

Inductors (Coils)
Fixed
RF-frequency

FERRITE CHIP INDUCTORS

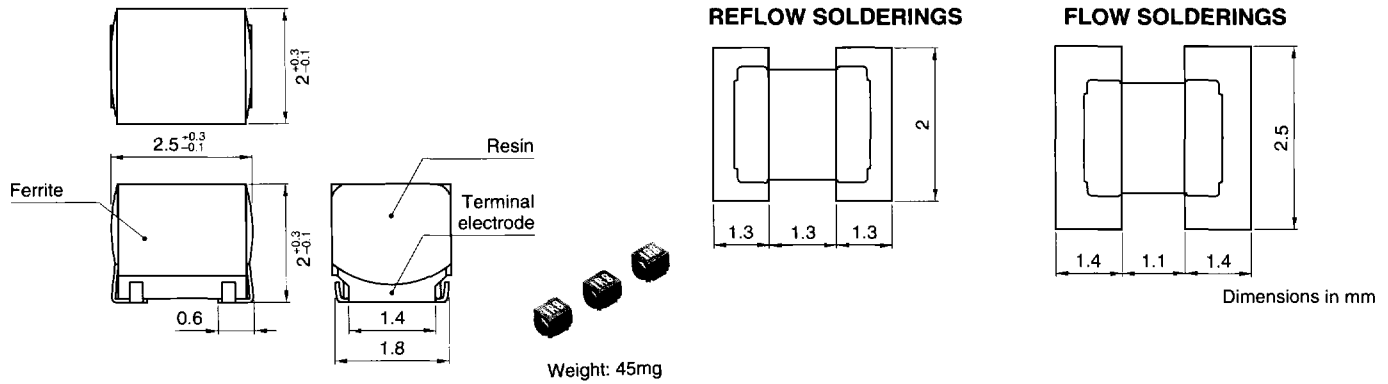
Shielded
ACL series

ACL2520 TYPE

FEATURES

- ACL series of wire wound chip inductors allow for high density mounting capability due to the magnetic shield.
- Available of high inductance values despite the same size.
- Small DC resistance gives high Q values.
- Low temperature coefficient despite the magnetic shield. This gives high immunity to ambient temperature change.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERNS



ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz)/min.	DC resistance (Ω)max.	Rated current*1 (mA)max.	Part No.
0.01	±20%	15	100	2100	0.19	725	ACL2520L-10nM-□*2
0.012	±20%	15	100	2020	0.2	705	ACL2520L-12nM-□
0.015	±20%	15	100	1850	0.23	655	ACL2520L-15nM-□
0.018	±20%	15	100	1770	0.25	630	ACL2520L-18nM-□
0.022	±20%	15	100	1560	0.28	595	ACL2520L-22nM-□
0.027	±20%	15	100	1450	0.32	555	ACL2520L-27nM-□
0.033	±20%	20	100	1290	0.34	540	ACL2520L-33nM-□
0.039	±20%	20	100	1230	0.37	515	ACL2520L-39nM-□
0.047	±20%	20	100	1080	0.4	500	ACL2520L-47nM-□
0.056	±20%	20	100	980	0.46	465	ACL2520L-56nM-□
0.068	±20%	20	100	890	0.52	435	ACL2520L-68nM-□
0.082	±20%	20	100	840	0.59	410	ACL2520L-82nM-□
0.1	±20%	20	100	770	0.62	400	ACL2520L-R10M-□
0.12	±10%	25	25.2	670	0.29	585	ACL2520L-R12K-□
0.15	±10%	25	25.2	600	0.32	555	ACL2520L-R15K-□
0.18	±10%	25	25.2	510	0.43	480	ACL2520L-R18K-□
0.22	±10%	30	25.2	470	0.46	465	ACL2520L-R22K-□
0.27	±10%	30	25.2	410	0.53	430	ACL2520L-R27K-□
0.33	±10%	35	25.2	350	0.58	415	ACL2520L-R33K-□
0.39	±10%	35	25.2	330	0.64	395	ACL2520L-R39K-□
0.47	±10%	40	25.2	310	0.68	380	ACL2520L-R47K-□
0.56	±10%	40	25.2	270	0.74	365	ACL2520L-R56K-□
0.68	±10%	40	25.2	195	0.8	350	ACL2520L-R68K-□
0.82	±10%	40	25.2	155	0.89	335	ACL2520L-R82K-□

*1The rated current is for the smaller of the inductance change due to either temperature increase or DC current superposition.

