

# Now Sampling



## High Q & Low Loss RF/Microwave Inductors

### 1 ULTRA-SMALL FOOTPRINT

Less than 1mm x 1mm

### 2 THICKNESS

200 – 300 micron thick

### 3 SEAMLESS INTEGRATION

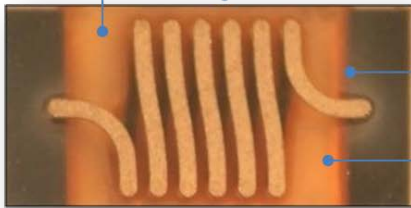
Minimize unwanted RF parasitics by the seamless integration of High Q inductors ( $Q > 75$ ) and capacitors ( $Q > 200$ ) into a single, low-loss, compact LC Resonator

### 4 HIGH Q INDUCTOR

Precision coil thickness improves Q, reduces resistance, and improves overall device performance

### 5 STANDARD OR CUSTOM FOOTPRINTS

01005 or larger standard and custom designs



## High Q & Low Loss SMD Inductors

Standard or custom inductors demonstrate superior Q factors in ultra-small footprints. 0402 standard inductors are available for sampling; 0201 and 01005 are in development.

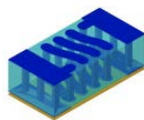
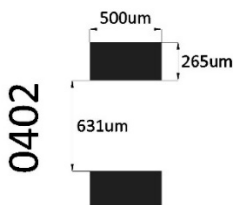
## Seamless integration

3DGS SMD Inductors are specifically built to IPD SMD standards for easy integration into existing inductor footprints.

Standard solder techniques are used for assembly.

## Highly scalable

Lithographic reproduction processes facilitate mass production of devices with superior batch-to-batch consistency.



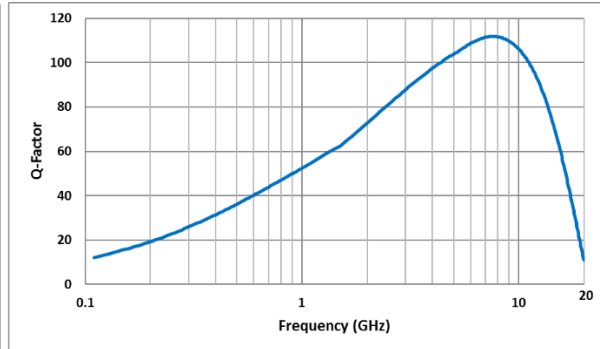
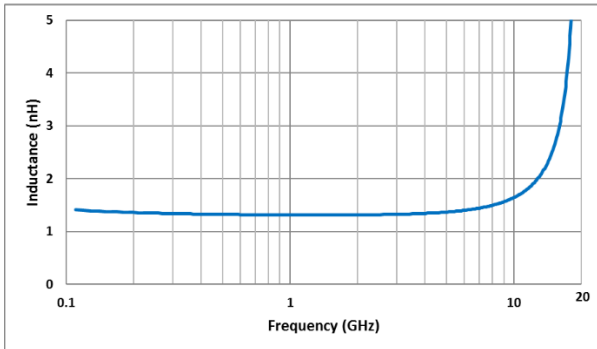
## Standard Inductor Specifications

Parameters	Typical
Size Code	0402
Inductance	1.3, 1.7, 2.2, 3.4, 4.3 nH
Rated current (based on temp rise)	500 mA
Max of DC resistance	90 mΩ for 4.3 nH
Q	110 @ 7.7 GHz (1.3 nH)
SRF (min)	21 GHz (1.3 nH)
Operating Temp Range	-55 to 125° C
Compliance	ROHS compliant, Lead-free
Packaging	Tape and reel 1,000 min qty

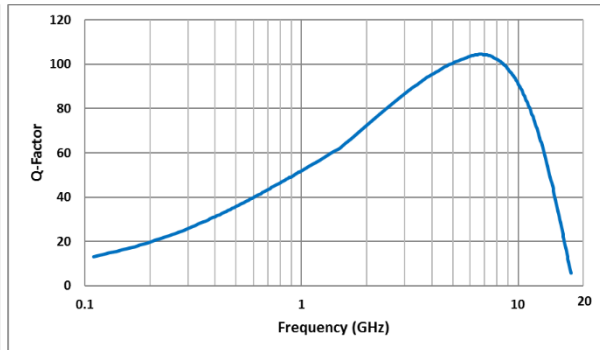
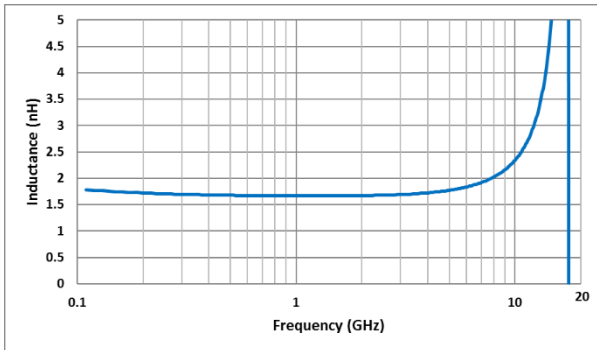
Embedded inductance devices have been qualified through a variety of JEDEC and IPC testing standards, including vibration, shock, thermocycling, and moisture.



