

Key Features

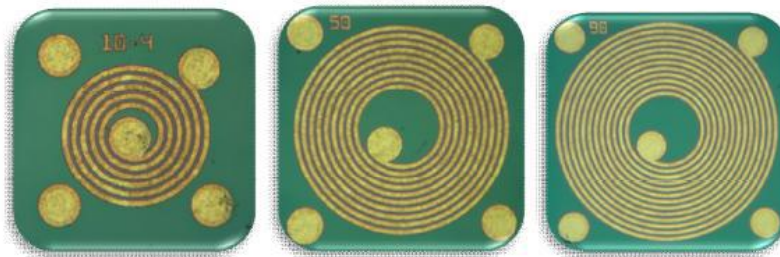
- No Need for "Staking" Coil
- Passivated Protective Coating Over Coil
- Dimensional Uniformity
- Planar Solid Structure Coil
- Physical and Dimensional Stability
- Through Temp Cycle and Vibration
- Models as a Lossy Transmission Line
- Designed for Microwave Applications
From 2 to 18 GHz
- Reduced Assembly Costs
- RoHS Compliant

Typical Applications

The spiral inductors are ideally suited for bias injection into oscillators, amplifiers and microwave switches (bias tees). They can also be used to bias tuning varactors, PIN diodes, transistors and monolithic circuits. Generally they can be used for RF and microwave circuit input and output matching. These spiral elements provide extreme freedom from in band resonance to very smooth wide frequency response.

Package: Chip

Images



General Description

SAC6000A series of spiral inductors are formed by photolithography and plating techniques on fused quartz substrates. They eliminate the need for hand forming and "staking" of coil in hybrid circuits. They provide uniformity, durability and repeatability in circuit fabrication.

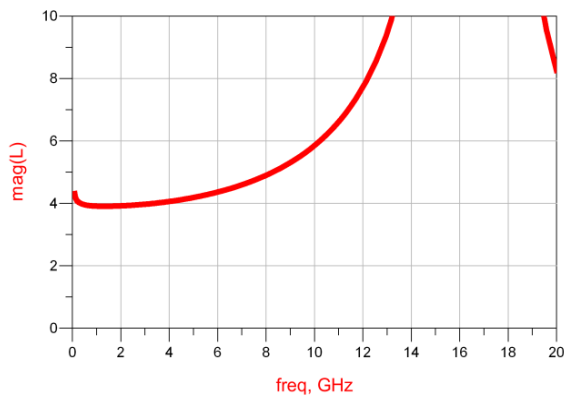
The coils are SiN coated to protect from ambient contaminants, and to eliminate the need for conformal coating. Quartz substrates are rugged to reduce dielectric losses. Chips may be bonded using either conductive or non conductive epoxies, and wire bonded with gold wire or ribbon by thermo-compression bonding.

Electrical Characteristic

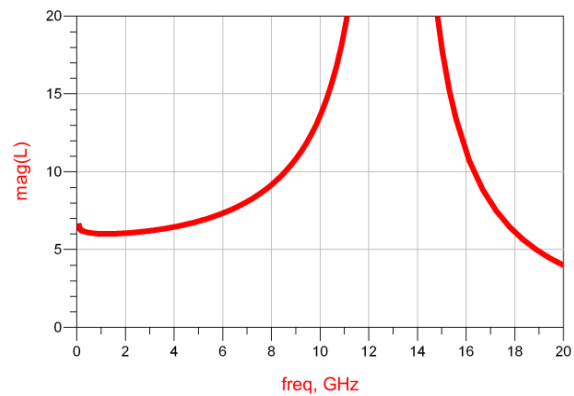
Model Number	Turns	Inductance (nH)(typ.)	Rs@DC (Ohm)	Rs@GHz (Ohm)	Q@GHz	Resonant Frequency (GHz)	Chip Size (mm×mm)
SAC6005A	3.5	5	1.0	3.7@4.0	26.5@4.0	16.5	0.75×0.75
SAC6007P5A	4.5	7.5	1.3	6.0@4.0	27.0@4.0	12.8	0.80×0.80
SAC6010A	5.5	10	1.6	8.0@4.0	26.0@4.0	11.3	0.80×0.80
SAC6015A	6.5	15	2.1	5.6@4.0	26.5@4.0	8.5	0.80×0.80
SAC6020A	7.5	20	2.6	7.5@2.0	28.5@2.0	7.0	0.80×0.80
SAC6050A	9.5	50	5.1	10.6@1.0	28.5@1.5	2.8	0.95×0.95
SAC6090A	12.5	90	8.0	26.3@1.0	26.5@1.0	1.8	1.10×1.10
SAC6200A	17.5	200	14.0	30.0@1.0	23.0@1.0	1.0	1.37×1.37