*2□ means packaging style. Please specify T(ø180mm reel), TL (ø330mm reel): Taping or B: Bulk.



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ELECTRICAL CHARACTERISTICS

Inductance (μ H)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current*1 (mA)max.	Part No.
1	$\pm 10\%$	40	25.2	150	0.98	315	ACL2520L-1R0K-□*2
1.2	$\pm 10\%$	40	7.96	210	0.56	270	ACL2520L-1R2K-□
1.5	$\pm 10\%$	40	7.96	190	0.63	245	ACL2520L-1R5K-□
1.8	$\pm 10\%$	40	7.96	180	0.68	220	ACL2520L-1R8K-□
2.2	$\pm 10\%$	40	7.96	160	0.75	195	ACL2520L-2R2K-□
2.7	$\pm 10\%$	45	7.96	150	0.82	160	ACL2520L-2R7K-□
3.3	$\pm 10\%$	45	7.96	120	0.92	160	ACL2520L-3R3K-□
3.9	$\pm 10\%$	45	7.96	90	0.99	155	ACL2520L-3R9K-□
4.7	$\pm 10\%$	45	7.96	57	1.09	140	ACL2520L-4R7K-□
5.6	$\pm 10\%$	50	7.96	48	1.16	110	ACL2520L-5R6K-□
6.8	$\pm 10\%$	50	7.96	34	1.28	110	ACL2520L-6R8K-□
8.2	$\pm 10\%$	50	7.96	32	1.45	105	ACL2520L-8R2K-□
10	$\pm 10\%$	50	7.96	28	1.57	90	ACL2520L-100K-□
12	$\pm 10\%$	30	2.52	35	2.75	75	ACL2520L-120K-□
15	$\pm 10\%$	35	2.52	23	3.1	70	ACL2520L-150K-□
18	$\pm 10\%$	35	2.52	20	3.3	65	ACL2520L-180K-□
22	$\pm 10\%$	40	2.52	17	3.7	60	ACL2520L-220K-□
27	$\pm 10\%$	40	2.52	16	4.15	45	ACL2520L-270K-□
33	$\pm 10\%$	40	2.52	14	4.75	45	ACL2520L-330K-□
39	$\pm 10\%$	45	2.52	12.5	5.2	45	ACL2520L-390K-□
47	$\pm 10\%$	45	2.52	12	5.6	35	ACL2520L-470K-□
56	$\pm 10\%$	45	2.52	11.5	6.1	35	ACL2520L-560K-□
68	$\pm 10\%$	45	2.52	10	6.9	30	ACL2520L-680K-□
82	$\pm 10\%$	45	2.52	9.4	7.65	30	ACL2520L-820K-□
100	$\pm 10\%$	50	2.52	9.1	8.6	30	ACL2520L-101K-□

*1 The rated current is for the smaller of the inductance change due to either temperature increase or DC current superposition.

*2 □ means packaging style. Please specify T (ø180mm reel), TL (ø330mm reel): Taping or B: Bulk.



Specifications which provide more details for the proper and safe use of the described product are available upon request.

All specifications are subject to change without notice.

