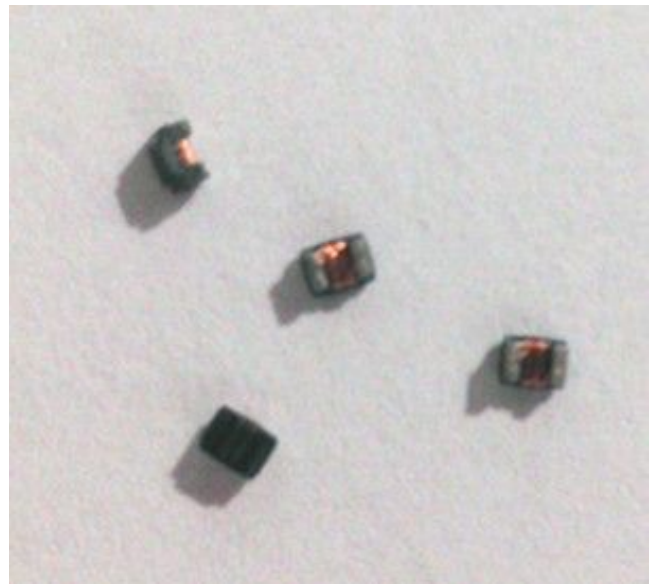




ELECTRONIC COMPANY

WIRE WOUND CHIP FERRITE INDUCTORS

D0402/0603/0805/1008/1210/1812LS SERIES



FEATURES/APPLICATOINS

- .Carrier tape packing use for SMT
- .Can be used in a wide range of frequency to suppress EMI
- .Excellent solder ability
- .Suitable for reflow STM craft soldering
- .Lead free products, ROHS compliant
- .Widely use in Noise suppression in Digital equipment such as Computer peripheral devices /VCR /VCD /DVD /Camera /OA equipments etc.

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0402(1005) Series.....	4
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PRODUCT INDICATION

D **0603** **LS** - **R10** **J**

①

②

③

④

⑤

①

Type	
D	Wire Wound Chip Inductor

②

External Dimensions
1608 [0603]
2012 [0805]
2520 [1008]
3216 [1206]
3225 [1210]

③

Material Code	
LS	Ferrite

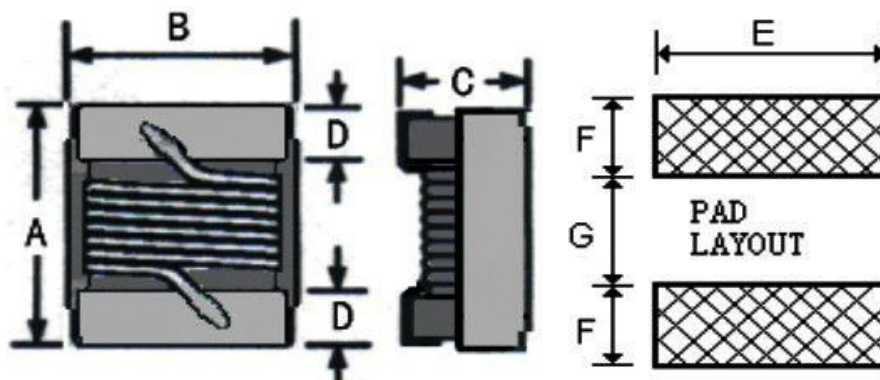
④

Nominal Inductance	
Example	Nominal Value
R27	270nH
2R7	2.7μH
270	27μH

⑤

Inductance Tolerance	
J	±5%
K	±10%
M	±20%

SHAPE AND DIMENSIONS



UNIT: mm(inch)

Par NO.	A (Max.)	B (Max.)	C (Max.)	D	E	F	G
D0402LS	1.12(0.044)	0.66(0.026)	0.66(0.026)	0.23 (0.009)	0.66 (0.026)	0.43 (0.017)	0.46 (0.018)
D0603LS	1.78(0.07)	1.1(0.043)	0.95(0.037)	0.3 (0.012)	1.02 (0.04)	0.64 (0.025)	0.64 (0.025)
D0805LS	2.3(0.091)	1.7(0.067)	1.52(0.06)	0.5 (0.02)	1.78 (0.07)	1.02 (0.04)	0.76 (0.03)
D1008LS	2.92(0.115)	2.79(0.11)	2.1(0.083)	0.5 (0.02)	2.54 (0.1)	1.02 (0.04)	1.27 (0.05)
D1812LS	4.8(0.189)	3.4(0.134)	3.15(0.124)	0.65 (0.026)	3.05(0.12)	1.14 (0.045)	3(0.118)