Inductor Value vs. Frequency

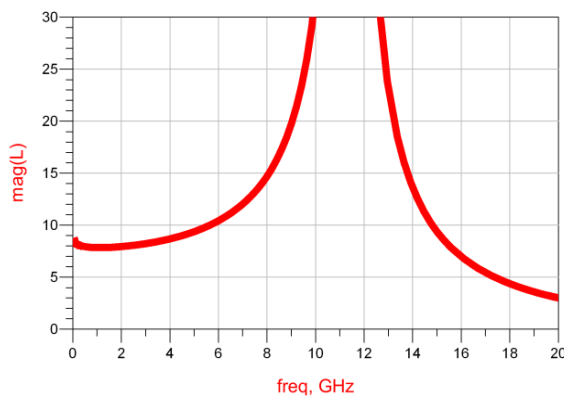
(1)SAC6005A



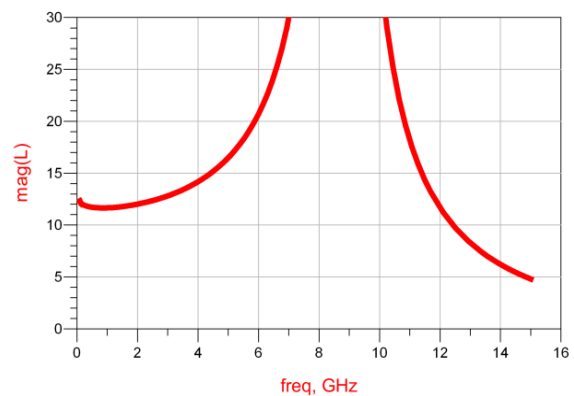
(2) SAC6007P5A



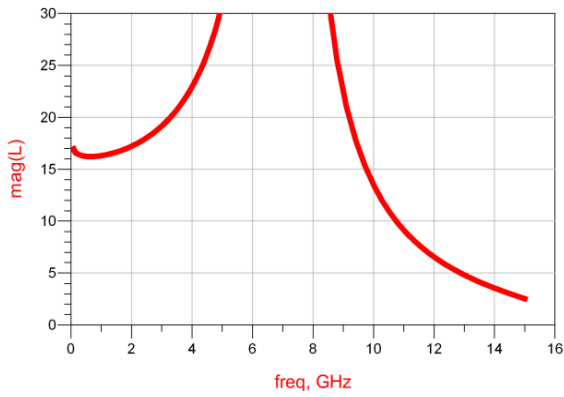
(3)SAC6010A



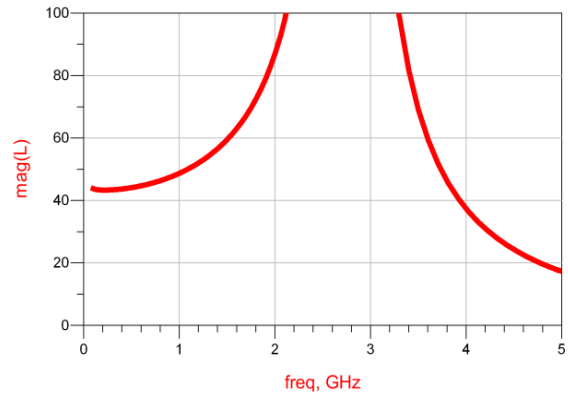
(4)SAC6015A



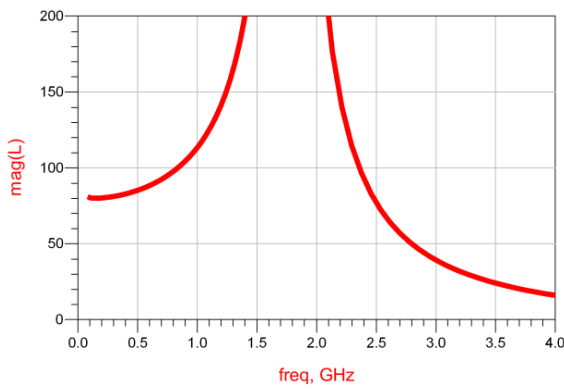
(5)SAC6020A



