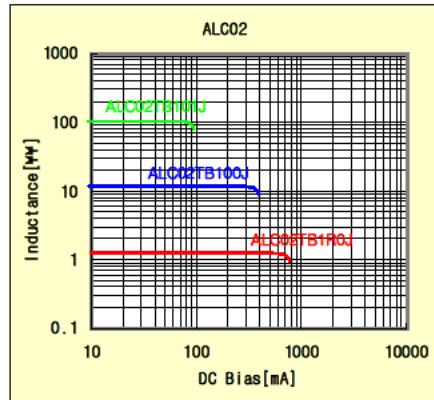
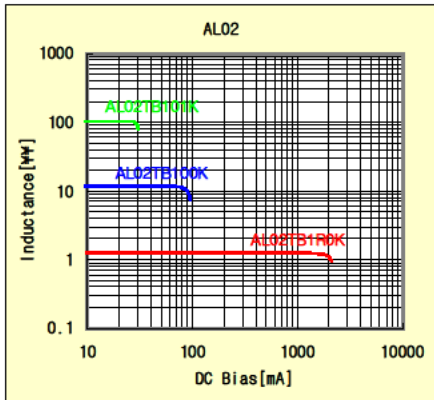
# ITEM-PART NUMBERS

## AL05

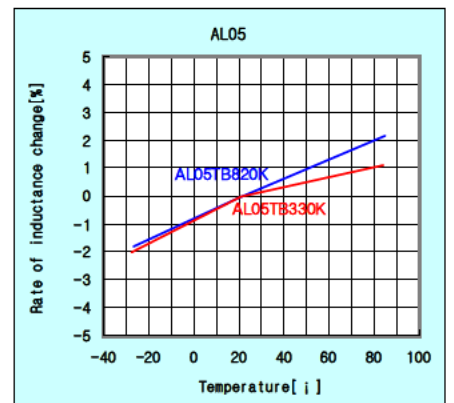
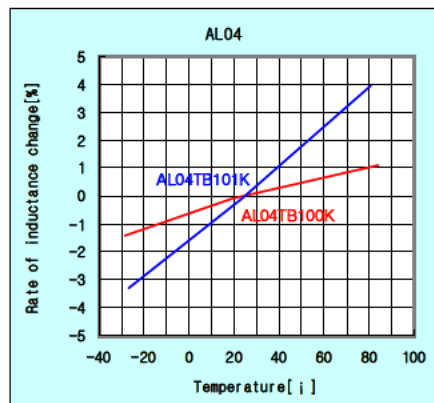
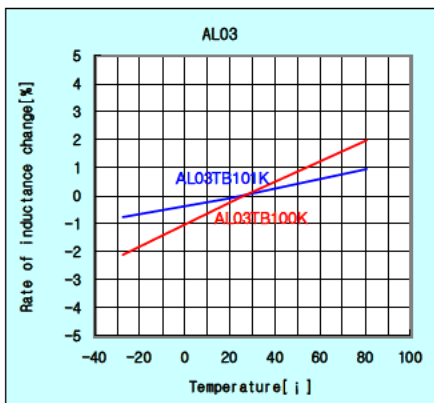
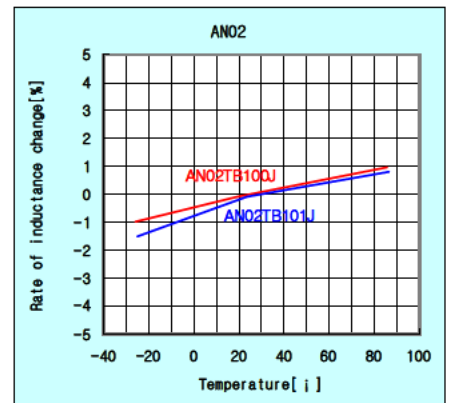
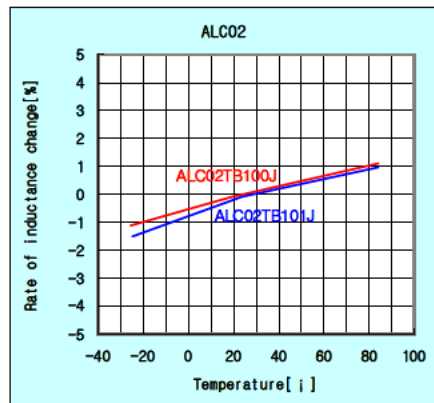
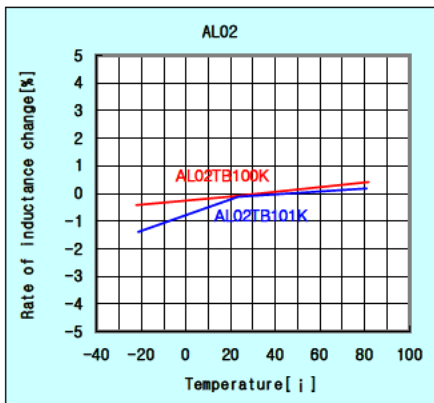
Ordering code	Inductance [ $\mu$ ]	Inductance Tolerance	Q (min.)	Measuring frequency [MHz]	Self-resonant frequency [MHz] (min.)	DC Resistance [ $\Omega$ ] (max.)	Rated Current [mA] (max.)
AL05T 1R0K	1.0	$\pm 10\%$	10	7.96	300	0.022	5600
AL05T 1R2K	1.2				260	0.024	5500
AL05T 1R5K	1.5				250	0.026	5000
AL05T 1R8K	1.8				240	0.029	4700
AL05T 2R2K	2.2				220	0.031	4500
AL05T 2R7K	2.7				195	0.034	4000
AL05T 3R3K	3.3				155	0.038	3400
AL05T 3R9K	3.9				115	0.040	3100
AL05T 4R7K	4.7				85	0.044	2800
AL05T 5R6K	5.6				55	0.048	2600
AL05T 6R8K	6.8				50	0.051	2400
AL05T 8R2K	8.2				38	0.056	2200
AL05T 100K	10				24	0.062	2100
AL05T 120K	12				18	0.076	1800
AL05T 150K	15				16	0.088	1700
AL05T 180K	18				15	0.110	1600
AL05T 220K	22				14	0.130	1400
AL05T 270K	27				13	0.140	1300
AL05T 330K	33				11	0.200	1200
AL05T 390K	39				10	0.220	1100
AL05T 430K	43				9.5	0.280	1000
AL05T 470K	47				9.5	0.280	1000
AL05T 560K	56				8.0	0.300	900
AL05T 680K	68				7.5	0.340	800
AL05T 820K	82		7.0	0.385	700		
AL05T 101K	100		6.5	0.480	700		
AL05T 121K	120		5.0	0.595	600		
AL05T 151K	150		4.5	0.900	550		
AL05T 181K	180		4.0	1.10	500		
AL05T 221K	220		3.8	1.25	440		
AL05T 271K	270		3.5	1.85	420		
AL05T 331K	330		3.0	2.10	380		
AL05T 331K	330		2.8	2.28	340		
AL05T 471K	470		2.5	3.22	320		
AL05T 561K	560		2.2	3.85	290		
AL05T 681K	680		2.1	4.00	260		
AL05T 821K	820		2.0	5.00	250		
AL05T 102K	1000		1.8	5.80	240		
AL05T 122K	1200		1.6	7.10	200		
AL05T 152K	1500		1.5	7.80	190		