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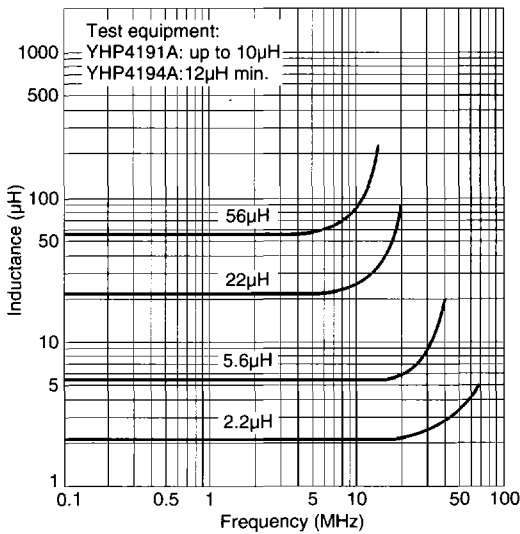
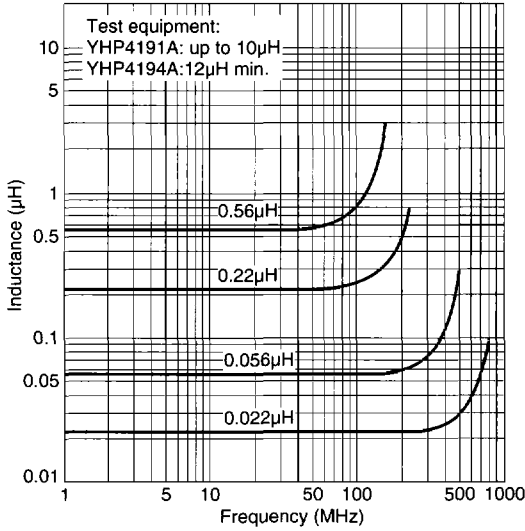
FERRITE CHIP INDUCTORS

Shielded
ACL series

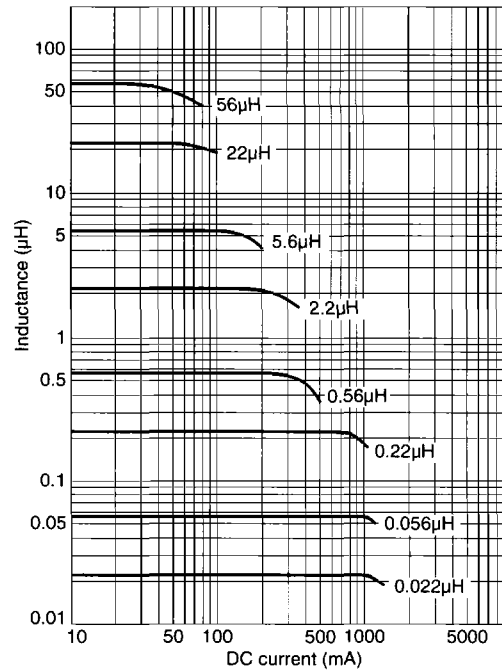
ACL2520 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

