

Lead-free / For RF Signals



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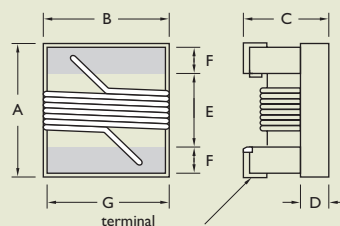
Internal No.
Tolerance
Inductance
Dimensions
Product Symbol

- ## RECOMMENDED PATTERN

The diagram illustrates a 'Pad Layout' for a PCB. It shows a central rectangular area labeled 'Pad Layout'. Above this area is a horizontal dimension line labeled 'A'. To the right of the 'Pad Layout' area is a vertical dimension line labeled 'C'. Below the 'Pad Layout' area is another horizontal dimension line labeled 'A'. To the right of the bottom horizontal line is a vertical dimension line labeled 'B'. The entire layout is enclosed in a rectangular border.

TYPE	A	B	C
CS0402	0.66	0.36	0.46
CS0603	1.02	0.64	0.64
CS0805	1.78	1.02	0.76
CS1008	2.54	1.02	1.27

SHAPES AND DIMENSIONS



TYPE	A	B	C	D	E	F	G
CS0402	1.19 ⁺⁰	0.7 ⁺⁰	0.66 ⁺⁰	0.25Ref	0.56	0.23	0.51
CS0603	1.80 ⁺⁰	1.12 ⁺⁰	1.02 ⁺⁰	0.35Ref	0.86	0.33	0.76
CS0805	2.29 ⁺⁰	1.73 ⁺⁰	1.52 ⁺⁰	0.50Ref	1.02	0.44	1.27
CS1008	2.92 ⁺⁰	2.79 ⁺⁰	2.03 ⁺⁰	0.70Ref	1.52	0.51	2.03