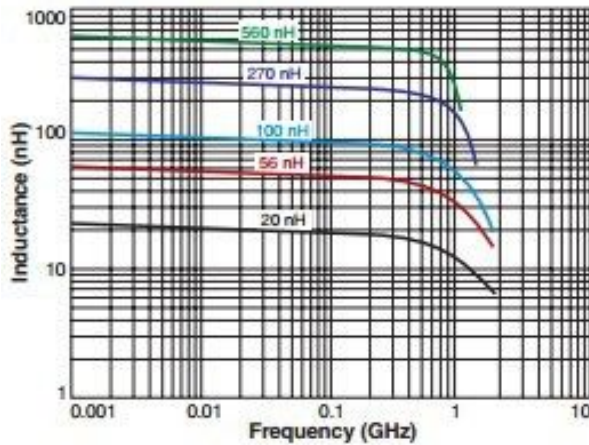
Electrical Characteristics D0402(1005) Series

- Higher inductance values than other 0402 inductors
- Ferrite construction for high current handling
- 23 inductance values from 20 nH to 560 nH

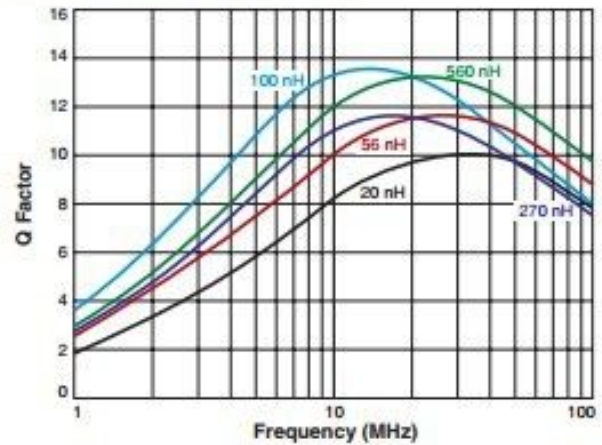
Part Number	Inductance	Tolerance (%)	SRF(MHz) (min)	DCR(Ω) (max)	IDC(mA) (max)	Test Freq
D0402LS-200J	20 nH	5	2600	0.05	1600	7.9 MHz
D0402LS-220J	22 nH	5	2500	0.065	1300	7.9 MHz
D0402LS-330J	33 nH	5	2300	0.06	1400	7.9 MHz
D0402LS-360J	36 nH	5	2300	0.075	1300	7.9 MHz
D0402LS-390J	39 nH	5	2200	0.115	830	7.9 MHz
D0402LS-510J	51 nH	5	1930	0.07	1100	7.9 MHz
D0402LS-560J	56 nH	5	1900	0.095	1000	7.9 MHz
D0402LS -720J	72 nH	5	1650	0.1	1000	7.9 MHz
D0402LS -780J	78 nH	5	1600	0.13	970	7.9 MHz
D0402LS -101J	100 nH	5	1400	0.16	900	7.9 MHz
D0402LS-141J	140 nH	5	1220	0.26	630	7.9 MHz
D0402LS-181J	180 nH	5	1150	0.28	560	7.9 MHz
D0402LS-201J	200 nH	5	1000	0.44	400	7.9 MHz
D0402LS-221J	220 nH	5	1150	0.53	380	7.9 MHz
D0402LS-251J	250 nH	5	900	0.36	520	7.9 MHz
D0402LS-271J	270 nH	5	860	0.55	360	7.9 MHz
D0402LS-301J	300 nH	5	860	0.41	420	7.9 MHz
D0402LS-331J	330 nH	5	820	0.56	350	7.9 MHz
D0402LS-361J	360 nH	5	810	0.575	360	7.9 MHz
D0402LS-391J	390 nH	5	760	0.75	300	7.9 MHz
D0402LS-421J	420 nH	5	700	0.7	340	7.9 MHz
D0402LS-471J	470 nH	5	650	0.73	310	7.9 MHz
D0402LS-561J	560 nH	5	600	0.92	200	7.9 MHz

1. Inductance measured at 7.9 MHz, 0.1 Vrms, using an Agilent/HP 4286A LCR meter or equivalent with a SMD-F test fixture and provided correlation pieces.
2. SRF measured using Agilent/HP 8753D network analyzer and SMD -D test fixture.
3. DCR measured on Cambridge Technology micro-ohmmeter and a test fixture.
4. Current that causes a 15° C temperature rise from 25° C ambient. Because of their open construction, these parts will not saturate.