## i ELECTRICAL CHARACTERISTICS

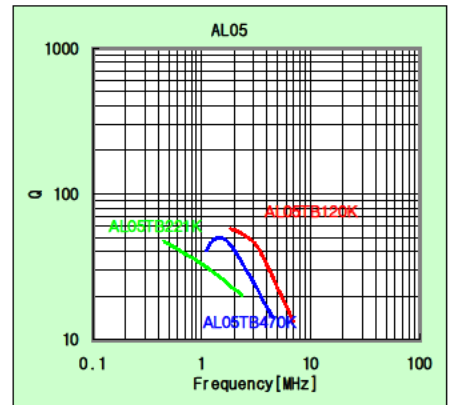
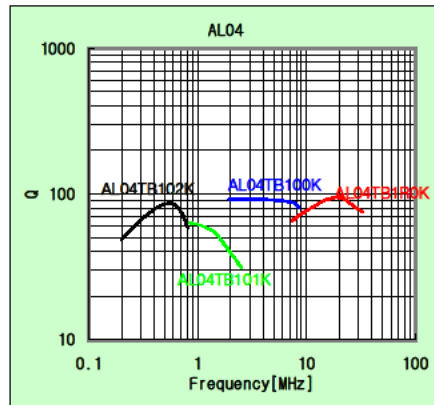
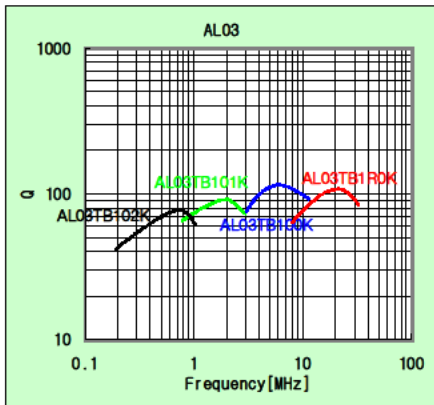
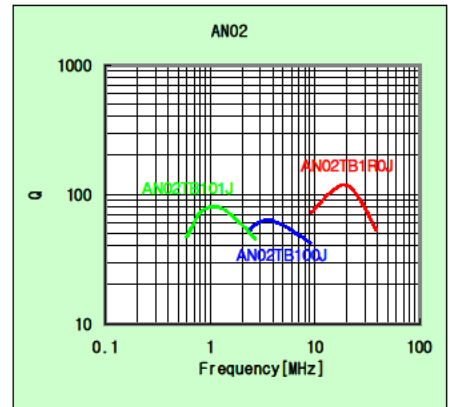
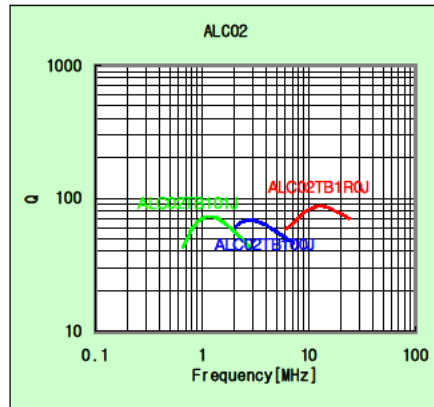
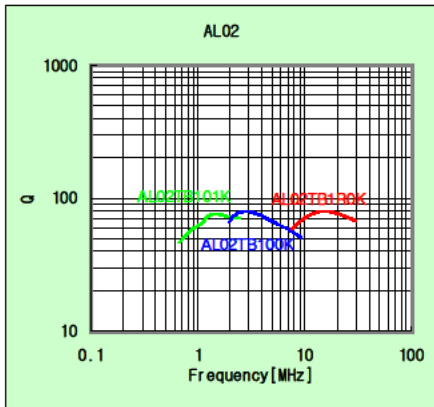
### φ DC Bias Characteristics(Measured by HP4284A+HP42841A)