ELECTRICAL CHARACTERISTICS : LEAD-FREE & ROHS COMPLIANCE

PART NO.	Inductance	Tolerance	900MHz				SRF Min	RDC MAX	Irms Max
	(nH)	(±%)	Min	L typ	Q typ	L typ	Q typ	(GHz)	(mA)
CS0402-1N0 □ -N	1.0	10/5	16	1.02	77	1.02	69	12.70	0.045
CS0402-1N9 □ -N	1.9	10/5	16	1.72	68	1.74	82	11.30	0.070
CS0402-2N0 □ -N	2.0	10/5	16	1.93	54	1.93	75	11.10	0.070
CS0402-2N2 □ -N	2.2	10/5	19	2.19	59	2.23	100	10.80	0.070
CS0402-2N4 □ -N	2.4	10/5	15	2.24	51	2.27	68	10.50	0.068
CS0402-2N7 □ -N	2.7	10/5	16	2.58	42	2.60	61	10.40	0.120
CS0402-3N3 □ -N	3.3	10/5	19	3.10	65	3.12	87	7.00	0.066
CS0402-3N6 □ -N	3.6	10/5	19	3.56	45	3.62	71	6.80	0.066
CS0402-3N9 □ -N	3.9	10/5	19	3.89	50	4.00	75	6.00	0.066
CS0402-4N3 □ -N	4.3	10/5	18	4.19	47	4.30	71	6.00	0.091
CS0402-4N7 □ -N	4.7	10/5	15	4.55	48	4.68	68	4.77	0.130
CS0402-5N1 □ -N	5.1	10/5	20	5.15	56	5.25	82	4.80	0.083
CS0402-5N6 □ -N	5.6	10/5	20	5.16	54	5.28	81	4.80	0.083
CS0402-6N2 □ -N	6.2	10/5	20	6.16	52	6.37	76	4.80	0.083
CS0402-6N8 □ -N	6.8	10/5	20	6.56	63	6.93	78	4.80	0.083
CS0402-7N5 □ -N	7.5	10/5	22	7.91	60	8.22	88	4.80	0.10
CS0402-8N2 □ -N	8.2	10/5	22	8.50	57	8.85	84	4.40	0.10
CS0402-8N7 □ -N	8.7	10/5	18	8.78	54	9.21	73	4.10	0.20
CS0402-9N0 □ -N	9.0	10/5	22	9.07	62	9.53	78	4.16	0.10
CS0402-9N5 □ -N	9.5	10/5	18	9.42	54	9.98	69	4.00	0.20
CS0402-10N □ -N	10.0	10/5	21	9.8	50	10.10	67	3.90	0.20
CS0402-11N □ -N	11.0	10/5	24	10.7	52	11.20	78	3.68	0.12
CS0402-12N □ -N	12.0	10/5	24	11.9	53	12.70	71	3.60	0.12
CS0402-13N □ -N	13.0	10/5	24	13.4	51	14.63	57	3.45	0.21
CS0402-15N □ -N	15.0	10/5	24	14.6	55	15.50	77	3.28	0.17
CS0402-16N □ -N	16.0	10/5	24	16.6	46	18.86	47	3.10	0.22
CS0402-18N □ -N	18.0	10/5	25	18.3	57	20.28	62	3.10	0.23
CS0402-19N □ -N	19.0	10/5	24	19.1	50	21.10	67	3.04	0.20
CS0402-20N □ -N	20.0	10/5	25	20.7	52	23.66	53	3.00	0.25
CS0402-22N □ -N	22.0	10/5	25	23.2	53	26.75	53	2.80	0.30
CS0402-23N □ -N	23.0	10/5	22	23.8	49	26.90	64	2.72	0.30
CS0402-24N □ -N	24.0	10/5	25	25.1	51	29.50	50	2.70	0.30
CS0402-27N □ -N	27.0	10/5	24	28.7	49	33.50	63	2.48	0.30
CS0402-30N □ -N	30.0	10/5	25	31.1	46	38.50	39	2.35	0.30
CS0402-33N □ -N	33.0	10/5	24	34.9	31	41.74	32	2.35	0.40
CS0402-36N □ -N	36.0	10/5	24	39.5	44	48.40	53	2.32	0.44
CS0402-39N □ -N	39.0	10/5	25	41.7	47	50.23	45	2.10	0.55
CS0402-40N □ -N	40.0	10/5	24	39.0	44	47.40	33	2.24	0.44
CS0402-43N □ -N	43.0	10/5	25	45.8	46	61.55	34	2.03	0.81
CS0402-47N □ -N	47.0	10/5	20	50.0	38	-	-	2.10	0.83
CS0402-51N □ -N	51.0	10/5	25	56.6	40	-	-	1.75	0.82
CS0402-56N □ -N	56.0	10/5	22	62.8	42	-	-	1.76	0.97
CS0402-68N □ -N	68.0	10/5	22	78.2	36	-	-	1.62	1.12
CS0402-82N □ -N	82.0	10/5	20	-	-	-	-	1.26	1.55
CS0402-R10 □ -N	100.0	10/5	20	-	-	-	-	1.16	2.00

1. When ordering, please specify tolerance and packaging code. Ex : CS0402-10NJ-N

Tolerance : G = ±2% , J = ±5% , K = ±10% , M = ±20% Packaging : Clear Tape and Reel (Standard)

