

## 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

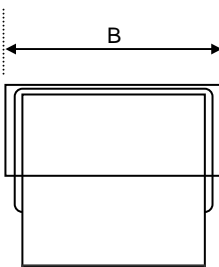
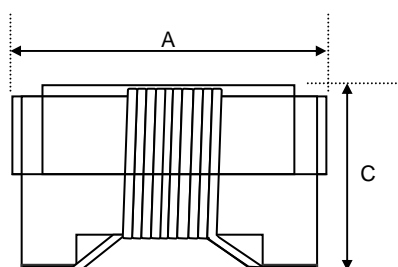
- > Cordless (DECT/CT1CT2) & Cellular (CDMA/GSM/PHS) Phone.
- > Remote control, wireless security system.
- > WLL, Wireless LAN / Mouse / Keyboard / Earphone.
- > GPS receiver.
- > VCO, RF Module & other wireless products.
- > CATV Filter, Tuner.
- > Cable Modem / XDSL Tuner.
- > Set Top Box.

### Features

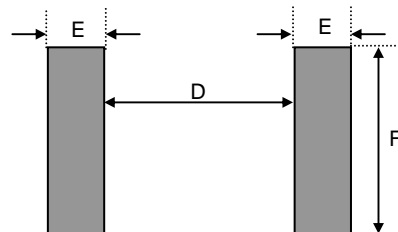
- > Wirewound ceramic construction provide high SRF.
- > Ultra compact inductors provide exceptional Q values.
- > Low Profile, high Q are available.
- > Outstanding endurance from Pull-up force, mechanical shock and pressure.
- > Smaller size of 0402(1005) & tighter tolerance down to +/- 2%.

### 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"

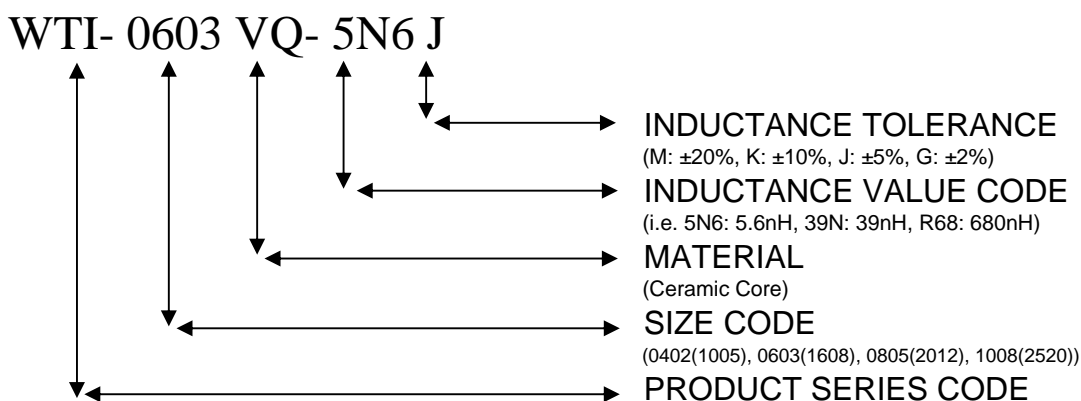
**HP4287A, GOM-801G & 502BC** - For "DCR"

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: 0603 (1608))