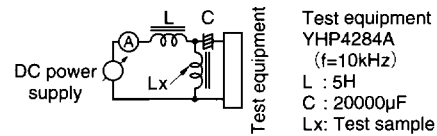
INDUCTANCE vs. FREQUENCY CHARACTERISTICS



INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



MEASURING CIRCUITS



Inductors (Coils)
Fixed
RF-frequency

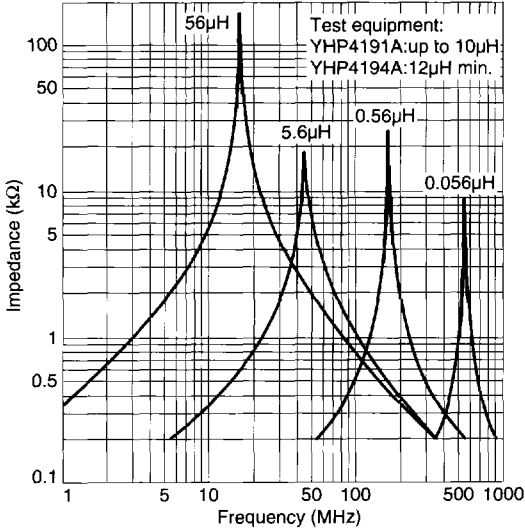
FERRITE CHIP INDUCTORS

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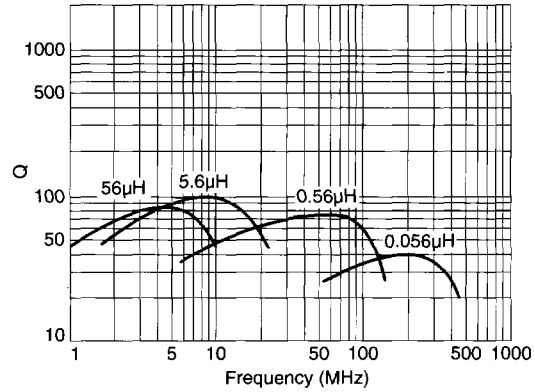
ACL2520 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

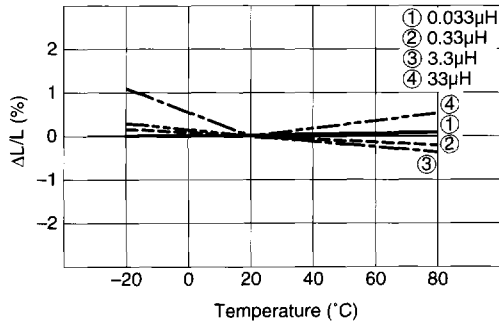
IMPEDANCE vs. FREQUENCY CHARACTERISTICS



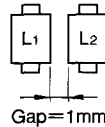
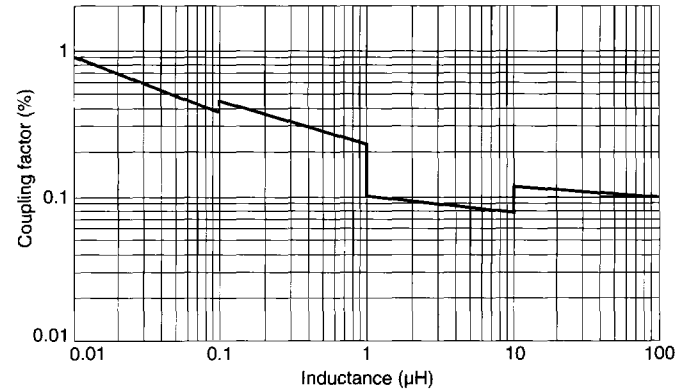
Q vs. FREQUENCY CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



COUPLING FACTORS



Measurement conditions: MIL-C-15305E # 4, 8, 8, 4
 Test equipment: YHP 4284A
 Test frequency: $L \leq 1\mu\text{H}$ at 100kHz
 $1\mu\text{H} < L \leq 100\mu\text{H}$ at 10kHz
 $100\mu\text{H} < L$ at 1kHz
 Coupling factor: $(\%) = M \div (\sqrt{L_1 \cdot L_2}) \times 100$
 $M = (L_{11} - L_{12}) \div 4$
 $L_{11} = L_1 + L_2 + 2M$
 $L_{12} = L_1 + L_2 - 2M$

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Inductors (Coils)
Fixed
RF-frequency