2. L, Q : Agilent / HP4291A+Agilent / HP16193A @250MHz

3. SRF : Agilent/HP8753D / Agilent/HP8722ES

4. RDC : Digital Multimeter SC-7401

5. I_{rms} for a 15°C rise above 25°C ambient



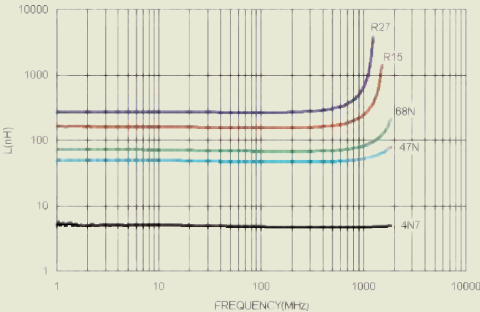
ELECTRICAL CHARACTERISTICS CS0603 SERIES : LEAD-FREE & ROHS COMPLIANCE

PART NO.	INDUCTANCE (nH)	TOLERANCE (±%)	TEST FREQUENCY (MHz)	Q Min.	SRF (MHz) Min.	DC RESISTANCE (Ω) Max.	RATED CURRENT (mA) Max.	900MHz		1.7 GHz		COLOR CODING
								L TYPE	Q TYPE	L TYPE	Q TYPE	
CS0603-1N6 □-N	1.6	10/5	250	24	12500	0.030	700	1.67	49	1.65	63	Red
CS0603-1N8 □-N	1.8	10/5	250	16	12500	0.045	700	1.63	35	1.66	50	Black
CS0603-3N6 □-N	3.6	10/5	250	22	5900	0.063	700	3.72	53	3.71	65	Red
CS0603-3N9 □-N	3.9	10/5	250	22	6900	0.080	700	3.95	49	3.96	67	Brown
CS0603-4N3 □-N	4.3	10/5	250	22	5900	0.063	700	4.32	50	4.33	70	Orange
CS0603-4N7 □-N	4.7	10/5	250	20	5800	0.116	700	4.72	47	4.75	57	Violet
CS0603-5N1 □-N	5.1	10/5	250	20	5700	0.140	700	4.93	47	4.95	56	Green
CS0603-5N6 □-N	5.6	10/5	250	20	5800	0.170	700	5.53	56	5.86	77	Yellow
CS0603-6N3 □-N	6.3	10/5	250	20	5700	0.140	700	5.5	47	6.1	60	White
CS0603-6N8 □-N	6.8	10/5	250	27	5800	0.110	700	6.75	60	7.1	81	Red
CS0603-7N5 □-N	7.5	10/5	250	28	4800	0.106	700	7.70	60	7.82	65	Brown
CS0603-8N2 □-N	8.2	10/5	250	28	4700	0.109	700	8.30	60	8.50	60	White
CS0603-8N7 □-N	8.7	10/5	250	28	4600	0.109	700	8.86	62	9.32	58	Yellow
CS0603-9N5 □-N	9.5	10/5	250	28	5400	0.135	700	9.70	59	9.92	61	Blue
CS0603-10N □-N	10	10/5/2	250	31	4800	0.130	700	10	66	10.6	83	Orange
CS0603-11N □-N	11	10/5/2	250	33	4000	0.086	700	11	53	11.5	56	Gray
CS0603-12N □-N	12	10/5/2	250	35	4000	0.130	700	12.3	72	13.5	83	Yellow
CS0603-15N □-N	15	10/5/2	250	35	4000	0.170	700	15.4	64	16.8	89	Green
CS0603-16N □-N	16	10/5/2	250	34	3300	0.104	700	16.2	55	17.3	52	White
CS0603-18N □-N	18	10/5/2	250	35	3100	0.170	700	18.7	70	21.4	69	Blue
CS0603-22N □-N	22	10/5/2	250	38	3000	0.190	700	22.8	73	26.1	71	Violet
CS0603-24N □-N	24	10/5/2	250	37	2650	0.135	700	24.5	45	28.7	39	Black
CS0603-27N □-N	27	10/5/2	250	40	2800	0.220	600	29.2	74	34.6	65	Gray
CS0603-30N □-N	30	10/5/2	250	37	2250	0.144	600	31.4	47	39.9	28	Brown
CS0603-33N □-N	33	10/5/2	250	40	2300	0.220	600	36	67	49.5	42	White
CS0603-36N □-N	36	10/5/2	250	38	2080	0.250	600	39.4	47	52.7	24	Red
CS0603-39N □-N	39	10/5/2	250	40	2200	0.250	600	42.7	60	60.2	40	Black
CS0603-43N □-N	43	10/5/2	250	39	2000	0.280	600	47	44	64.9	21	Orange
CS0603-47N □-N	47	10/5/2	200	38	2000	0.280	600	52.2	62	77.2	35	Brown
CS0603-56N □-N	56	10/5/2	200	38	1900	0.310	600	62.5	56	97	26	Red
CS0603-68N □-N	68	10/5/2	200	37	1700	0.340	600	80.5	54	168	21	Orange
CS0603-72N □-N	72	10/5/2	150	34	1700	0.490	400	82	53	135	20	Yellow
CS0603-82N □-N	82	10/5/2	150	34	1700	0.540	400	96.2	54	177	21	Green
CS0603-R10 □-N	100	10/5/2	150	34	1400	0.580	400	124	49	-	-	Blue
CS0603-R11 □-N	110	10/5/2	150	32	1350	0.610	300	138	43	-	-	Violet
CS0603-R12 □-N	120	10/5/2	150	32	1300	0.750	300	166	39	-	-	Gray
CS0603-R15 □-N	150	10/5/2	150	28	990	0.920	280	250	25	-	-	White
CS0603-R18 □-N	180	10/5/2	100	25	990	1.250	240	305	22	-	-	Black
CS0603-R22 □-N	220	10/5/2	100	25	900	2.100	200	-	-	-	-	Brown
CS0603-R27 □-N	270	10/5/2	100	24	900	2.300	170	-	-	-	-	Red
CS0603-R33 □-N	330	10/5/2	100	25	900	3.890	100	-	-	-	-	Orange
CS0603-R39 □-N	390	10/5/2	100	25	700	4.350	100	-	-	-	-	Yellow