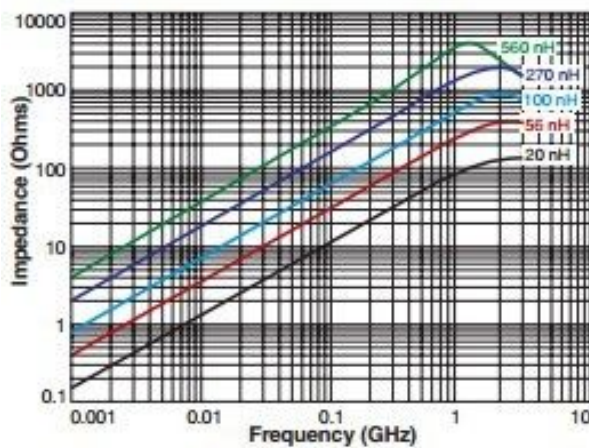
Typical L vs Frequency



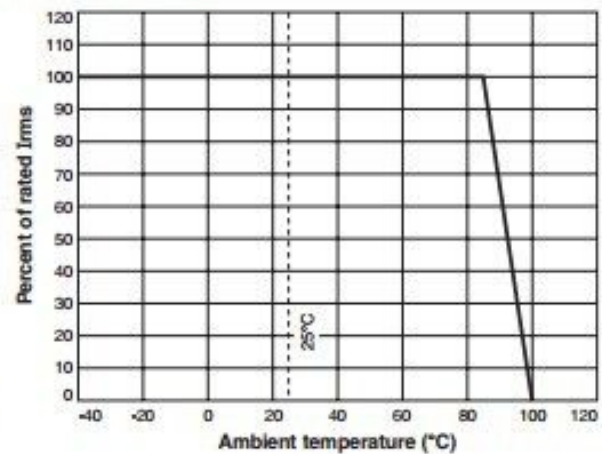
Typical Q vs Frequency



Typical Impedance vs Frequency



Irms Derating



Designer' s Kit C397 contains 20 each of all values

Core material Ferrite

Terminations RoHS compliant gold over nickel over silver-palladiumglass frit. Other terminations available at additional cost.

Weight 0.9 - 1.1 mg

Ambient temperature - 40° C to +85° C with Irms current, +85° C to +100° C with derated current

Storage temperature Component: - 40° C to +100° C.

Tape and reel packaging: - 40° C to +80° C

Resistance to soldering heat Max three 40 second reflows at +260° C, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) +25 to +150 ppm/° C

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30° C / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

Electrical Characteristics D0603(1608) Series

Higher inductance values than other 0603 inductors

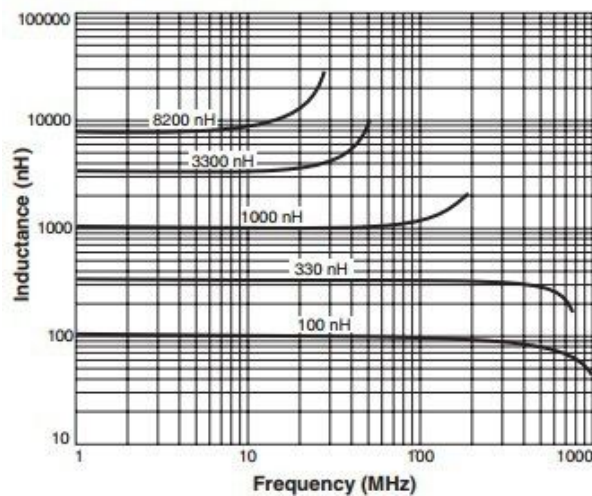
Ferrite construction for high current handling