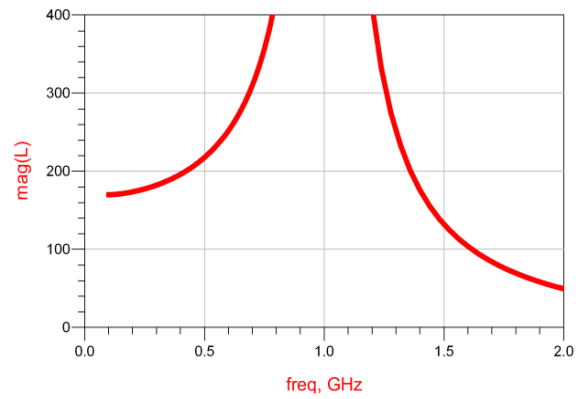
(6)SAC6050A



(7)SAC6090A

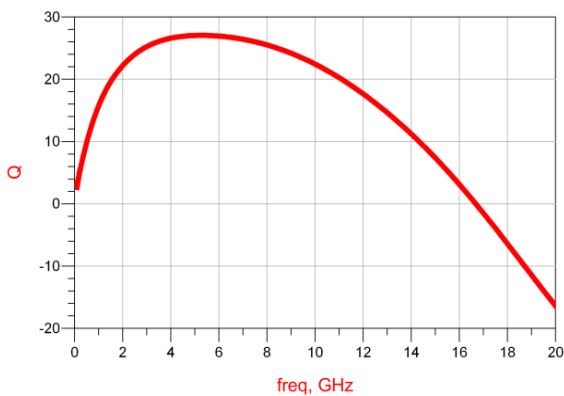


(8)SAC6200A

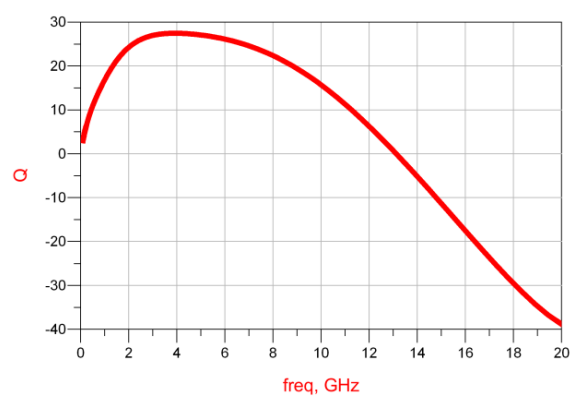


Q Value vs. Frequency

(1)SAC6005A



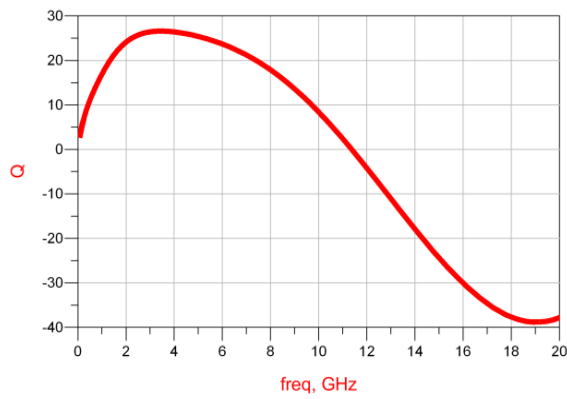
(2) SAC6007P5A



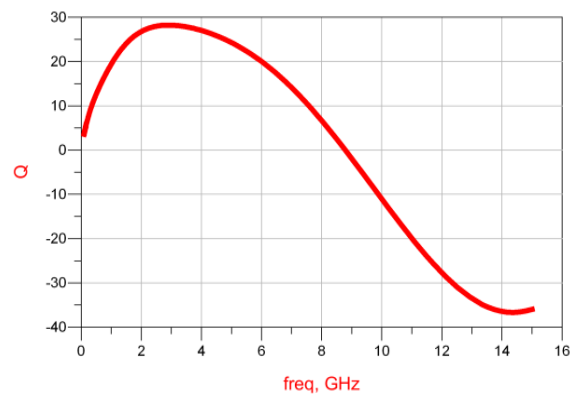
SPIRAL INDUCTORS (SAC6005A~SAC6200A)