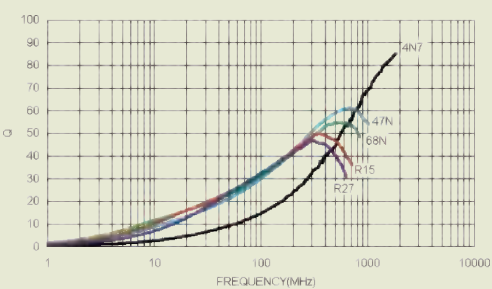
- When ordering, please specify tolerance and packaging code. Ex : CS0603-R12J -N
 - Packaging : Clear Tape and Reel (Standard)
 - SRF : HP8753D / HP4291A
 - Irms for a 15°C rise above 25°C ambient.
- Tolerance : G = ±2% , J = ±5% , K = ±10%
 - L, Q : Agilent / HP4291A + Agilent / HP16193A
 - RDC : CH502BC HP4338B
 - Operating Temperature Range from -40°C to 125°C

TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs. Frequency



Typical Q vs. Frequency





ELECTRICAL CHARACTERISTICS CS0805 SERIES : LEAD-FREE & ROHS COMPLIANCE

PART NO.	INDUCTANCE (nH)	TOLERANCE (±%)	TEST FREQUENCY (MHz)	Q Min.	TEST FREQUENCY (MHz)	SRF (MHz) Min.	DC RESISTANCE (Ω) Max.	RATED CURRENT (mA) Max.	COLOR CODING
CS0805-2N8 □ -N	2.8	10/5	250	80	1500	7900	0.06	800	Gray
CS0805-3N0 □ -N	3.0	10/5	250	65	1500	7900	0.06	800	White
CS0805-3N3 □ -N	3.3	10/5	250	50	1500	7900	0.08	600	Black
CS0805-5N6 □ -N	5.6	10/5	250	65	1000	5500	0.08	600	Orange
CS0805-6N8 □ -N	6.8	10/5	250	50	1000	5500	0.11	600	Brown
CS0805-7N5 □ -N	7.5	10/5	250	50	1000	4500	0.14	600	Green
CS0805-8N2 □ -N	8.2	10/5	250	50	1000	4700	0.12	600	Red
CS0805-12N □ -N	12	10/5/2	250	50	500	4000	0.15	600	Orange
CS0805-15N □ -N	15	10/5/2	250	50	500	3400	0.17	600	Yellow
CS0805-18N □ -N	18	10/5/2	250	50	500	3300	0.20	600	Green
CS0805-22N □ -N	22	10/5/2	250	55	500	2600	0.22	500	Blue
CS0805-24N □ -N	24	10/5/2	250	50	500	2000	0.22	500	Gray
CS0805-27N □ -N	27	10/5/2	250	55	500	2500	0.25	500	Violet
CS0805-33N □ -N	33	10/5/2	250	60	500	2050	0.27	500	Gray
CS0805-36N □ -N	36	10/5/2	250	55	500	1700	0.27	500	Orange
CS0805-39N □ -N	39	10/5/2	250	60	500	2000	0.29	500	White
CS0805-43N □ -N	43	10/5/2	200	60	500	1650	0.34	500	Yellow
CS0805-47N □ -N	47	10/5/2	200	60	500	1650	0.31	500	Black
CS0805-56N □ -N	56	10/5/2	200	60	500	1550	0.34	500	Brown
CS0805-68N □ -N	68	10/5/2	200	60	500	1450	0.38	500	Red
CS0805-82N □ -N	82	10/5/2	150	65	500	1300	0.42	400	Orange
CS0805-91N □ -N	91	10/5/2	150	65	500	1200	0.48	400	Black
CS0805-R10 □ -N	100	10/5/2	150	65	500	1200	0.46	400	Yellow
CS0805-R11 □ -N	110	10/5/2	150	50	250	1000	0.48	400	Brown
CS0805-R12 □ -N	120	10/5/2	150	50	250	1100	0.51	400	Green
CS0805-R15 □ -N	150	10/5/2	100	50	250	920	0.56	400	Blue
CS0805-R18 □ -N	180	10/5/2	100	50	250	870	0.64	400	Violet
CS0805-R20 □ -N	200	10/5/2	100	50	250	860	0.68	400	Red
CS0805-R22 □ -N	220	10/5/2	100	50	250	850	0.70	400	Gray
CS0805-R24 □ -N	240	10/5/2	100	44	250	690	1.00	350	Red
CS0805-R25 □ -N	250	10/5/2	100	45	250	660	1.20	350	Yellow
CS0805-R27 □ -N	270	10/5/2	100	48	250	650	1.00	350	White
CS0805-R33 □ -N	330	10/5/2	100	48	250	600	1.40	310	Black
CS0805-R39 □ -N	390	10/5/2	100	48	250	560	1.50	290	Brown
CS0805-R47 □ -N	470	10/5/2	50	33	100	375	1.76	250	Violet
CS0805-R56 □ -N	560	10/5/2	25	23	50	340	1.90	230	Orange
CS0805-R62 □ -N	620	10/5/2	25	23	50	220	2.20	210	White
CS0805-R68 □ -N	680	10/5/2	25	23	50	188	2.20	190	Green
CS0805-R82 □ -N	820	10/5/2	25	23	50	215	2.35	180	Blue
CS0805-1R0 □ -N	1000	10/5/2	25	20	50	100	2.50	170	Violet