Inductance values: 47 nH – 22 μH; 5% and 2% tolerance

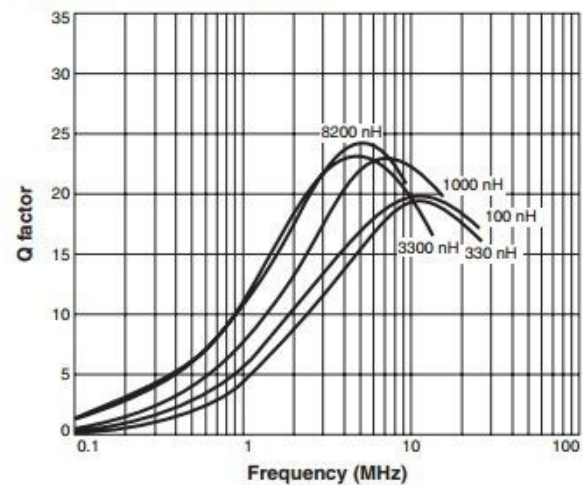
Part Number	Inductance	Tolerance (%)	Q (min)	SRF(MHz) (min)	DCR(Ω) (max)	IDC(mA) (max)	Test Freq
D0603LS-47N_	47 nH	5,10	12	1500	0.075	1400	7.9 MHz
D0603LS-51N_	51 nH	5,10	12	1400	0.075	1000	7.9 MHz
D0603LS-72N_	72 nH	5,10	12	1400	0.12	1400	7.9 MHz
D0603LS-101_	100 nH	5,10	12	1150	0.13	1400	7.9 MHz
D0603LS-121_	120 nH	5,10	12	1100	0.15	1400	7.9 MHz
D0603LS-151_	150 nH	5,10	15	1050	0.15	1300	7.9 MHz
D0603LS-181_	180 nH	5,10	15	950	0.15	1300	7.9 MHz
D0603LS-241_	240 nH	5,10	15	800	0.16	950	7.9 MHz
D0603LS-271_	270 nH	5,10	15	775	0.3	710	7.9 MHz
D0603LS-331_	330 nH	5,10	15	725	0.46	560	7.9 MHz
D0603LS-391_	390 nH	5,10	15	620	0.51	500	7.9 MHz
D0603LS-471_	470 nH	5,10	15	540	0.62	420	7.9 MHz
D0603LS-561_	560 nH	5,10	15	525	0.44	550	7.9 MHz
D0603LS-681_	680 nH	5,10	15	260	0.52	470	7.9 MHz
D0603LS-781_	780 nH	5,10	15	460	0.83	390	7.9 MHz
D0603LS-821_	820 nH	5,10	15	410	0.69	400	7.9 MHz
D0603LS-102_	1000 nH	5,10	15	190	0.81	400	7.9 MHz
D0603LS-122_	1200 nH	5,10	15	160	0.87	370	7.9 MHz
D0603LS-152_	1500 nH	5,10	15	100	0.96	350	7.9 MHz
D0603LS-182_	1800 nH	5,10	15	80	1.1	350	7.9 MHz
D0603LS-222_	2200 nH	5,10	15	68	1.2	320	7.9 MHz
D0603LS-272_	2700 nH	5,10	15	60	1500	280	7.9 MHz
D0603LS-332_	3300 nH	5,10	15	42	1.5	280	7.9 MHz
D0603LS-392_	3900 nH	5,10	15	40	1.6	280	7.9 MHz
D0603LS-472_	4700 nH	5,10	15	34	2.1	260	7.9 MHz
D0603LS-562_	5600 nH	5,10	15	32	2.6	240	7.9 MHz
D0603LS-682_	6800 nH	5,10	15	31	3.1	200	7.9 MHz
D0603LS-782_	7800 nH	5,10	15	28	3.5	200	7.9 MHz
D0603LS-822_	8200 nH	5,10	15	26	3.6	190	7.9 MHz
D0603LS-103_	10000 nH	5,10	12	25	4.8	180	2.5 MHz
D0603LS-153_	15000 nH	5,10	20	23	7.1	170	2.5 MHz
D0603LS-183_	18000 nH	5,10	20	22	7.6	160	2.5 MHz
D0603LS-223_	22000 nH	5,10	22	29	8.81	130	2.5 MHz

1. Inductance measured at 0.1Vrms, using SMD-A fixture in Agilent/HP4286A impedance analyzer with provided correlation pieces.
2. Q measured on Agilent/HP4395A with Agilent/HP16193 test fixture.
3. SRF measured using Agilent/HP8753 D network analyzer with SMD-D test fixture.
4. DCR measured on Cambridge Technology Micro-ohmmeter.
5. Current that causes a 15° C temperature rise from 25° C ambient. Because of their open construction, these parts will not saturate.
6. Electrical specifications at 25° C. Refer to Doc362 "Soldering Surface Mount Components" before soldering.

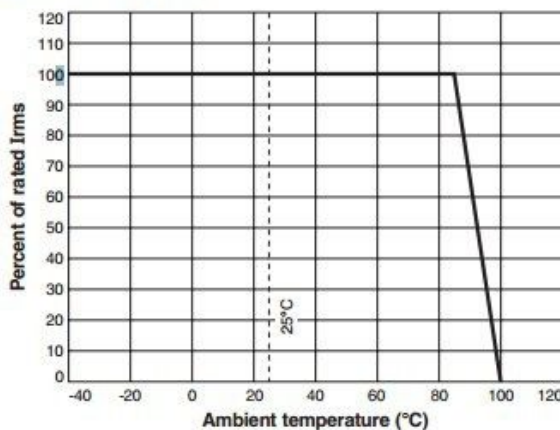
Typical L vs Frequency



Typical Q vs Frequency



Irms Derating



Designer's Kit C347 contains 10 each of all 5% values

Core material Ceramic/Ferrite

Environmental RoHS compliant, halogen free optional

Terminations RoHS compliant silver-palladium-platinum-glass frit.