Rev 1.2

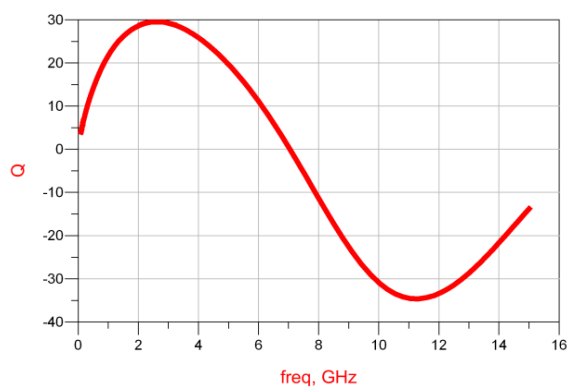
(3)SAC6010A



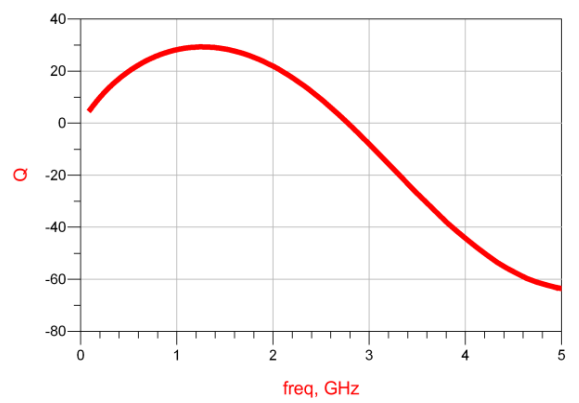
(4)SAC6015A



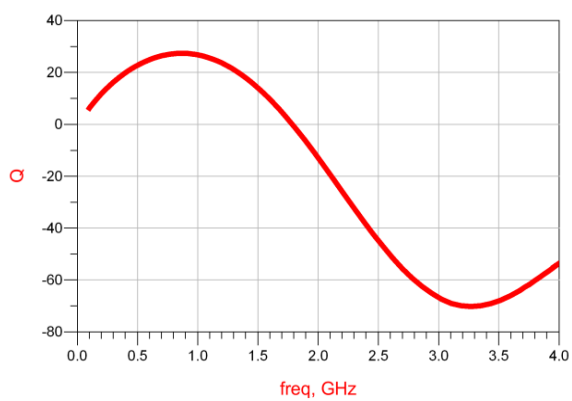
(5)SAC6020A



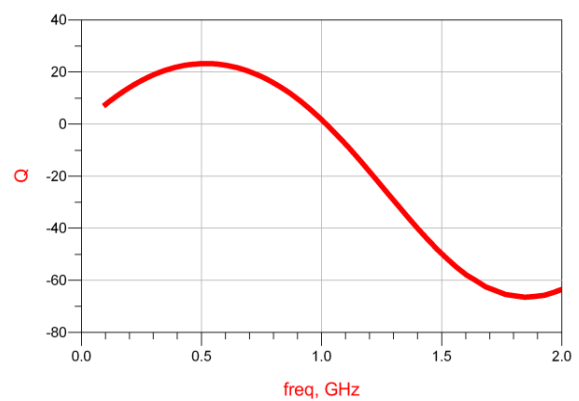