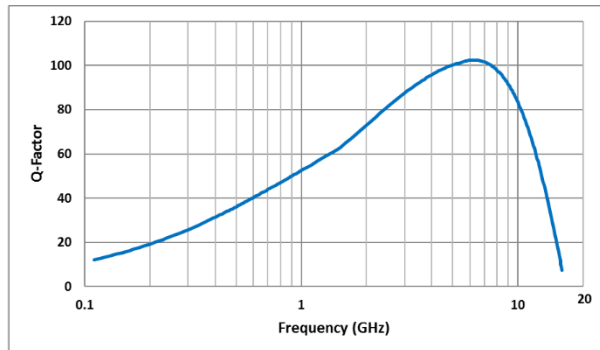
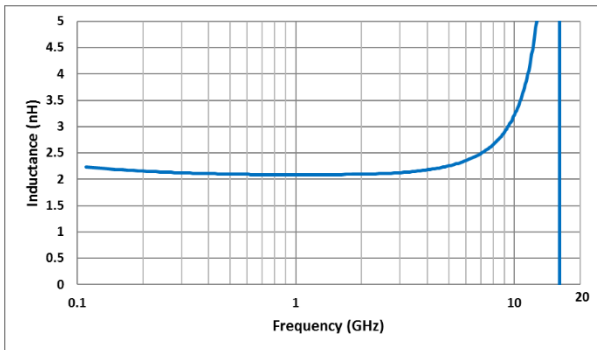
### 1.3 nH



### 1.7 nH

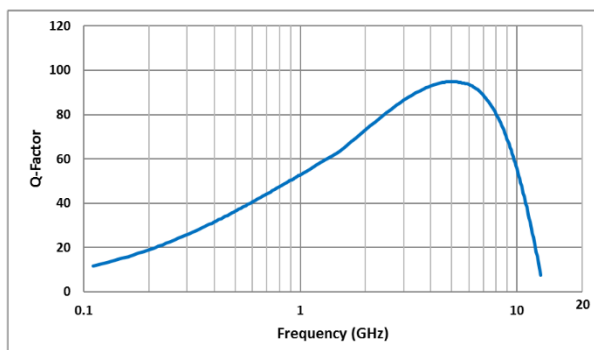
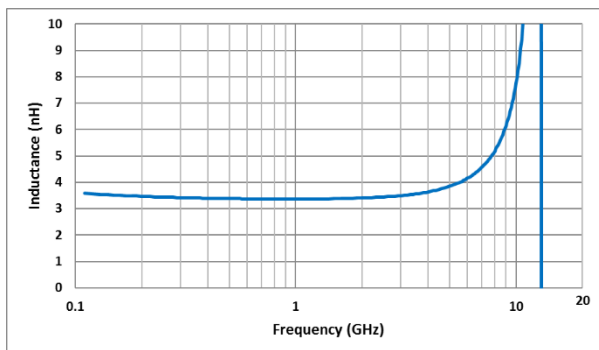


### 2.2 nH

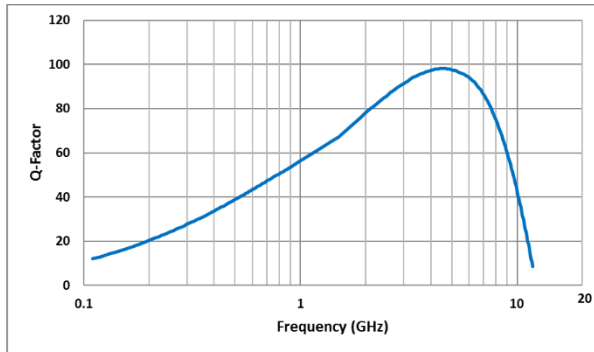
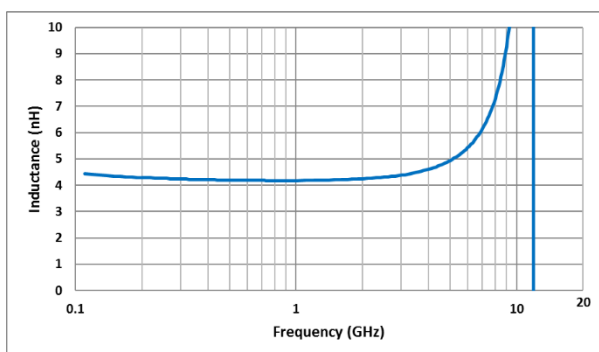


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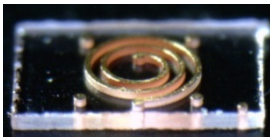
### 3.4 nH



### 4.3 nH

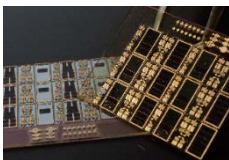


## Other Products



### Discrete Custom Ls and Cs

Discrete custom inductor and capacitor components fabricated in our proprietary APEX® Glass offer the highest Quality factors (High Q) in the smallest form-factor. 3D Glass Solutions offers a wide variety of inductive and capacitive devices that cover a broad array of power handling and frequency capabilities targeted specifically for the RF community.



### IPD Matching Networks

IPD-ready components improve impedance matching networks with high efficiency energy transfer and reduced losses. Significantly improve Power Amplifier efficiency performance compared to RF Silicon or planar IPDs.



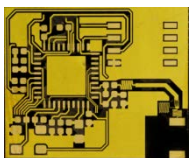
### Antennas

Our unique design and manufacturing capabilities enable antenna designers to generate radiative antenna structures with dielectric constants as low as 1.5. Tailorable dielectric performance ranging from 1.5 to 6.4 is realized by integrating radiative metal patterns on a matrix of glass and air.



### Integrated Passive Devices

Custom integrated passive devices from 3D Glass Solutions are used in a wide variety of wireless applications where low-loss and compact device size matter. Three dimensional IPDs fabricated in our proprietary glass possess improved performance over traditional silicon or planar glass IPD products, with greater design flexibility and integration capability.



### RF System-in-a-Package (SiP)

Glass-based RF SiP interposers allow you to offer significant product differentiation. Our proprietary APEX® Glass allows you to realize high-value system integration in the most compact footprint enabling you to meet even the most demanding product definitions for next-generation RF and wireless products.