Other terminations available at additional cost.

Weight 4.8 - 6.2mg

Ambient temperature - 40° C to +85° C with Irms current, +85° C to +100° C with derated current

Storage temperature Component: - 40° C to +100° C.

Tape and reel packaging: - 40° C to +80° C

Resistance to soldering heat Max three 40 second reflows at +260° C, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) +50 to +150 ppm/° C

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30° C / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

Packaging 2000 per 7" reel. Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.17 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf.

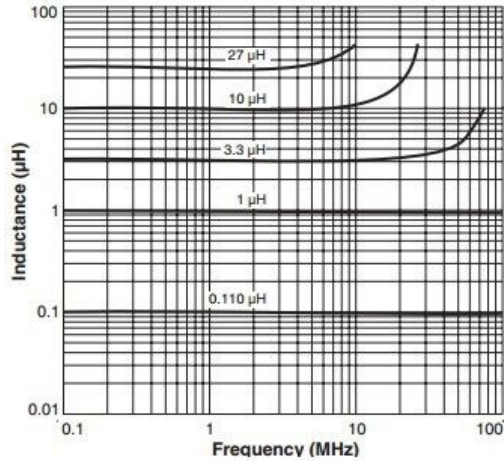
Electrical Characteristics D0805(2012) Series

These ferrite core surface mount inductors have lower DCR and higher current ratings than our 0805CS Series. They come in inductance values from 0.078 to 27 μ H.

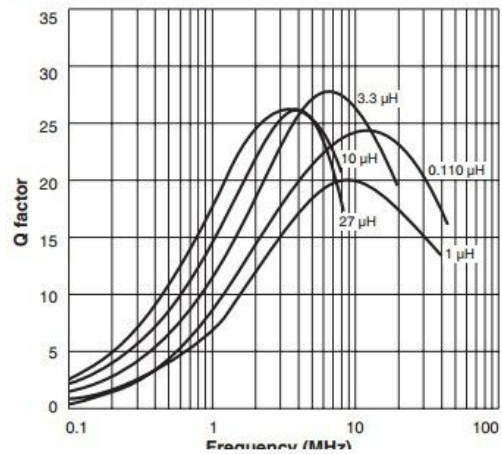
Part Number	Inductance	Tolerance (%)	Q (min)	SRF(MHz) (min)	DCR(Ω) (max)	IDC(mA) (max)	Test Freq
D0805LS-78N_	78 nH	5,10	19	1440	0.042	2000	7.9 MHz
D0805LS-111_	110 nH	5,10	19	1200	0.05	2000	7.9 MHz
D0805LS-471_	470 nH	5,10	19	500	0.31	720	7.9 MHz
D0805LS-681_	680 nH	5,10	20	400	0.46	590	7.9 MHz
D0805LS-102_	1000 nH	5,10	20	340	0.69	500	7.9 MHz
D0805LS-122_	1200 nH	5,10	15	280	1.2	400	7.9 MHz
D0805LS-152_	1500 nH	5,10	20	275	1.03	490	7.9 MHz
D0805LS-182_	1800 nH	5,10	20	246	1.15	410	7.9 MHz
D0805LS-222_	2200 nH	5,10	20	106	1.28	365	7.9 MHz
D0805LS-272_	2700 nH	5,10	20	105	1.48	350	7.9 MHz
D0805LS-332_	3300 nH	5,10	20	83	1.57	330	7.9 MHz
D0805LS-392_	3900 nH	5,10	20	52	1.7	300	7.9 MHz
D0805LS-472_	4700 nH	5,10	20	50	1.87	280	7.9 MHz
D0805LS-682_	6800 nH	5,10	20	35	2.25	260	7.9 MHz
D0805LS-822_	8200 nH	5,10	18	27	2.55	250	2.5 MHz
D0805LS-103_	10000 nH	5,10	18	21	3.45	200	2.5 MHz
D0805LS-153_	15000 nH	5,10	18	17	5.03	180	2.5 MHz
D0805LS-223_	22000 nH	5,10	18	13	6.18	150	2.5 MHz
D0805LS-273_	27000 nH	5,10	15	11	11.04	120	2.5 MHz

1. Inductance measured using a SMD-A fixture in an Agilent/HP 4286A impedance analyzer with provided correlation pieces.
2. Q measured on an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
3. SRF measured using an Agilent/HP 8753D network analyzer with a SMD-D test fixture.
4. DCR measured on a Cambridge Technology Micro-ohmmeter.
5. Current that causes a 15° C temperature rise from 25° C ambient. Because of their open construction, these parts will not saturate.
6. Electrical specifications at 25° C. Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

