

Self-Resonant Frequency Test

Introduction

Resonance and self-resonant frequency

In an alternating circuit with resistance, capacitance and inductance, phase of voltage and current is not generally the same. We can adjust them to the same phase by changing frequency or LCR parameters, this state is resonance. In fact, all circuit components are neither purely resistive nor purely reactive, they involve both of these impedance elements. For inductors or capacitors, they will reach the resonance at a particular frequency, this frequency point is the self-resonant frequency (SRF) of the products. Inductors show zero inductance and maximum impedance while capacitors show zero capacitance and minimum impedance at SRF.

Test System

We can use impedance analyzer and network analyzer to test self-resonant frequency

Device Name	Network analyzer	Impedance analyzer
Equipment Type	E5071C	E4991A
Frequency Range	100 k~20 GHz	1 MHz to 3 GHz
Test Parameter	S21	L、C

Data Output

Network analyze and impedance analyzer can provide a complete spectrum within their frequency range so that we can get SRF through peak searching. The following show SRF test through E4991A and E5071C.

