

# WQL-304

## Quartz Spiral Inductors



### Features:

- 4.00 nH
- High Reliability
- High Q
- Fused Quartz Substrate
- 3.0 Turn
- Dielectric Thickness: 15.0 mils
- Line Width: 0.5 mils
- Line Space: 0.5 mils
- Gold Top Contact
- Metalization: Ti/Pt/Au (3 microns)
- Temperature Stability: < 100PPM
- RoHS Compliant



### Description:

Wei Bo Associates WQL-300 series of spiral inductors feature proprietary photolithographic process and plating techniques on a rugged quartz substrate. This results in a highly repeatable unit to unit inductance value and eliminates hand forming of wire wound inductors and epoxy staking of coils in a hybrid assembly.

The WQL-300 series of spiral inductors features ruggedized structure, high repeatability and high reliability. The spiral coil is deposited on a quartz substrate and then coated with polyimide to protect against corrosion and contaminants and eliminates the need for the use of conformal coatings.

The WQL-300 series of spiral inductors may be mounted using either conductive or non-conductive epoxies and wire bonded using gold wire or ribbon thermos-compression bonding.

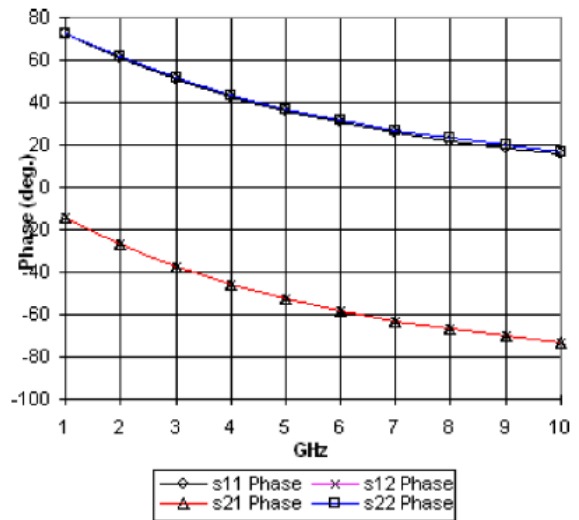
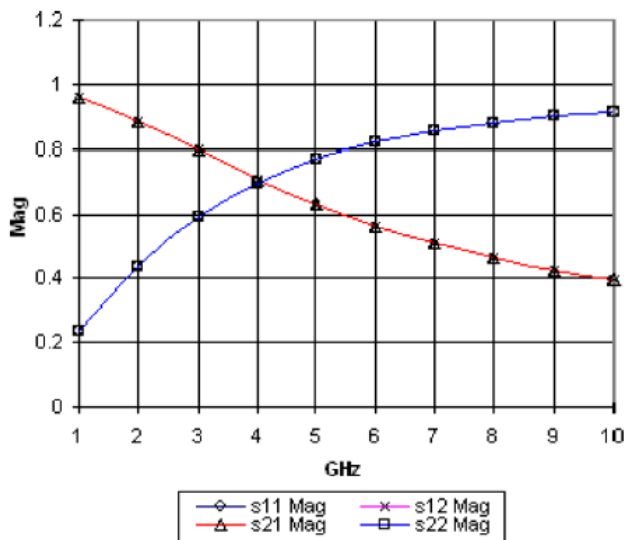
### General Specifications

<b>Inductance:</b>	2.87 nH	<b>Pad Size:</b>	3 mils dia.
<b>Pad Size:</b>	3 mils dia.	<b>Size:</b>	0.030" x 0.030"
<b>Material:</b>	Fused Quartz	<b>Dielectric Thickness:</b>	15.0 mils
<b>Terminal Finish:</b>	Gold	<b>Operating Temperature:</b>	-55°C to +150°C

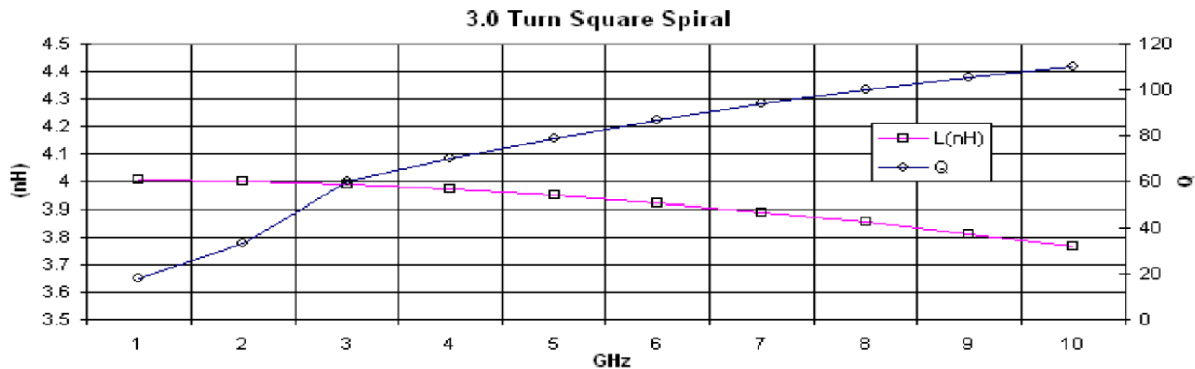
### WQL Series 300 Electrical Characteristics

Part Number	# of Turns	Inductance L (nH)	Q @ F <sub>T</sub> min/max	F <sub>TEST</sub> (GHz)
WQL-301	1.5	1.1	12/75	1.0 to 10.0
WQL-302	2.0	1.8	15/90	1.0 to 10.0
WQL-303	2.5	2.87	18/100	1.0 to 10.0
WQL-304	3.0	4.00	20/115	1.0 to 10.0
WQL-305	3.5	5.50	20/120	1.0 to 10.0
WQL-306	4.0	7.10	20/130	1.0 to 10.0
WQL-307	4.5	9.00	20/130	1.0 to 10.0
WQL-308	5.0	11.10	20/130	1.0 to 10.0
WQL-309	5.5	13.60	20/130	1.0 to 10.0
WQL-310	6.0	16.20	30/125	1.0 to 10.0
WQL-311	6.5	19.40	30/120	1.0 to 10.0
WQL-312	7.0	22.50	30/125	1.0 to 10.0

### WQL-304 RF Characteristics



### Quality Factor vs Frequency



## **Bonding and Handling Considerations for WQL Series 300 Spiral Inductors**

### Handling

Normal precautions used in handling hybrid semiconductors also apply to WQL Series 300 Spiral Inductors. A vacuum pencil should be employed when removing from wafer packs and subsequent handling. Using a vacuum pencil with metallic or non-metallic tips is acceptable.

### Soldering

Solder temperatures up to 300°C are acceptable for a duration not greater than 5 seconds for WQL Series 300 Spiral Inductors.

### Conductive Epoxy

Any conductive epoxies available for semiconductor die attachment are acceptable for WQL Series 300 Spiral Inductors attachment. Follow the manufacturer's recommendations for mixing, storage temperature, shelf life, and application carefully. Care should be exercised while mounting the WQL Series 300 Spiral Inductors and a soft implement.

### Lead Bonding

Ball, ultrasonic, TC or pulse bonding of the wire or ribbon leads are all acceptable. Temperature for pulse bonders should not exceed 300°C. Maximum pressure applied to the WQL Series 300 Spiral Inductors should not exceed 25 grams for any of the methods used. Proper bonding procedure will result in bond strength which will exceed the minimum bond pull strength outlined in MIL-STD-883B Method 2011.2 for gold wire or gold ribbon.