FERRITE CHIP INDUCTORS

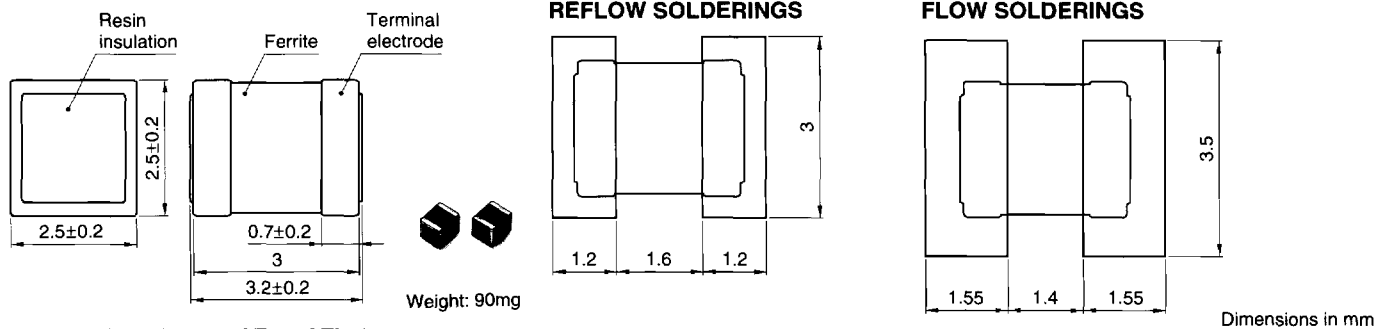
Shielded
ACL series

ACL3225 TYPE

FEATURES

- ACL series of wire wound chip inductors allow for high density mounting capability due to the magnetic shield.
- Available of high inductance values despite the small size.
- Small DC resistance gives high Q values.
- Low temperature coefficient despite the magnetic shield. This gives high immunity to ambient temperature change.

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERNS



ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current*1 (mA) max.	Part No.
0.01	±20%	10	100	2000	0.19	725	ACL3225S-10nM-□*2
0.012	±20%	10	100	1750	0.2	705	ACL3225S-12nM-□
0.015	±20%	10	100	1550	0.23	655	ACL3225S-15nM-□
0.018	±20%	15	100	1450	0.25	630	ACL3225S-18nM-□
0.022	±20%	15	100	1300	0.28	595	ACL3225S-22nM-□
0.027	±20%	15	100	1150	0.3	575	ACL3225S-27nM-□
0.033	±20%	15	100	1040	0.34	540	ACL3225S-33nM-□
0.039	±20%	20	100	950	0.37	515	ACL3225S-39nM-□
0.047	±20%	20	100	850	0.41	490	ACL3225S-47nM-□
0.056	±20%	20	100	770	0.47	460	ACL3225S-56nM-□
0.068	±20%	20	100	740	0.5	445	ACL3225S-68nM-□
0.082	±20%	20	100	600	0.55	425	ACL3225S-82nM-□
0.1	±20%	30	100	510	0.64	395	ACL3225S-R10M-□
0.12	±10%	35	25.2	580	0.24	645	ACL3225S-R12K-□
0.15	±10%	35	25.2	470	0.26	620	ACL3225S-R15K-□
0.18	±10%	35	25.2	400	0.29	585	ACL3225S-R18K-□
0.22	±10%	40	25.2	340	0.33	550	ACL3225S-R22K-□
0.27	±10%	40	25.2	290	0.37	515	ACL3225S-R27K-□
0.33	±10%	40	25.2	250	0.39	505	ACL3225S-R33K-□
0.39	±10%	40	25.2	220	0.42	485	ACL3225S-R39K-□
0.47	±10%	50	25.2	200	0.46	465	ACL3225S-R47K-□
0.56	±10%	50	25.2	180	0.51	440	ACL3225S-R56K-□
0.68	±10%	50	25.2	155	0.55	425	ACL3225S-R68K-□
0.82	±10%	50	25.2	140	0.6	405	ACL3225S-R82K-□
1	±10%	50	25.2	130	0.68	380	ACL3225S-1R0K-□

*1The rated current is for the smaller of the inductance change due to either temperature increase or DC current superposition.

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Inductors (Coils)
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FERRITE CHIP INDUCTORS