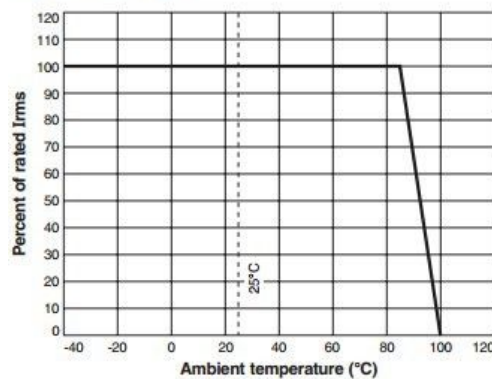
Typical L vs Frequency



Typical Q vs Frequency



Irms Derating



Core material Ceramic/Ferrite

Environmental RoHS compliant, halogen free optional

Terminations RoHS compliant silver-palladium-platinum-glass frit.

Other terminations available at additional cost.

Weight 12.7 - 13.9 mg

Ambient temperature - 40° C to +85° C with Irms current, +85° C to +100° C with derated current

Storage temperature Component: - 40° C to +100° C.

Tape and reel packaging: - 40° C to +80° C

Resistance to soldering heat Max three 40 second reflows at +260° C, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) +100 to +250 ppm/° C

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30° C / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

Packaging 2000/7" reel; Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.6 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf.



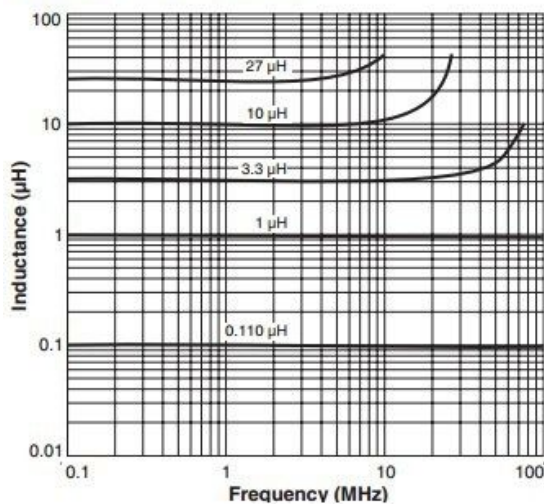
Electrical Characteristics D1008(2520) Series

- Lower DCR than other 1008 inductors
- Ferrite construction for high current handling
- Inductance values: 1.0 – 100 μ H

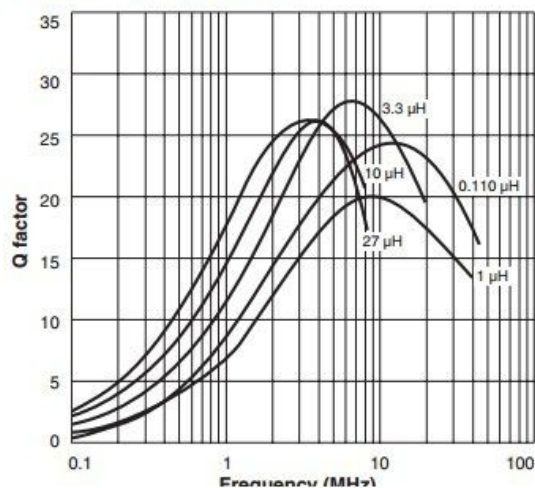
Part Number	Inductance	Tolerance (%)	Q (min)	SRF(MHz) (min)	DCR(Ω) (max)	IDC(mA) (max)	Test Freq
D1008LS-102J	1.00 μ H	5	48	230	0.62	700	7.9 MHz
D1008LS-122J	1.20 μ H	5	48	210	0.68	650	7.9 MHz
D1008LS-152J	1.50 μ H	5	41	190	0.76	630	7.9 MHz
D1008LS-182J	1.80 μ H	5	39	170	0.84	600	7.9 MHz
D1008LS-222J	2.20 μ H	5	34	150	1.1	520	7.9 MHz
D1008LS-272J	2.70 μ H	5	34	135	1.28	490	7.9 MHz
D1008LS-332J	3.30 μ H	5	32	120	1.46	450	7.9 MHz
D1008LS-432J	4.30 μ H	5	30	85	1.7	400	7.9 MHz
D1008LS-472J	4.70 μ H	5	31	90	1.68	400	7.9 MHz
D1008LS-502J	5.00 μ H	5	25	30	2.2	360	7.9 MHz
D1008LS-562J	5.60 μ H	5	31	80	1.82	380	7.9 MHz
D1008LS-622J	6.20 μ H	5	75	75	2.5	330	7.9 MHz
D1008LS-682J	6.80 μ H	5	31	70	2	360	7.9 MHz
D1008LS-822J	8.20 μ H	5	37	65	2.65	330	7.9 MHz
D1008LS-912J	9.10 μ H	5	37	57	2.9	310	7.9 MHz
D1008LS-103J	10 μ H	5	37	60	2.95	300	7.9 MHz
D1008LS-123J	12 μ H	5	28	38	3.3	290	2.5 MHz
D1008LS-153J	15 μ H	5	34	30	3.7	280	2.5 MHz
D1008LS-183J	18 μ H	5	28	26	4	160	2.5 MHz
D1008LS-223J	22 μ H	5	20	22	6.14	270	2.5 MHz
D1008LS-273J	27 μ H	5	24	12	6.45	210	2.5 MHz
D1008LS-333J	33 μ H	5	22	19	7	200	2.5 MHz
D1008LS-393J	39 μ H	5	33	26	10	170	2.5 MHz
D1008LS-473J	47 μ H	5	20	12	10.7	160	2.5 MHz
D1008LS-563J	56 μ H	5	20	8	10	170	2.5 MHz
D1008LS-683J	68 μ H	5	14	5.7	13.5	145	0.79 MHz
D1008LS-104J	100 μ H	5	13	4.5	20.5	120	0.79 MHz

