# The Microwave Switch Specification Sheet

## Switch Type

A microwave switch is **either** absorptive or reflective, which refers to the input impedance of the disconnected port.

A microwave switch can have **multiple** ports (e.g., SPDT , SP4T)

## Bandwidth (Hz)

A switch, like all other devices, can effectively operate only within a finite **bandwidth** (e.g., 2-5 GHz or 300-400 MHz).

## Input Impedance ($\Gamma$, return loss, VSWR)

This of course is dependent on the **state** of the switch (i.e., whether a port is connected or disconnected).

## Insertion Loss (dB)

Typically this is 2 dB or less for good switches, but is somewhat dependent on frequency (insertion loss **increases** with frequency).

## Maximum Input power (dBm)

Switches have a **maximum** input power. Typical values range from 10 to 25 dBm.

## Switching Speed (seconds)

The state of a microwave switch **cannot** change instantaneously. It takes some small but non-zero amount of time to change from one state to another. Typical values range from 0.1 to 10.0 μ–seconds.

## Isolation (dB)

Typical values range from 20 to 50 dB.

## Switch Logic

Describes the control line values required to switch the port switch state. Typically **TTL** logic values are used—0 volts for one state and 5V for the other.

## DC Power

Switches are **not** passive devices! They require a D.C. voltage (5 or 15 V typical) and will draw some amount of D.C current. The product of the two of course is equal to the D.C. **power** delivered to the switch (typically << 1W)