



Time-domain reflectometer (TDR) theory and implementation

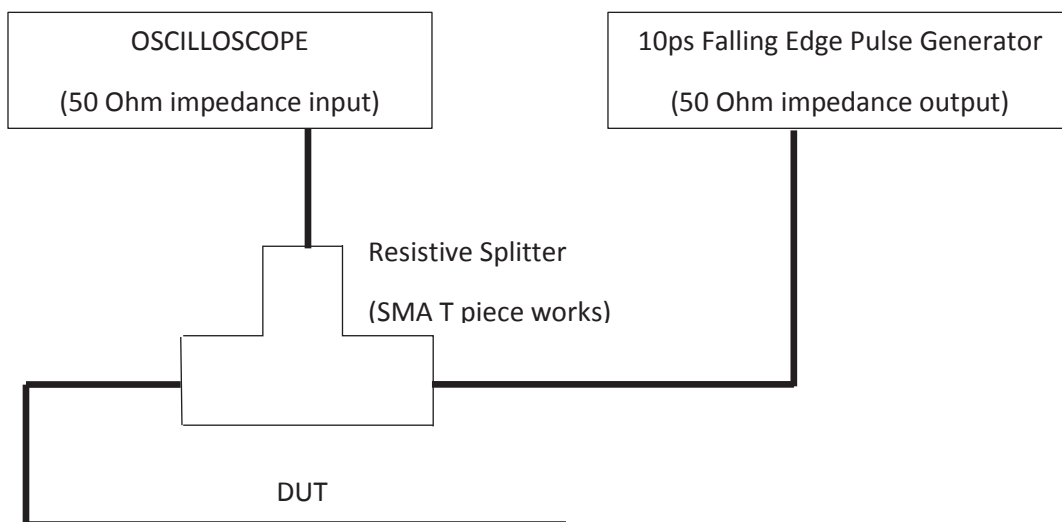
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05-Nov-2019

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Part I: Understanding the Time-domain reflectometer (TDR)

Today, most of manufacturers in mainland China still belonged to the 2nd tier or lower tier for high frequency PCB manufacturing. They still used and only used legacy TDR equipment such as Polar CITS500s Controlled Impedance Test System. Only several top tier multinational corporations in mainland china had capabilities to adopt frequency domain equipment in the manufacturing process control. Therefore, top tier manufacturers took place in the less competitive position. Usually, less competitive in upstream manufacturing causes lower value for money in downstream manufacturing. Thus, as an electronic product designer, understanding the TDR theory and the different between TDR and frequency-domain controlled impedance testing may help to improve the cost control by choosing 2nd tier manufacturers.



Note: All cables used in the above diagram are 50 Ohm SMA Coaxial Cable.

According to the above diagram, a TDR instrument is generally a large, expensive instrument that mainly has three major components, a high-speed edge pulse generator, a sampling oscilloscope with 50ohm input option and a resistive