



MAAD-011036 EVALUATION MODULE

04/19/2022

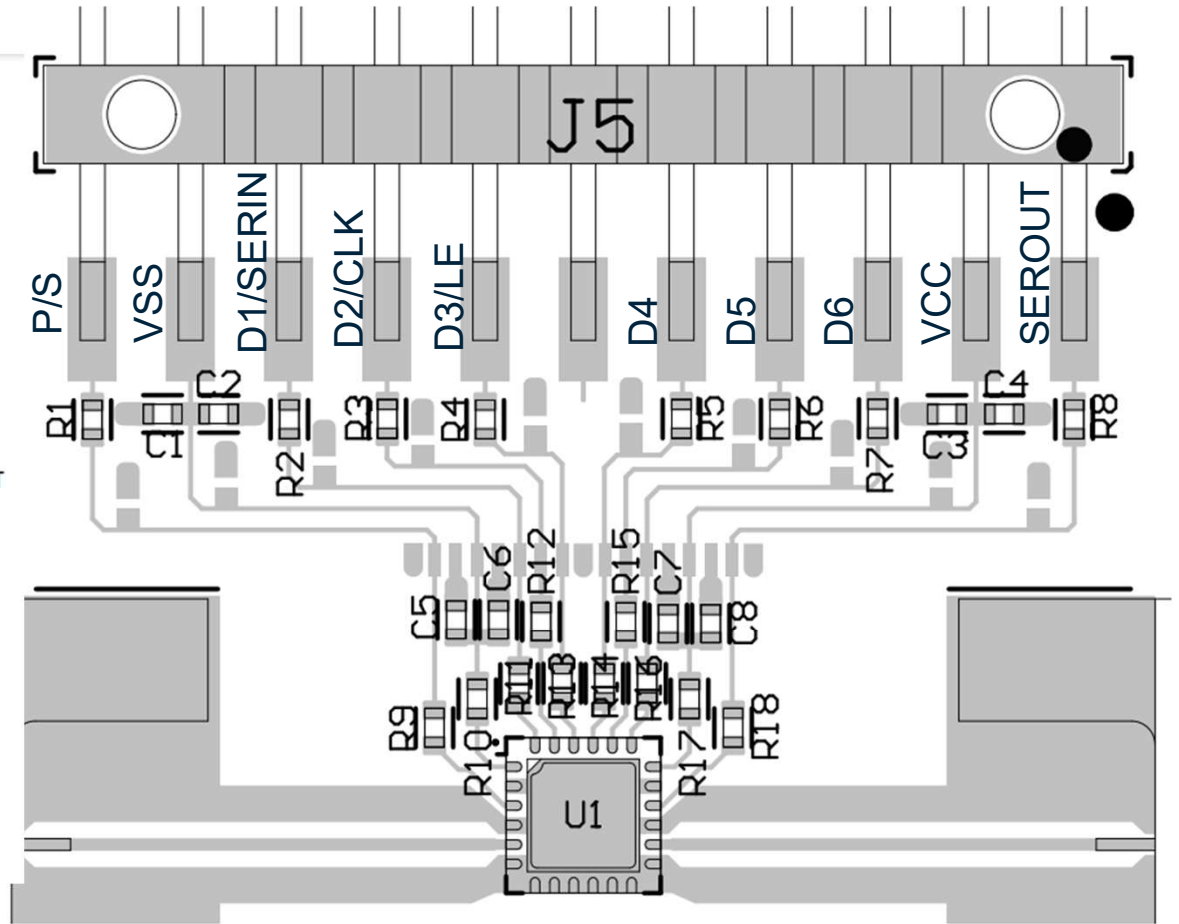
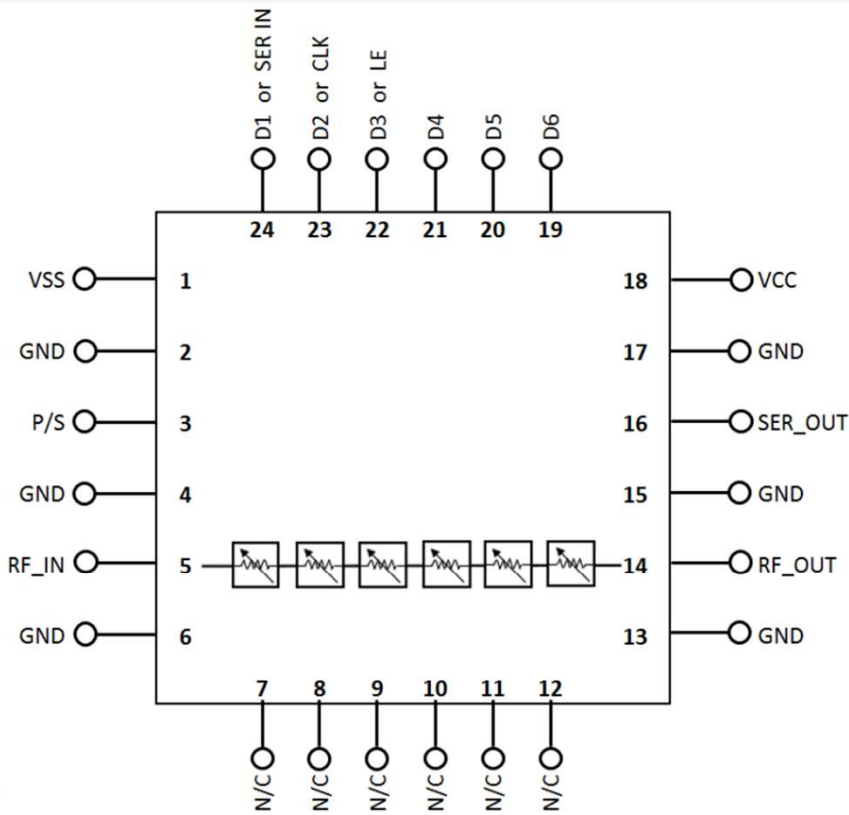