### φ Temperature Characteristics(Measured by HP4284A+HP42841A)



Q-Characteristics(Measured by HP 4285A+42851A)



# RELIABILITY

Item	Specified Value			Test Methods and Remarks												
	AL02,03Type	AL04Type	AL05Type													
1.Operating Range	-25 +105			Including self-generated heat.												
2.Storage Temperature Range	-40 +85															
3.Q	Within the specified tolerance			Measuring equipment:LCR meter (HP4285A+42851A or its equivalent) Measuring frequency:Specified frequency												
4.Self Resonant	Within the specified tolerance			Measuring equipment:(Dip meter or its equivalent)												
5.DC Resistance	Within the specified tolerance			Measuring equipment:m+J80 HiTester(3226 or its equivalent)												
6.DC Bias	L/L Within - 10%			Measure inductance with application of rated current using LCR meter to compare it with the initial value.												
7.Temperature	L/L Within $\pm 5\%$			Change of maximum inductance deviation in step 1to6 <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature( )</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20</td> </tr> <tr> <td>2</td> <td>-25(minimum operating temperature)</td> </tr> <tr> <td>3</td> <td>20(Reference temperature)</td> </tr> <tr> <td>4</td> <td>+85(Maximum operation temperature)</td> </tr> <tr> <td>5</td> <td>20</td> </tr> </tbody> </table>	Step	Temperature( )	1	20	2	-25(minimum operating temperature)	3	20(Reference temperature)	4	+85(Maximum operation temperature)	5	20
Step	Temperature( )															
1	20															
2	-25(minimum operating temperature)															
3	20(Reference temperature)															
4	+85(Maximum operation temperature)															
5	20															
8.Inductance	Within the specified tolerance			Measuring equipment:LCR meter (HP4285A+42851A or its equivalent) Measuring frequency:Specified frequency												
9.Rated current	Within the specified tolerance			The maximum DC value having inductance decrease within 10% and temperature increase within 20 by the application of DC bias												
10.Terminal Strength	Tensile	No abnormality such as cutlead or looseness		Apply the stated tensile force progressively in the direction to draw terminal <table border="1"> <thead> <tr> <th>Nominal wire diameter(mm)</th> <th>Tensile force(N)</th> <th>Duration(S)</th> </tr> </thead> <tbody> <tr> <td>0.43&lt; d 0.65</td> <td>25</td> <td>5</td> </tr> </tbody> </table>	Nominal wire diameter(mm)	Tensile force(N)	Duration(S)	0.43< d 0.65	25	5						
	Nominal wire diameter(mm)	Tensile force(N)	Duration(S)													
0.43< d 0.65	25	5														
Bending	No abnormality such as cutlead or looseness		Suspend a mass at the end the terminal, incline the body through angle of 90° and return it to initial position is This operation is done over a period of 2-4sec. Then a second bend in the opposite direction shall be made. Number of bends:Two times <table border="1"> <thead> <tr> <th>Nominal wire diameter(mm)</th> <th>Bending force(N)</th> <th>Mass weight(kg)</th> </tr> </thead> <tbody> <tr> <td>0.3&lt; d 0.5</td> <td>2.5</td> <td>0.25</td> </tr> <tr> <td>0.5&lt; d 0.8</td> <td>5</td> <td>0.5</td> </tr> </tbody> </table>	Nominal wire diameter(mm)	Bending force(N)	Mass weight(kg)	0.3< d 0.5	2.5	0.25	0.5< d 0.8	5	0.5				
Nominal wire diameter(mm)	Bending force(N)	Mass weight(kg)														
0.3< d 0.5	2.5	0.25														
0.5< d 0.8	5	0.5														
11.Body Strength	No abnormality such as damage			AL02 Applied force:30N Duration:10sec Speed:Shall attain to specified force in 2sec. AL03,04,05 Applied force:50N Duration:10sec Speed:Shall attain to specified force in 2sec.												
12.Resistance to	L/L Within $\pm 5\%$ Q 30min	L/L Within $\pm 5\%$ Q/Q Within $\pm 10$	L/L Within $\pm 5\%$ Q 15min	According to JIS C 5102 clause 8.2 Vibration type:A Direction:2hrs each in X,Yand Z directions Total:7hrs Frequency range:10to55to10Hz(1min) Amplitude:1.5mm Mounting method:Soldering onto printed board Recovery:At least 1hr of recovery under the standard condition after the test, followed by the measurement within 2hrs.												

