

TQP4M9083

High Linearity 7-Bit, 31.75dB Digital Step Attenuator



Applications Information

PC Board Layout

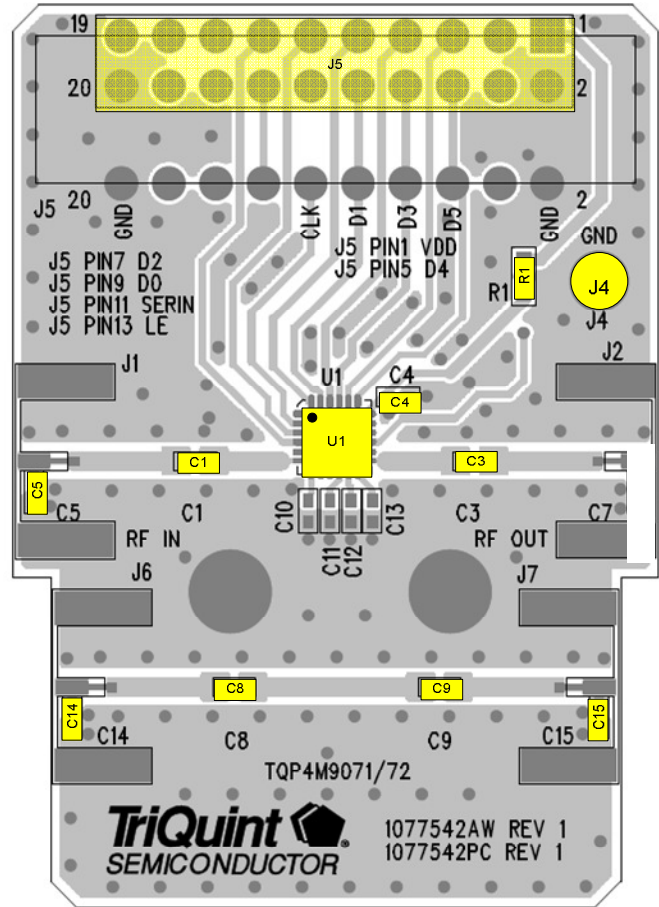
Top RF layer is .020" Rogers-4003, $\epsilon_r = 3.45$, 4 total layers (0.062" thick) for mechanical rigidity. Metal layers are 1-oz copper. Microstrip line details: width = .040", spacing = .020".

External DC blocking capacitors (C1 and C3) are required on RFin and RFout pins of the device. The supply voltage for the DSA is supplied externally through pin Vdd. Frequency bypassing for this pin is supplied by surface mount capacitor 0.1 uF (C4). This capacitor is placed close to the device pin in the board layout. To ensure application circuit is compatible with different standard power supplies, 15 Ω (R4) dropping resistor is highly recommended on Vdd supply line.

RF layout is critical for getting the best performance. RF trace impedance needs to be 50 ohm. For measuring the actual device performance on connectorized PC board, input losses due to RF traces need to be subtracted from the data measured through SMA connectors. The calibration microstrip line J6-J7 estimates the PCB insertion loss for removal from the evaluation board measured data. All data shown on the datasheet are de-embedded up to the device input/output pins.

The PC board is designed to test using USB control interface board, Evaluation Board Host (EVH). Each TQP4M9083 evaluation board is supplied with the EVH board, USB cable and EVH graphical user interface (EVH GUI) to change attenuation states. Manual for using EVH and Application note describing the EVH are also available. Refer to TriQuint's website for more information

The pad pattern shown has been developed and tested for optimized assembly at TriQuint Semiconductor. The PCB land pattern has been developed to accommodate lead and package tolerances. Since surface mount processes vary from company to company, careful process development is recommended.



Bill of Material: TQP4M9083-PCB

Reference Desg.	Value	Description	Manufacturer	Part Number
U1		High Linearity 7-Bit, 31.5dB, DSA	TriQuint	TQP4M9083
C1,C3,C8, C9	1000 pF	Cap, Chip, 0402, 50V, X7R, 10%	various	
C4	0.1 uF	Cap, Chip, 0402, 50V, X7R, 10%	various	
R1	15 Ω	Res, Chip, 0402, 1/16W, 5%	various	
C10, C11, C12, C13	DNP	Do Not Place	various	