

1. WTI Series (Ceramic Type)

Range of Size: (0402(1005)~1008(2520))

Test Equipment: **HP4286, E4982A** - For "Inductance" & "Q"

HP4286 & E4982A - For "SRF"

HP4287A, GOM-801G & 502BC - For "DCR"

Operating Temperature: -40 ~+125



Applications

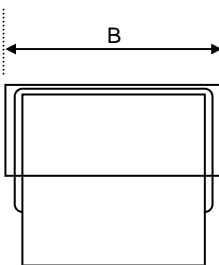
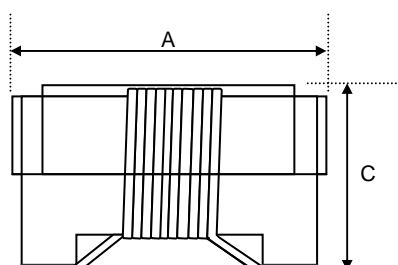
- > Cordless (DECT/CT1CT2) & Cellular (CDMA/GSM/PHS) Phone.
- > Remote control, wireless security system.
- > WLL, Wireless LAN / Mouse / Keyboard / Earphone.
- > GPS receiver.
- > VCO, RF Module & other wireless products.
- > CATV Filter, Tuner.
- > Cable Modem / XDSL Tuner.
- > Set Top Box.

Features

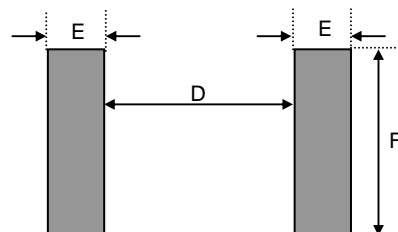
- > Wirewound ceramic construction provide high SRF.
- > Ultra compact inductors provide exceptional Q values.
- > Low Profile, high Q are available.
- > Outstanding endurance from Pull-up force, mechanical shock and pressure.
- > Smaller size of 0402(1005) & tighter tolerance down to +/- 2%.

General Dimensions and Configuration

SHAPE:



PCB PATTERN



DIMENSIONS:

SERIES	A (m/m) (Max.)	B (m/m) (Max.)	C (m/m) (Max.)	D (m/m)	E (m/m)	F (m/m)
WTI-0402VQ	1.27	0.76	0.61	0.46	0.50	0.66
WTI-0603VQ	1.80	1.12	1.02	0.64	0.64	1.02
WTI-0805VQ	2.29	1.73	1.52	0.76	1.02	1.78
WTI-1008VQ	2.92	2.79	2.13	1.27	1.27	2.54

1. WTI Series (Ceramic Type)

Range of Size: (0402(1005)~1008(2520))

Test Equipment: **HP4286, 4287A & 4291B** - For "Inductance" & "Q"

HP4287A & 8753E - For "SRF"

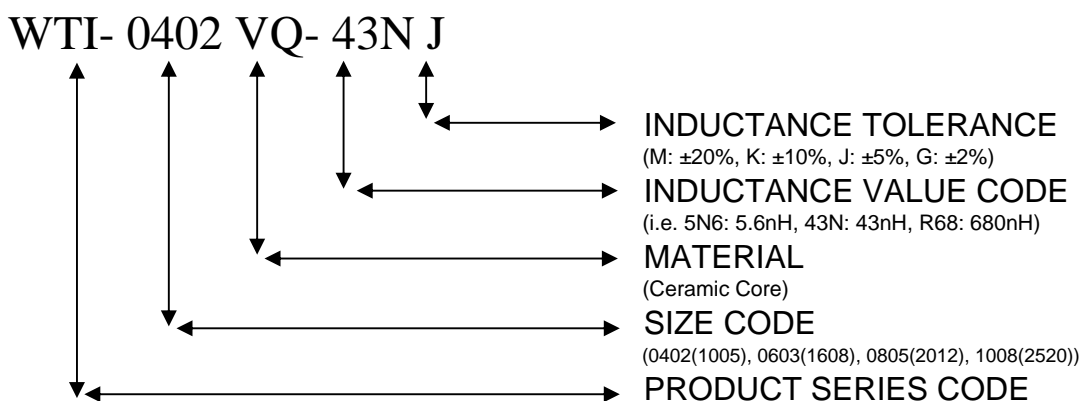
HP4287A, GOM-801G & 502BC - For "DCR"