• When ordering, please specify tolerance and packaging code. Ex : CS0805-R12J -N

• Packaging : Clear Tape and Reel (Standard)

• SRF : HP8753D / HP4291A

• Irms for a 15°C rise above 25°C ambient.

• Tolerance : G = ±2% , J = ±5% , K = ±10% ,

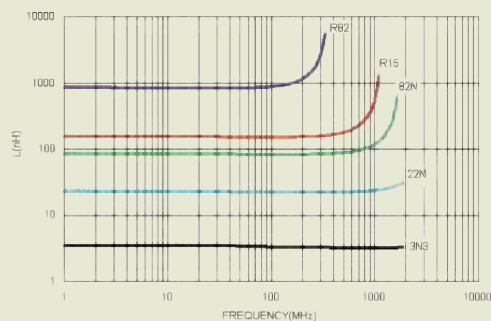
• L, Q : Agilent / HP4291A + Agilent / HP16193A

• RDC : CH502BC HP4338B

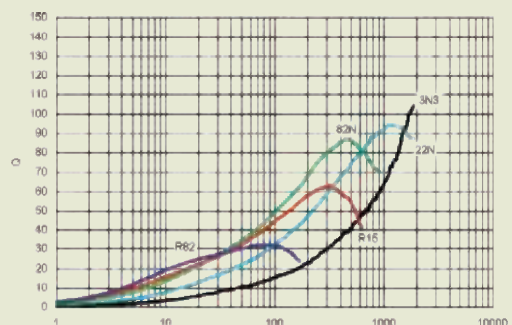
• Operating Temperature Range from -40°C to 125°C

