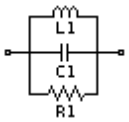
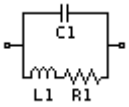
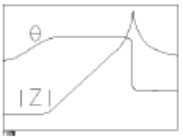
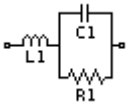
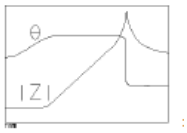
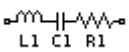
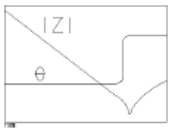
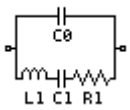
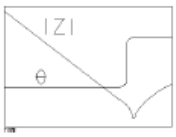
Equivalent Circuit Analysis and Application

Introduction

Equivalent Circuit

Equivalent circuit is to characterize the electrical properties of solid-state circuit model. It is not refer to the same effect of different circuits but to representations different model of the same circuit. It plays a very important role to analysis and design of electronic circuits although reflecting external electrical characteristics of component approximately.

Several Equivalent Circuits

No.	Equivalent circuit model	Typical Frequency characteristics	DUT example
A			Inductor with high core loss
B			Inductor, Resistor
C			High value resistor
D			Capacitor
E			Resonator

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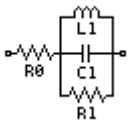
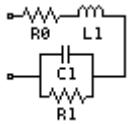
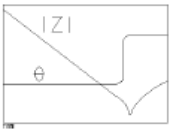
F			Inductor with ESR
G			Capacitor

Test System

Calculate equivalent circuit parameters and simulate frequency characteristics with built-in equivalent circuit.

Device Name	Impedance analyzer	RF impedance analyzer
Equipment Type	E4990A	E4991A
Frequency Range	20 Hz to 120 MHz	1 MHz to 3 GHz
Built-in Equivalent Circuit Type	A、B、C、D、E、F、G	A、B、C、D、E

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