(6)SAC6050A



(7)SAC6090A

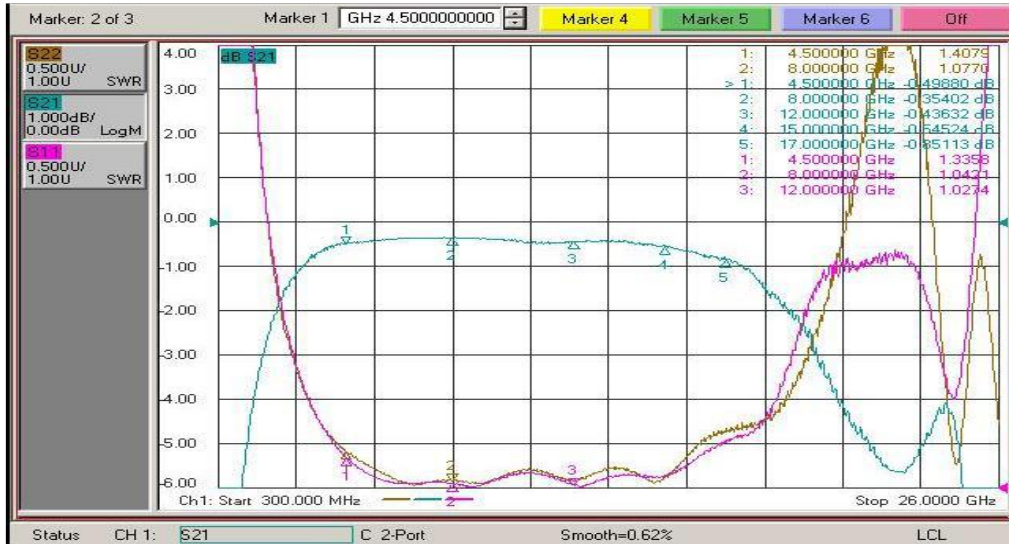


(8)SAC6200A

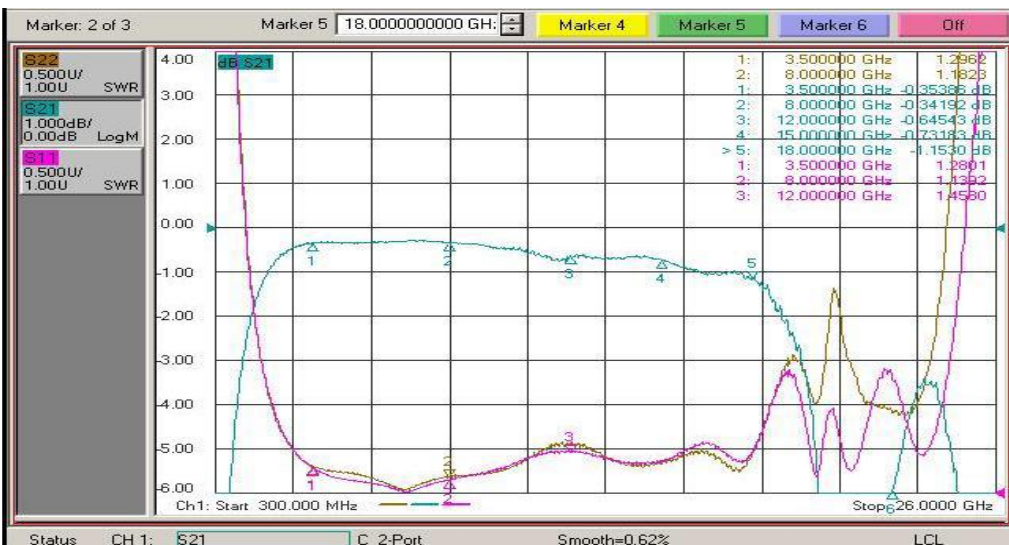


Selected models test curve

(1) SAC6010A



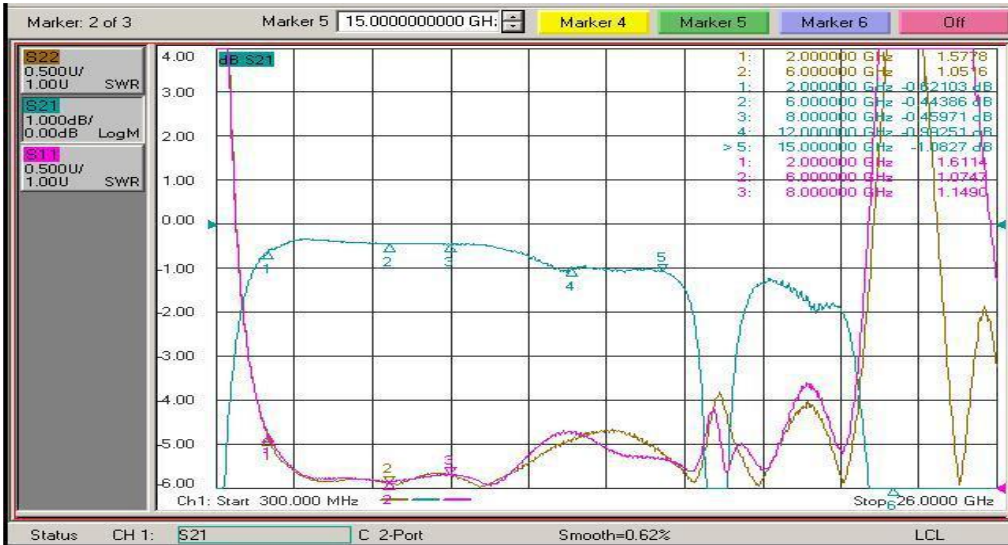
(2) SAC6015A