# RELIABILITY

Item	Specified Value			Test Methods and Remarks															
	AL02,03Type	AL04Type	AL05Type																
13. Resistance to Shock	No significant abnormality in appearance	No significant abnormality in appearance	No significant abnormality in appearance	Drop test impact material: Concrete of vinyl tile Height: 1m Total number of drops: 10 times															
14. Solderability	At least 75% of terminal electrode is			Solder temperature: 230± 5 duration: 2± 0.5sec.															
15. Resistance to Heat	No significant abnormality in appearance	No significant abnormality in appearance	L/L Within± 5% Q 15min	Solder temperature: 260± 5 (AL02), 270± 5 (AL03,04,05) duration: 2± 0.5sec. Duration: 5± 0.5sec. Once Immersed conditions: Inserted into substrate with t=1.6mm Recovery: At least 1hr of recovery under the standard condition after the test, followed by the measurement within 2hrs.															
16. Resistance to Solvent	Please avoid the ultrasonic cleaning of this product. product.																		
17. Thermal Shock	L/L Within± 10% Q 30min	L/L Within± 10% Q/Q Within± 30%	L/L Within± 10% Q 15min	<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ( )</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25<sup>+0</sup> -3</td> <td>30± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>within 3</td> </tr> <tr> <td>3</td> <td>+85<sup>+2</sup> -0</td> <td>30± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>within 3</td> </tr> </tbody> </table> <p>Number of cycles : 5 Recovery: At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs</p>	Step	Temperature ( )	Duration (min)	1	-25 <sup>+0</sup> -3	30± 3	2	Room temperature	within 3	3	+85 <sup>+2</sup> -0	30± 3	4	Room temperature	within 3
Step	Temperature ( )	Duration (min)																	
1	-25 <sup>+0</sup> -3	30± 3																	
2	Room temperature	within 3																	
3	+85 <sup>+2</sup> -0	30± 3																	
4	Room temperature	within 3																	
18. Damp Heat	L/L Within± 10% Q 30min	L/L Within± 10% Q/Q Within± 30%	L/L Within± 10% Q 15min	Temperature: 40± 2 Humidity: 90to95% RH Duration: 1000hrs Recovery: At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs															
19. Loading under Damp Heat	L/L Within± 10% Q 30min	L/L Within± 10% Q/Q Within± 30%	L/L Within± 10% Q 15min	Temperature: 40± 2 Humidity: 90to95% RH Duration: 1000hrs Applied current: Rated current Recovery: At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs															
20. Loading at High Temperature	L/L Within± 10% Q 30min	L/L Within± 10% Q/Q Within± 30%	L/L Within± 10% Q 15min	Temperature: 85± 2 Duration: 1000hrs Applied current: Rated current Recovery: At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs															
21. Low Temperature Life Test	L/L Within± 10% Q 30min	L/L Within± 10% Q/Q Within± 30%	L/L Within± 10% Q 15min	Temperature: -25± 2 Duration: 1000hrs Recovery: At least 1hr of recovery under the standard condition after the removal from test chamber, followed by the measurement within 2hrs															

Note on standard condition: "standard condition" referred to herein is defined as follows

5to 35 of temperature, 45to85% relative humidity and 86to 106kPa of air pressure.

When there are questions concerning measurement results:

In order to provide correlation data, the test shall be conducted under condition of 20± 2 of temperature, 45to 85% relative humidity and 86 to 106kPa of air pressure Unless otherwise specified, all the tests are conducted under the "standard condition"