Operating Temperature : -40 ~+125

Inductance, SRF, Q and Rated Current ranges

SERIES	Inductance (nH)	SRF (Min.) (GHz)	Q (Min.)	I (Rated) (mA)
WTI-0402VQ	1.00~68	12.700~1.620	15~25	1360~100
WTI-0603VQ	1.80~390	16.000~0.880	13~50	2100~170
WTI-0805VQ	2.70~4700	7.900~0.188	15~65	600~90
WTI-1008VQ	10.00~3900	4.100~0.100	20~65	1000~260

Part Numbering Systems



(V) WIRE WOUND CHIP INDUCTORS

Tri-Tron

1. WTI Series (Size: 0402 (1005))

WTI-0402VQ Wire Wound Chip Inductors / High Q Type

Inductance (nH)	Tolerance	L Freq. (MHz)	Quality Factor		SRF (GHz) min.	DCR (Ω) max.	IDC (mA) max.
			900MHz	1.7GHz			
1.0	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	46	75	16.0	0.030	2300
2.0	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	58	85	15.2	0.038	2100
2.2	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	60	86	15.1	0.038	2100
2.4	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	60	83	14.0	0.042	2000
2.7	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	62	85	13.0	0.075	1500
3.3	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	66	95	12.8	0.045	1700
3.6	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	65	94	11.7	0.045	1700
3.9	$\pm 0.2\text{nH}, \pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	64	98	9.50	0.045	1700
4.3	$\pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	63	90	7.15	0.050	1600
4.7	$\pm 0.5\text{nH}, \pm 5\%, \pm 10\%$	250	58	83	6.85	0.070	1500
5.1	$\pm 2\%, \pm 5\%, \pm 10\%$	250	54	76	6.80	0.115	1200
5.6	$\pm 2\%, \pm 5\%, \pm 10\%$	250	73	105	6.50	0.050	1600
6.2	$\pm 2\%, \pm 5\%, \pm 10\%$	250	73	100	5.80	0.055	1600
6.8	$\pm 2\%, \pm 5\%, \pm 10\%$	250	68	94	5.80	0.065	1500
7.5	$\pm 2\%, \pm 5\%, \pm 10\%$	250	60	82	5.40	0.090	1400
8.2	$\pm 2\%, \pm 5\%, \pm 10\%$	250	68	95	5.40	0.065	1500
8.7	$\pm 2\%, \pm 5\%, \pm 10\%$	250	68	95	5.00	0.065	1500
9.0	$\pm 2\%, \pm 5\%, \pm 10\%$	250	67	92	5.00	0.080	1400
9.5	$\pm 2\%, \pm 5\%, \pm 10\%$	250	64	90	4.70	0.090	1400
10	$\pm 2\%, \pm 5\%, \pm 10\%$	250	62	90	4.70	0.100	1300
11	$\pm 2\%, \pm 5\%, \pm 10\%$	250	68	98	4.70	0.065	1400
12	$\pm 2\%, \pm 5\%, \pm 10\%$	250	66	100	4.40	0.100	1200
13	$\pm 2\%, \pm 5\%, \pm 10\%$	250	62	82	4.20	0.150	870
15	$\pm 2\%, \pm 5\%, \pm 10\%$	250	62	85	3.90	0.110	1100
16	$\pm 2\%, \pm 5\%, \pm 10\%$	250	57	77	3.70	0.140	850
18	$\pm 2\%, \pm 5\%, \pm 10\%$	250	58	74	3.55	0.120	900
19	$\pm 2\%, \pm 5\%, \pm 10\%$	250	61	88	3.50	0.145	850
20	$\pm 2\%, \pm 5\%, \pm 10\%$	250	58	76	3.50	0.185	780
21	$\pm 2\%, \pm 5\%, \pm 10\%$	250	48	62	1.70	0.460	450
22	$\pm 2\%, \pm 5\%, \pm 10\%$	250	60	74	3.30	0.160	800
23	$\pm 2\%, \pm 5\%, \pm 10\%$	250	60	77	3.30	0.160	800
24	$\pm 2\%, \pm 5\%, \pm 10\%$	250	55	71	3.15	0.200	700
25	$\pm 2\%, \pm 5\%, \pm 10\%$	250	57	73	3.15	0.250	600
26	$\pm 2\%, \pm 5\%, \pm 10\%$	250	56	74	3.15	0.285	450
27	$\pm 2\%, \pm 5\%, \pm 10\%$	250	62	86	3.20	0.320	450
30	$\pm 2\%, \pm 5\%, \pm 10\%$	250	61	87	2.90	0.330	450
33	$\pm 2\%, \pm 5\%, \pm 10\%$	250	61	80	2.80	0.330	490
36	$\pm 2\%, \pm 5\%, \pm 10\%$	250	59	76	2.80	0.380	480
37	$\pm 2\%, \pm 5\%, \pm 10\%$	250	57	72	2.70	0.460	470
39	$\pm 2\%, \pm 5\%, \pm 10\%$	250	56	84	2.60	0.430	450
40	$\pm 2\%, \pm 5\%, \pm 10\%$	250	56	75	2.60	0.430	450
43	$\pm 2\%, \pm 5\%, \pm 10\%$	250	52	68	2.50	0.520	450
47	$\pm 2\%, \pm 5\%, \pm 10\%$	250	48	62	2.40	0.580	420
51	$\pm 2\%, \pm 5\%, \pm 10\%$	250	52	59	2.30	0.700	360
56	$\pm 2\%, \pm 5\%, \pm 10\%$	250	45	30	2.30	0.700	360