Shielded

ACL series

ACL3225 TYPE

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current*1 (mA)max.	Part No.
1.2	±10%	60	7.96	150	0.52	435	ACL3225S-1R2K-□*2
1.5	±10%	60	7.96	130	0.59	360	ACL3225S-1R5K-□
1.8	±10%	60	7.96	120	0.64	330	ACL3225S-1R8K-□
2.2	±10%	60	7.96	105	0.71	310	ACL3225S-2R2K-□
2.7	±10%	60	7.96	90	0.77	300	ACL3225S-2R7K-□
3.3	±10%	60	7.96	80	0.85	240	ACL3225S-3R3K-□
3.9	±10%	60	7.96	70	0.94	230	ACL3225S-3R9K-□
4.7	±10%	60	7.96	60	1	220	ACL3225S-4R7K-□
5.6	±10%	60	7.96	52	1.1	180	ACL3225S-5R6K-□
6.8	±10%	60	7.96	44	1.25	160	ACL3225S-6R8K-□
8.2	±10%	60	7.96	37	1.35	130	ACL3225S-8R2K-□
10	±10%	60	7.96	31	1.5	120	ACL3225S-100K-□
12	±10%	50	2.52	49	1.5	120	ACL3225S-120K-□
15	±10%	50	2.52	30	1.75	120	ACL3225S-150K-□
18	±10%	50	2.52	22	1.95	110	ACL3225S-180K-□
22	±10%	50	2.52	17	2.15	100	ACL3225S-220K-□
27	±10%	50	2.52	14.5	2.35	85	ACL3225S-270K-□
33	±10%	50	2.52	12.5	2.65	85	ACL3225S-330K-□
39	±10%	50	2.52	11.5	2.9	70	ACL3225S-390K-□
47	±10%	50	2.52	10.5	3.15	65	ACL3225S-470K-□
56	±10%	50	2.52	10	3.4	45	ACL3225S-560K-□
68	±10%	50	2.52	9	3.8	55	ACL3225S-680K-□
82	±10%	50	2.52	8.5	4.3	40	ACL3225S-820K-□
100	±10%	50	2.52	7.8	4.7	40	ACL3225S-101K-□
120	±20%	25	0.796	7.6	3.05	14	ACL3225S-121M-□
150	±20%	25	0.796	6.8	3.5	13	ACL3225S-151M-□
180	±20%	25	0.796	6.2	3.95	10	ACL3225S-181M-□
220	±20%	25	0.796	5.6	4.2	10	ACL3225S-221M-□
270	±20%	25	0.796	5.1	4.8	8.5	ACL3225S-271M-□
330	±20%	25	0.796	4.6	5.55	8.5	ACL3225S-331M-□
390	±20%	25	0.796	4.2	6	8	ACL3225S-391M-□
470	±20%	25	0.796	3.7	6.7	8	ACL3225S-471M-□
560	±20%	25	0.796	3.4	7.5	7.5	ACL3225S-561M-□
680	±20%	25	0.796	3.1	8.35	6	ACL3225S-681M-□
820	±20%	25	0.796	2.7	9.55	5.5	ACL3225S-821M-□
1000	±20%	25	0.796	2.4	11	5	ACL3225S-102M-□

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*2□ means packaging style. Please specify T (ø180mm reel), TL (ø330mm reel): Taping or B: Bulk.