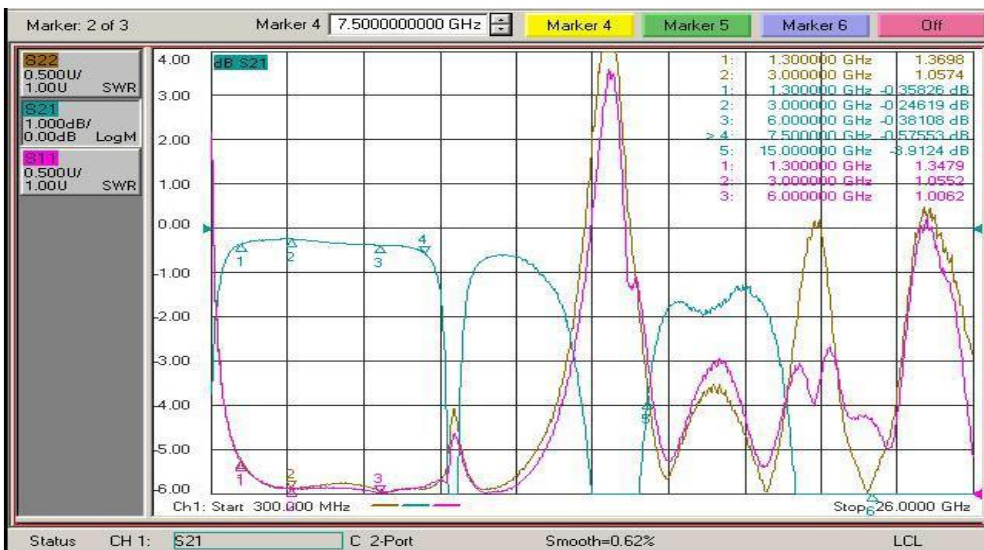
SPIRAL INDUCTORS (SAC6005A~SAC6200A)

Rev 1.2

(3) SAC6020A



(4) SAC6050A



SAC6000A Series Inductor Application Note

Description

SAC6000A series are a small profile chip inductors.