1. WTI Series (Size: 0402 (1005))

Electrical Performance Test

Item	Requirement	Test Method
Inductance	Refer to standard electrical characteristic spec.	HP4286/E4982A
Q		HP4286/E4982A
SRF		HP4287/E4982A
DC Resistance RDC		Micro-Ohm meter (Gom-801G)/E4982A
Rated Current IDC		Applied the current to coils, the temperature of coil increases $\Delta T15^{\circ}C$ ($Ta=25^{\circ}C$).
Over Load	Inductors shall have no evidence of electrical and mechanical damage	Applied 2 times of rated allowed DC current to inductor for a period of 5 minutes
Withstanding Voltage	Inductors shall be no evidence of electrical and mechanical damage.	AC voltage of 500 VAC applied between inductors terminal and case for 1 min.
Insulation Resistance	1000M ohm min.	100 V _{DC} applied between inductor terminal and case

Mechanical Performance Test

Item	Requirement	Test Method
Vibration	Appearance: No damage L change: within $\pm 5\%$ Q change: within $\pm 10\%$	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1 min. Amplitude: 1.5 mm Time: 2 hrs for each axis (X, Y & Z), total 6 hrs
Resistance to Soldering Heat		Solder Temperature: $260\pm 5^{\circ}C$ Immersion Time: 10 ± 2 seconds
Component Adhesion (Push Test)	1 lbs. For 0402 2 lbs. For 0603 3 lbs. For the rest	The device should be soldered (260 ± 5 for 10 seconds) to a tinned copper subs rate. A dynamiter force gauge should be applied to the side of the component. The device must with stand a minimum force of 2 or 4 pounds without a failure of adhesion on termination
Drop	No damage	Dropping chip by each side and each corner. Drop 10 times in total Drop height: 100 cm Drop weight: 125 g
Solderability	90% covered with solder	Inductor shall be dipped in a melted solder bath at 245 ± 5 for 3 seconds
Resistance to Solvent	No damage on appearance and marking	MIL-STD-202, Method 215

Climatic Test

Item	Requirement	Item															
Temperature Characteristic	Appearance: No damage L change: within $\pm 10\%$ Q change: within $\pm 20\%$	-40~+125 $^{\circ}C$															
Humidity		Temperature: $40\pm 2^{\circ}C$ Relative Humidity: 90~95% Time: 96 ± 2 hrs Measured after exposure in the room condition for 2 hrs															
Low Temperature Storage		Temperature: $-40\pm 2^{\circ}C$ Time: 96 ± 2 hrs Inductors are tested after 1 hour at room temperature															
Thermal Shock		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ($^{\circ}C$)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 ± 3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25 ± 2</td> <td>15</td> </tr> <tr> <td>3</td> <td>125 ± 3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25 ± 2</td> <td>15</td> </tr> </tbody> </table> Total: 5 cycles	Step	Temperature ($^{\circ}C$)	Time (min.)	1	-25 ± 3	30	2	25 ± 2	15	3	125 ± 3	30	4	25 ± 2	15
Step		Temperature ($^{\circ}C$)	Time (min.)														
1		-25 ± 3	30														
2		25 ± 2	15														
3	125 ± 3	30															
4	25 ± 2	15															
High Temperature Storage	Temperature: $125\pm 2^{\circ}C$ Time: 96 ± 2 hrs Measured after exposure in the room condition for 1hour																
High Temperature Load Life	Temperature: $85\pm 2^{\circ}C$ Time: 1000 ± 12 hrs Load: Allowed DC current																
Damp Heat with Load	Temperature: $40\pm 2^{\circ}C$ Relative Humidity: 90~95% Time: 1000 ± 12 hrs Load: Allowed DC current																

Storage Temperature: 15~28 $^{\circ}C$; Humidity < 80%RH