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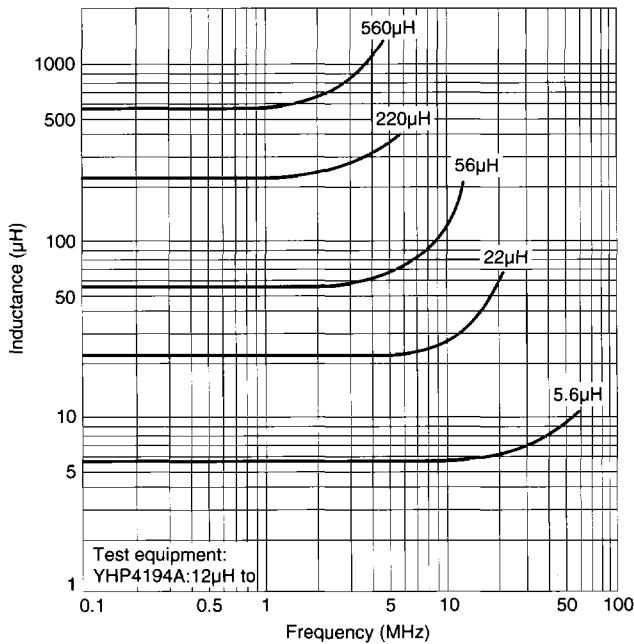
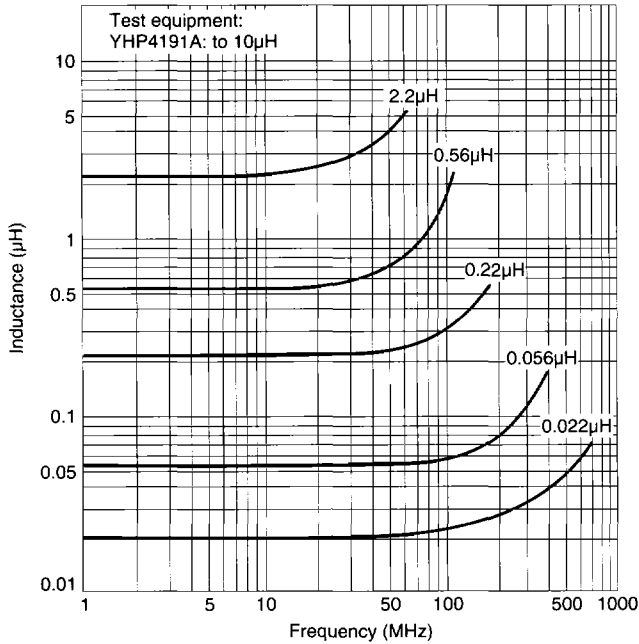
FERRITE CHIP INDUCTORS

Shielded
ACL series

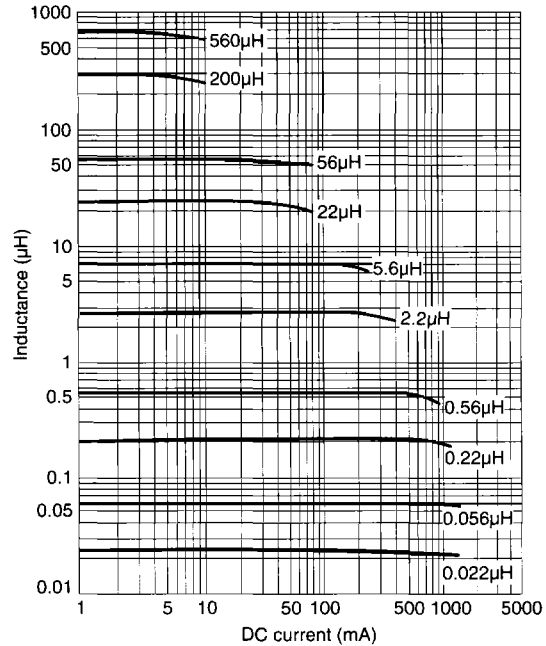
ACL3225 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