1. Inductance measured using a SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.
2. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
3. SRF measured using an Agilent/HP 8753D network analyzer with a SMD-D fixture.
4. DCR measured on a Cambridge Technology Micro-ohmmeter.
5. Current that causes a 15° C temperature rise from 25° C. Because of their open construction, these parts will not saturate.
6. Current production parts are marked with one dot. Prior production parts were marked with three dots. Part marking does not indicate polarity.
7. Electrical specifications at 25° C. Refer to Doc 362 “Soldering Surface Mount Components” before soldering

Typical L vs Frequency



Typical Q vs Frequency



Designer's Kit C336 contains 10 of each stocked value

Core material Ceramic/Ferrite

Environmental RoHS compliant, halogen free optional

Terminations RoHS compliant silver-palladium-platinum-glass frit.

Other terminations available at additional cost.

Weight 38.3 - 41.0 mg

Ambient temperature -40°C to $+85^{\circ}\text{C}$ with Irms current, $+85^{\circ}\text{C}$ to $+100^{\circ}\text{C}$ with derated current

Storage temperature Component: -40°C to $+100^{\circ}\text{C}$.

Tape and reel packaging: -40°C to $+80^{\circ}\text{C}$

Resistance to soldering heat Max three 40 second reflows at $+260^{\circ}\text{C}$, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) $+100$ to $+350\text{ ppm}/^{\circ}\text{C}$

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at $<30^{\circ}\text{C}$ / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

Packaging 2000/7" reel Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 2.0 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf

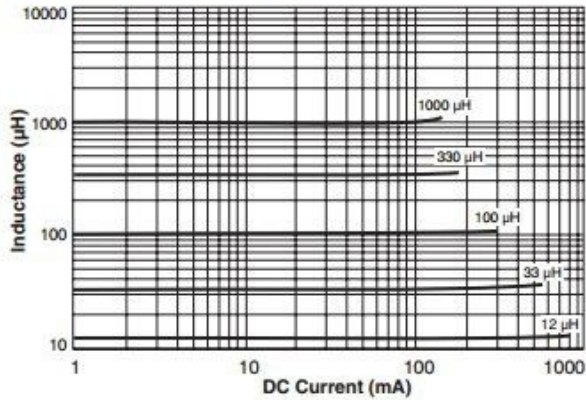
Electrical Characteristics D1812(4532) Series

- Highest inductance values of all our chip inductors
- Ferrite construction for high current handling
- Inductance values from 12 – 1000 μ H