TEST INSTRUMENTS : HP4291A MATERIAL / IMPEDANCE ANALYZER

Typical L vs Frequency



Typical Q vs Frequency

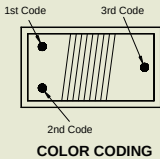




ELECTRICAL CHARACTERISTICS CSI008 SERIES : LEAD-FREE & ROHS COMPLIANCE

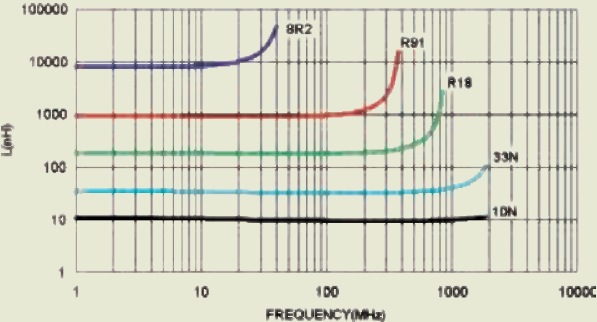
PART NO.	INDUCTANCE (nH)	TOLERANCE (±%)	TEST FREQUENCY (MHz)	Q Min.	TEST FREQUENCY (MHz)	SRF (MHz) Min.	DC RESISTANCE (Ω) Max.	RATED CURRENT (mA) Max.	COLOR CODING		
									1 st	2 nd	3 rd
CSI008-10N □ -N	10	10/5/2	50	50	500	4100	0.08	1000	Brown	Black	Black
CSI008-12N □ -N	12	10/5/2	50	50	500	3300	0.09	1000	Brown	Red	Black
CSI008-15N □ -N	15	10/5/2	50	50	500	2500	0.10	1000	Brown	Green	Black
CSI008-18N □ -N	18	10/5/2	50	50	350	2500	0.11	1000	Brown	Gray	Black
CSI008-22N □ -N	22	10/5/2	50	55	350	2400	0.12	1000	Red	Red	Black
CSI008-27N □ -N	27	10/5/2	50	55	350	1600	0.13	1000	Red	Violet	Black
CSI008-33N □ -N	33	10/5/2	50	60	350	1600	0.14	1000	Orange	Orange	Black
CSI008-39N □ -N	39	10/5/2	50	60	350	1500	0.15	1000	Orange	White	Black
CSI008-47N □ -N	47	10/5/2	50	65	350	1500	0.16	1000	Yellow	Violet	Black
CSI008-56N □ -N	56	10/5/2	50	65	350	1300	0.18	1000	Green	Blue	Black
CSI008-68N □ -N	68	10/5/2	50	65	350	1300	0.20	1000	Blue	Gray	Black
CSI008-82N □ -N	82	10/5/2	50	60	350	1000	0.22	1000	Gray	Red	Black
CSI008-R10 □ -N	100	10/5/2	25	60	350	1000	0.56	650	Brown	Black	Brown
CSI008-R12 □ -N	120	10/5/2	25	60	350	950	0.63	650	Brown	Red	Brown
CSI008-R15 □ -N	150	10/5/2	25	45	100	850	0.70	580	Brown	Green	Brown
CSI008-R18 □ -N	180	10/5/2	25	45	100	750	0.77	620	Brown	Gray	Brown
CSI008-R22 □ -N	220	10/5/2	25	45	100	700	0.84	500	Red	Red	Brown
CSI008-R27 □ -N	270	10/5/2	25	45	100	600	0.91	500	Red	Violet	Brown
CSI008-R33 □ -N	330	10/5/2	25	45	100	570	1.05	450	Orange	Orange	Brown
CSI008-R39 □ -N	390	10/5/2	25	45	100	500	1.12	470	Orange	White	Brown
CSI008-R47 □ -N	470	10/5/2	25	45	100	450	1.19	470	Yellow	Violet	Brown
CSI008-R56 □ -N	560	10/5/2	25	45	100	415	1.33	400	Green	Blue	Brown
CSI008-R62 □ -N	620	10/5/2	25	45	100	375	1.40	300	Blue	Red	Brown
CSI008-R68 □ -N	680	10/5/2	25	45	100	375	1.47	400	Blue	Gray	Brown
CSI008-R75 □ -N	750	10/5/2	25	45	100	360	1.54	360	Violet	Green	Brown
CSI008-R82 □ -N	820	10/5/2	25	45	100	350	1.61	400	Gray	Red	Brown
CSI008-R91 □ -N	910	10/5/2	25	35	50	320	1.68	380	White	Brown	Brown
CSI008-1R0 □ -N	1000	10/5/2	25	35	50	290	1.75	370	Brown	Black	Red
CSI008-1R2 □ -N	1200	10/5/2	7.9	35	50	250	2.0	310	Brown	Red	Red
CSI008-1R5 □ -N	1500	10/5/2	7.9	28	50	200	2.3	330	Brown	Green	Red
CSI008-1R8 □ -N	1800	10/5/2	7.9	28	50	160	2.6	300	Brown	Gray	Red
CSI008-2R2 □ -N	2200	10/5/2	7.9	28	50	160	2.8	280	Red	Red	Red
CSI008-2R7 □ -N	2700	10/5/2	7.9	22	25	140	3.2	290	Red	Violet	Red
CSI008-3R3 □ -N	3300	10/5/2	7.9	22	25	110	3.4	290	Orange	Orange	Red
CSI008-3R9 □ -N	3900	10/5/2	7.9	20	25	100	3.6	260	Orange	White	Red
CSI008-4R7 □ -N	4700	10/5/2	7.9	20	25	90	4.0	260	Yellow	Violet	Red
CSI008-5R6 □ -N	5600	10/5/2	7.9	18	7.9	45	4.0	240	Green	Blue	Red
CSI008-6R8 □ -N	6800	10/5/2	7.9	18	7.9	40	4.9	200	Blue	Gray	Red
CSI008-8R2 □ -N	8200	10/5/2	7.9	18	7.9	25	6.0	170	Gray	Red	Red
CSI008-100 □ -N	10000	10/5/2	7.9	18	7.9	25	8.0	150	Brown	Black	Orange