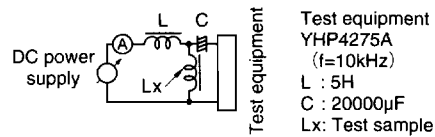
INDUCTANCE vs. FREQUENCY CHARACTERISTICS



INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



MEASURING CIRCUITS



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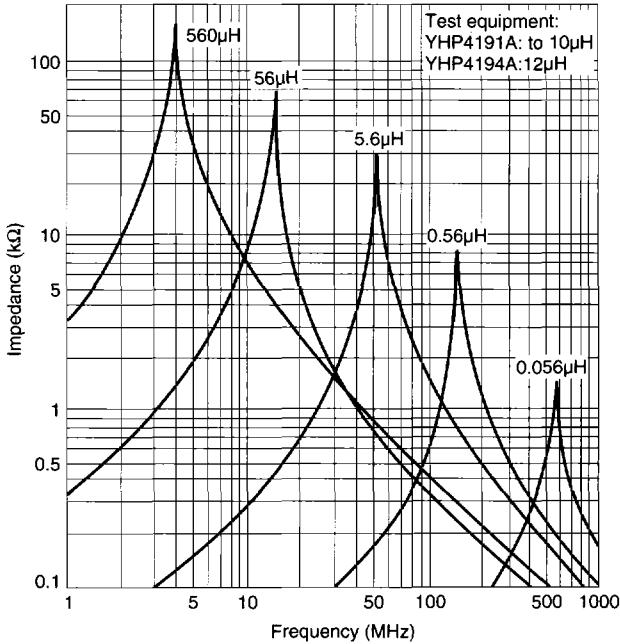
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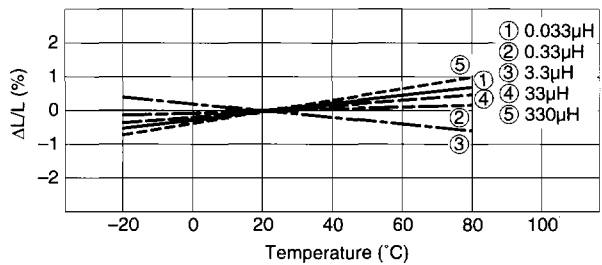
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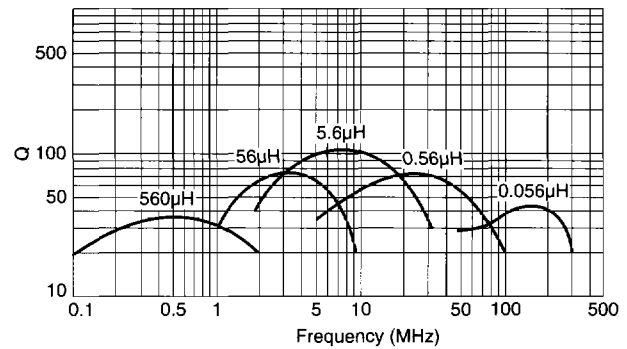
IMPEDANCE vs. FREQUENCY CHARACTERISTICS



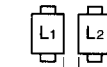
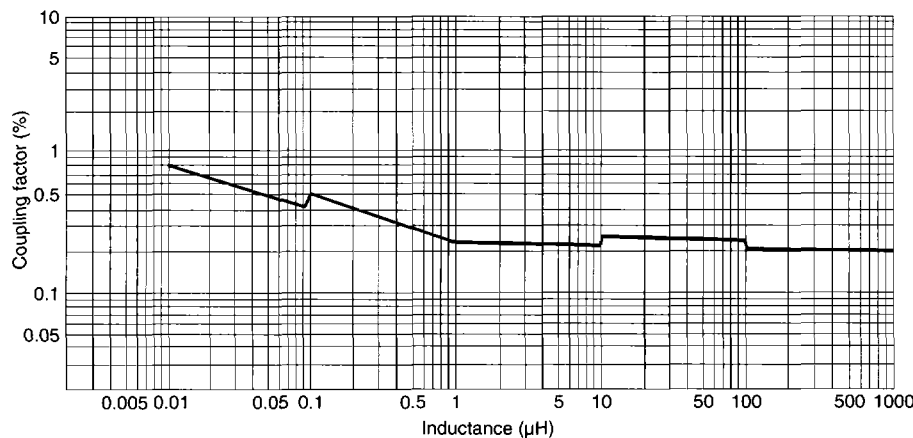
INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS



COUPLING FACTORS



Gap = 1mm

Measurement conditions: MIL-C-15305E #4, 8, 8, 4

Test equipment: YHP 4275A

Test frequency: $L \leq 1\mu\text{H}$ at 100kHz

$1\mu\text{H} < L \leq 100\mu\text{H}$ at 10kHz

$100\mu\text{H} < L$ at 1kHz

Coupling factor: $(\%) = M \div (\sqrt{L_1 \cdot L_2}) \times 100$

$M = (L_{11} - L_{12}) \div 4$

$L_{11} = L_1 + L_2 + 2M$

$L_{12} = L_1 + L_2 - 2M$

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