WTI-0603VQ Wire Wound Chip Inductors / High Q Type

Inductance (nH)	Tolerance	L Freq. (MHz)	Q typ at 250(MHz)	SRF typ (GHz)	DCR (Ω) max.	IDC (mA) max.	900MHz		1.7GHz	
							L typ	Q typ	L Typ	Q Typ
1.8	±5, ±10%	250	23	16.0	0.033	2100	1.77	40	1.77	65
2.2	±5, ±10%	250	13	15.0	0.180	900	2.14	25	2.12	35
2.7	±2, ±5, ±10%	250	32	15.0	0.050	900	2.70	40	2.73	75
3.0	±5, ±10%	250	35	9.5	0.024	1000	2.96	65	2.97	85
3.3	±5, ±10%	250	32	9.60	0.024	1900	3.28	67	3.32	104
3.6	±2, ±5, ±10%	250	40	9.70	0.031	1900	3.59	70	3.62	116
3.9	±2, ±5, ±10%	250	35	7.50	0.039	1600	3.88	68	3.95	108
4.3	±2, ±5, ±10%	250	30	7.50	0.080	1300	4.29	58	4.31	91
4.7	±2, ±5, ±10%	250	26	7.90	0.100	1100	4.65	48	4.71	75
5.1	±2, ±5, ±10%	250	40	8.90	0.036	1700	5.08	84	5.12	140
5.6	±2, ±5, ±10%	250	48	6.60	0.036	1700	5.6	87	5.73	456
6.0	±2, ±5, ±10%	250	49	6.00	0.036	1700	5.92	94	6.12	154
6.8	±2, ±5, ±10%	250	42	5.80	0.042	1400	6.83	88	7.05	143
7.2	±2, ±5, ±10%	250	48	5.40	0.052	1400	7.25	96	7.38	139
7.5	±2, ±5, ±10%	250	41	5.30	0.080	1300	7.55	81	7.85	12
8.2	±2, ±5, ±10%	250	46	5.90	0.054	1400	8.21	96	8.39	148
8.7	±2, ±5, ±10%	250	46	5.50	0.054	1400	8.73	97	9.00	149
9.1	±2, ±5, ±10%	250	40	5.10	0.037	1400	9.18	76	9.64	109
9.5	±2, ±5, ±10%	250	49	4.90	0.053	1400	9.56	98	9.99	149
10	±2, ±5, ±10%	250	49	4.30	0.048	1400	10.16	90	10.64	142
11	±2, ±5, ±10%	250	41	4.10	0.058	1400	11.06	78	11.82	108
12	±2, ±5, ±10%	250	37	4.10	0.088	1100	12.26	69	13.2	91
15	±2, ±5, ±10%	250	48	3.60	0.078	1200	15.41	83	17.2	124
16	±2, ±5, ±10%	250	45	3.50	0.085	1100	16.37	77	18.7	116
18	±2, ±5, ±10%	250	41	3.30	0.066	1200	18.56	76	20.9	100
22	±2, ±5, ±10%	250	44	3.15	0.140	850	22.7	77	25.9	88
23	±2, ±5, ±10%	250	40	3.00	0.183	850	24	69	29.53	80
24	±2, ±5, ±10%	250	42	2.95	0.074	1100	24.9	77	28.9	91
27	±2, ±5, ±10%	250	44	2.80	0.150	780	28.4	74	34.0	84
30	±2, ±5, ±10%	250	49	2.80	0.130	920	31.5	82	37.9	82
33	±2, ±5, ±10%	250	45	2.70	0.170	680	34.9	76	42.9	80
36	±2, ±5, ±10%	250	44	2.50	0.225	720	38.5	69	50.0	64
39	±2, ±5, ±10%	250	48	2.45	0.19	680	41.5	78	51.9	74
43	±2, ±5, ±10%	250	45	2.45	0.17	810	45.7	83	58.1	76
47	±2, ±5, ±10%	200	47	2.30	0.24	680	50.6	77	66.9	72
51	±2, ±5, ±10%	200	49	2.30	0.28	660	54.6	73	71.3	62
56	±2, ±5, ±10%	200	50	2.20	0.30	610	60.3	74	79.9	56
68	±2, ±5, ±10%	200	46	2.00	0.33	600	75.5	73	113.3	49
72	±2, ±5, ±10%	150	46	1.90	0.42	550	80.8	69	-	-
75	±2, ±5, ±10%	150	46	1.90	0.52	500	84.6	71	-	-
82	±2, ±5, ±10%	150	45	1.80	0.46	510	94	62	-	-
91	±2, ±5, ±10%	150	45	1.65	0.58	440	103	64	-	-
100	±2, ±5, ±10%	150	49	1.70	0.54	470	114	69	-	-
110	±2, ±5, ±10%	150	47	1.60	0.58	440	126.2	63	-	-
120	±2, ±5, ±10%	150	47	1.55	0.72	420	142.4	61	-	-
150	±2, ±5, ±10%	150	47	1.35	0.82	390	188.8	57	-	-
180	±2, ±5, ±10%	100	48	1.30	1.50	310	232.2	50	-	-
200	±2, ±5, ±10%	100	47	1.25	2.00	280	265	47	-	-
210	±2, ±5, ±10%	100	48	1.20	2.00	280	288	45	-	-
220	±2, ±5, ±10%	100	47	1.10	2.00	280	315	41	-	-
250	±2, ±5, ±10%	100	45	1.05	3.00	240	-	-	-	-
270	±2, ±5, ±10%	100	46	1.05	2.25	260	-	-	-	-
300	±2, ±5, ±10%	100	47	0.99	2.80	220	-	-	-	-
330	±2, ±5, ±10%	100	46	0.93	3.60	180	-	-	-	-
360	±2, ±5, ±10%	100	47	0.93	4.00	170	-	-	-	-
390	±2, ±5, ±10%	100	47	0.88	4.00	170	-	-	-	-

1. WTI Series (Size: 0603 (1608))

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 <sub>DC</sub> 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: $10\pm 2$ seconds
Component Adhesion (Push Test)	1 lbs. For 0402 2 lbs. For 0603 3 lbs. For the rest	The device should be soldered ( $260\pm 5$ 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 $245\pm 5$ 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: $96\pm 2$ hrs Measured after exposure in the room condition for 2 hrs															
Low Temperature Storage		Temperature: $-40\pm 2^{\circ}C$ Time: $96\pm 2$ hrs Inductors are tested after 1 hour at room temperature															
Thermal Shock		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (<math>^{\circ}C</math>)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><math>-25\pm 3</math></td> <td>30</td> </tr> <tr> <td>2</td> <td><math>25\pm 2</math></td> <td>15</td> </tr> <tr> <td>3</td> <td><math>125\pm 3</math></td> <td>30</td> </tr> <tr> <td>4</td> <td><math>25\pm 2</math></td> <td>15</td> </tr> </tbody> </table>	Step	Temperature ( $^{\circ}C$ )	Time (min.)	1	$-25\pm 3$	30	2	$25\pm 2$	15	3	$125\pm 3$	30	4	$25\pm 2$	15
Step		Temperature ( $^{\circ}C$ )	Time (min.)														
1		$-25\pm 3$	30														
2		$25\pm 2$	15														
3		$125\pm 3$	30														
4	$25\pm 2$	15															
High Temperature Storage	Temperature: $125\pm 2^{\circ}C$ Time: $96\pm 2$ hrs Measured after exposure in the room condition for 1hour																
High Temperature Load Life	Temperature: $85\pm 2^{\circ}C$ Time: $1000\pm 12$ hrs Load: Allowed DC current																
Damp Heat with Load	Temperature: $40\pm 2^{\circ}C$ Relative Humidity: 90~95% Time: $1000\pm 12$ hrs Load: Allowed DC current																

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