- When ordering, please specify tolerance and packaging code. Ex : CS0805-R12J -N
 - Packaging : Clear Tape and Reel (Standard)
 - SRF : HP8753D / HP4291A
 - Irms for a 15°C rise above 25°C ambient.
- Tolerance : G = ±2% , J = ±5% , K = ±10% ,
 - L, Q : Agilent / HP4291A + Agilent / HP16193A
 - RDC : CH502BC HP4338B
 - Operating Temperature Range from -40°C to 125°C

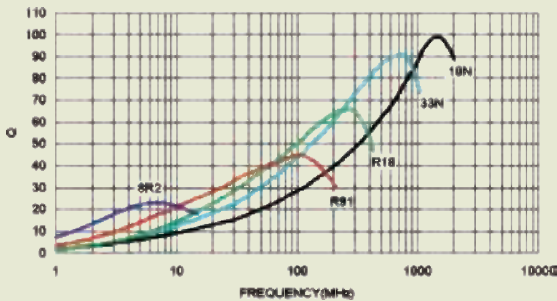


TEST INSTRUMENTS : HP4291A IMPEDANCE / MATERIAL ANALYZER

Typical L vs Frequency



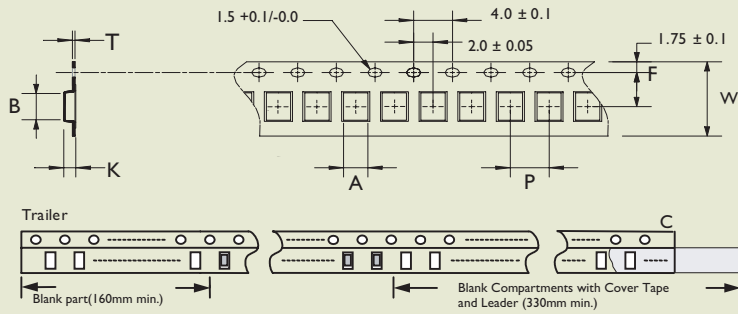
Typical Q vs Frequency



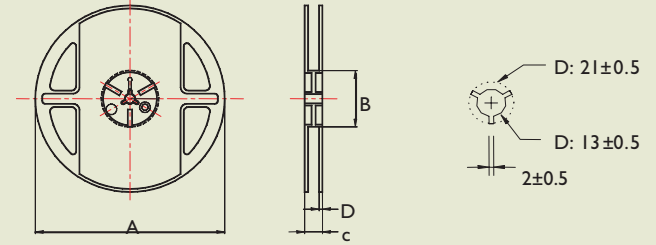


PACKAGING SPECIFICATIONS

Tape Dimensions



Reel Dimensions



Dimensions : mm

TYPE	TAPE DIMENSIONS							REEL DIMENSIONS				QUANTITY/REEL
	A	B	T	W	P	F	K	A	B	C	D	
CS0402	0.7	1.2	0.23	8	4	3.5	0.62	178	60	12	1.5	4000
CS0603	1.15	1.83	0.23	8	4	3.5	1.00	178	60	12	1.5	4000
CS0805	1.85	2.45	0.23	8	4	3.5	1.45	178	60	12	1.5	2000
CS1008	2.70	2.95	0.23	8	4	3.5	2.25	178	60	12	1.5	2000

RECOMMEND SOLDERING CONDITIONS

for:CS/ CT/ LCN/ HC/ HQ/ CMM/ NL (open type)/ NLC (open type)/ LS