Scope



- > To highlight some details about the MAAD-011036 evaluation module
- > To make it easier to use

Pin Labeling



Control Instructions from Datasheet



Digital Attenuator, 6-Bit, Serial / Parallel Control
0.1 - 30 GHz, 31.5 Attenuation Range



MAAD-011036
Rev. V1

Modes of Operation Serial and Direct Parallel

Mode Truth Table⁸

P/S	LE	Mode
1	X	Serial
0	N/A	Direct Parallel

8. In the serial mode: D4, D5, and D6 should be tied to ground or to V_{CC} .

Direct Parallel Mode

The parallel mode is enabled when P/S is set low. In the direct parallel mode, the digital attenuator is controlled by the parallel control inputs directly. When P/S is set low, pins 22, 23, and 24 have the D3, D2, and D1 function.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 1A devices.

Serial Mode

The serial control interface (SERI IN, CLK, LE, SER OUT) is compatible with the SPI protocol. SPI mode is activated when P/S is kept high. The 6-bit serial word must be loaded with the MSB first. After shifting in the 6 bit word, a rising edge on LE will set the digital attenuator to the desired state. While LE is high the CLK is masked to protect the data while implementing the change. SER OUT is SER IN delayed by 6 clock cycles.

When P/S is low, the serial control interface is disabled. When P/S is set high, pins 22, 23, and 24 have the LE, CLK, and SER IN function.

In serial mode operation, the outputs will stay constant while LE is kept low.

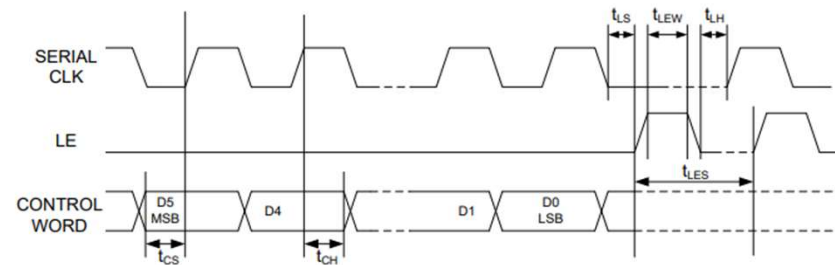
Digital Attenuator, 6-Bit, Serial / Parallel Control
0.1 - 30 GHz, 31.5 Attenuation Range



MAAD-011036
Rev. V1

Functionality Modes of Operation: Serial and Direct Parallel

Serial Input Interface Timing Diagram



Serial Interface Timing Characteristics

Symbol	Parameter	Units
t_{SCK}	Min. Serial Clock Period	ns
t_{CS}	Min. Control Set-up Time	ns
t_{CH}	Min. Control Hold Time	ns
t_{LS}	Min. LE Set-up Time	ns
t_{LEW}	Min. LE Pulse Width	ns
t_{LH}	Min. Serial Clock Hold Time from LE	ns
t_{LES}	Min. LE Pulse Spacing	ns