Applications

SAC6000A series can be used for RF choke or RF and Microwave circuit match component.

Mounting

SAC6000A series do not have back-metallization, epoxy should be used for die attach. Die can be attached to substrate.

Wire Bonding

There are 5 bonding pads 1, 2, 3, 4, 5. Pad 1, 2 are the major two pads which are directly connected to inductor metal. Pad 3, 4, 5 are relay pads in case there is a long bonding wire between the inductor pad 2 and circuits. Ball or wedge bond with 1.0 diameter pure gold wire. Thermo-sonic wire bonding with a nominal stage temperature of 150 Celsius Degree and a ball bonding force of 40 to 50 gram or wedge bonding force of 18 to 22 gram is recommended. Use minimum level of ultrasonic energy to achieve reliable wire bond.

Figure1 and Figure2 show typical bonding applications.

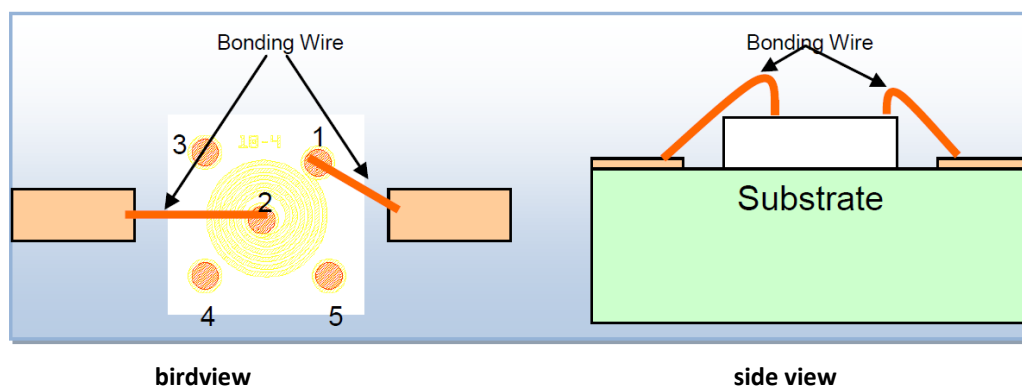


Fig1. Chip Bonding Configuration 1

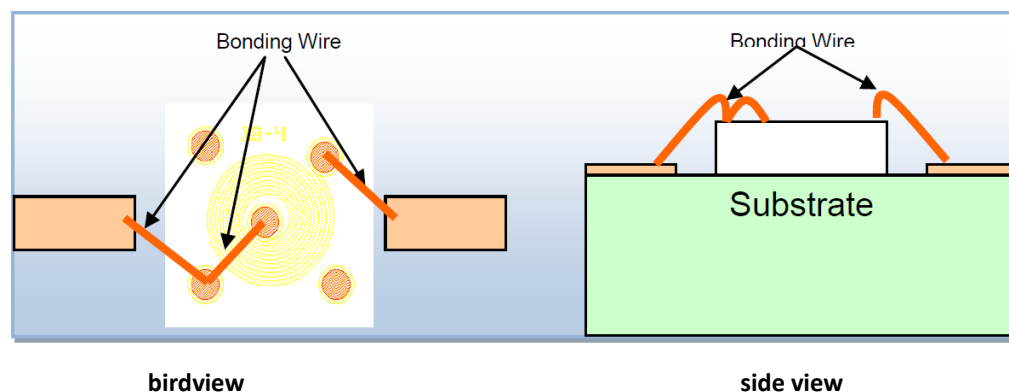


Fig2. Chip Bonding Configuration 2