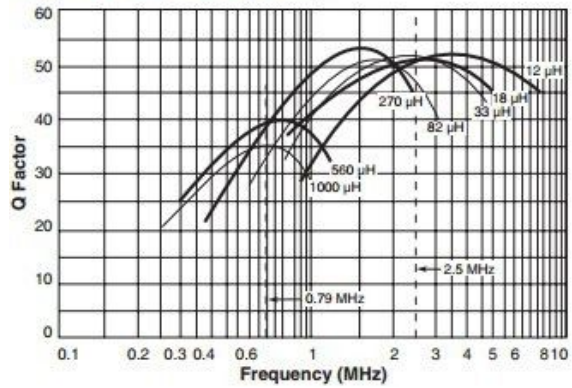
Part Number	Inductance	Tolerance (%)	Q (min)	SRF(MHz) (min)	DCR(Ω) (max)	IDC(mA) (max)	Test Freq
D1812LS-123J	12 μ H	5	42	85	2	310	2.5 MHz
D1812LS-153J	15 μ H	5	42	70	2.5	290	2.5 MHz
D1812LS-183J	18 μ H	5	45	52	2.8	270	2.5 MHz
D1812LS-223J	22 μ H	5	45	58	3.2	260	2.5 MHz
D1812LS-273J	27 μ H	5	45	46	3.6	240	2.5 MHz
D1812LS-333J	33 μ H	5	45	40	4	230	2.5 MHz
D1812LS-393J	39 μ H	5	45	30	4.5	210	2.5 MHz
D1812LS-473J	47 μ H	5	42	24	5	200	2.5 MHz
D1812LS-563J	56 μ H	5	42	20	5.5	190	2.5 MHz
D1812LS-683J	68 μ H	5	40	16	6	180	2.5 MHz
D1812LS-823J	82 μ H	5	40	13.5	7	170	2.5 MHz
D1812LS-104J	100 μ H	5	40	12	8	150	2.5 MHz
D1812LS-124J	120 μ H	5	33	14.5	11.5	135	2.5 MHz
D1812LS-154J	150 μ H	5	36	11.3	13	125	2.5 MHz
D1812LS-184J	180 μ H	5	36	9.3	14.2	120	2.5 MHz
D1812LS-224J	220 μ H	5	38	7.6	16.2	115	2.5 MHz
D1812LS-274J	270 μ H	5	38	8.3	20.5	105	2.5 MHz
D1812LS-334J	330 μ H	5	38	7	22.5	100	2.5 MHz
D1812LS-394J	390 μ H	5	38	5.2	24.5	90	2.5 MHz
D1812LS-474J	470 μ H	5	38	4.4	26.5	85	2.5 MHz
D1812LS-564J	560 μ H	5	33	2.8	28.5	75	2.5 MHz
D1812LS-684J	680 μ H	5	33	2.3	38	60	2.5 MHz
D1812LS-824J	820 μ H	5	30	2.1	41	55	2.5 MHz
D1812LS-105J	1000 μ H	5	30	1.9	44	50	2.5 MHz

1. Inductance at 2.5 MHz measured using an Agilent/HP 4286A and a SMD-A fixture with provided correlation pieces. Inductance at 0.79 MHz measured using an Agilent/HP 4192A and Coilcraft SMD-B test fixture.
2. Q read at test frequency directly on an Agilent/HP 4192A LF impedance analyzer and a SMD-B test fixture.
3. SRF measured using an Agilent/HP 8753D network analyzer and a SMD-D test fixture.
4. DCR measured on a Cambridge Technology micro-ohmmeter.
5. Current that causes a 15° C temperature rise from 25° C ambient. Because of their open construction, these parts will not saturate.
6. Electrical specifications at 25° C. Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

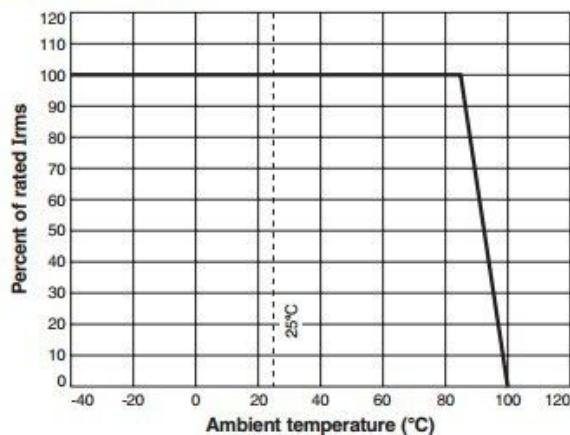
Typical L vs Current



Typical Q vs Frequency



Irms Derating



Designer's Kit C314 contains 10 of each value

Core material Ferrite

Terminations RoHS compliant silver-palladium-platinum-glass frit.

Other terminations available at additional cost.

Weight 142 - 171 mg

Ambient temperature - 40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ with I_{rms} current, +85 $^{\circ}\text{C}$ to +100 $^{\circ}\text{C}$ with derated current

Storage temperature Component: - 40 $^{\circ}\text{C}$ to +100 $^{\circ}\text{C}$.

Tape and reel packaging: - 40 $^{\circ}\text{C}$ to +80 $^{\circ}\text{C}$

Resistance to soldering heat Max three 40 second reflows at +260 $^{\circ}\text{C}$, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) +200 to +700 ppm/ $^{\circ}\text{C}$

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30 $^{\circ}\text{C}$ / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

Packaging 600/7" reel; 2200/13" reel. Plastic tape: 12 mm wide, 0.3 mm thick, 8 mm pocket spacing, 3.7 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf