



MPT 1416VA VECTOR ATTENUATOR

FEATURES

- FREQUENCY RANGE OF 1400 MHz TO 1600 MHz
- SURFACE-MOUNT PACKAGE

DESCRIPTIONS

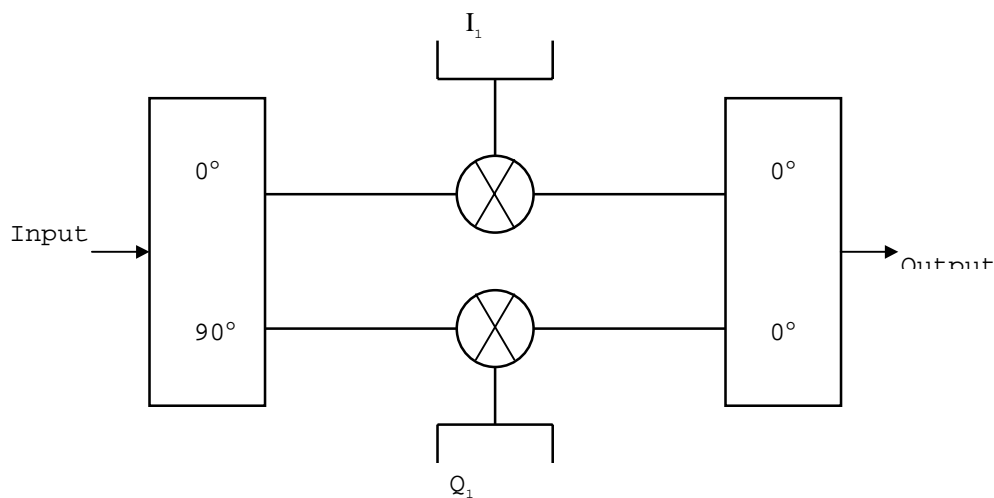
MPT 1416VA is a vector attenuator in a 18-pin surface mount package of 1.0" X 0.9." It is functionally equivalent to the combination of an endless phase shifter and attenuator, for use at 1400 MHz to 1600 MHz. MPT 1416VA may be used anywhere it is necessary to control the amplitude and phase of a signal without introducing intermodulation distortion, dispersion, or variation in group delay.

While MPT 1416VA is not architecturally similar to the combination of a phase shifter and attenuator, it serves the same purpose and has several other advantages. For example, there is no limitation on phase change. With negligible delay variation, phase can increase or decrease continuously without reaching an end point.

The 1416VA can also transition directly from any attenuation and phase to any other attenuation and phase. For example, minimum attenuation at 0° to minimum attenuation at 180°, without a continuous phase transition from 0° to 90° to 180°.

These qualities make the 1416VA particularly useful in signal cancellation systems where the phase and amplitude of one signal must be adjusted so that it can be completely cancel another signal of arbitrary amplitude and phase.

Typical applications include gain and phase adjustment in the cancellation loops of feed - forward amplifiers and in RF predistorters. Application notes are available describing their use in these types of systems.



1416VA Block Diagram

MAXIMUM RATINGS

Operating Temperature	-40°C to +85°C
RF Signal Input	20 dBm
Attenuation Control (I1, I2, Q1 or Q2)	50 mA

ELECTRICAL CHARACTERISTICS (Frequency: 1400 MHz to 1600 MHz, T_c = +25°C)

Minimum Insertion Loss	10 dB
Typical Attenuation Range	20 dB
Input VSWR	1.25 : 1
Output VSWR	1.5 : 1
Input Third-Order Intercept	> 40 dBm
Typical variation of group delay with attenuation range of 10 to 20 dB is ± 100 psec	

PIN ASSIGNMENT

Pin #	Function
9	In-phase Attenuator Control (I ₁)
7	RF Input
1	Quadrature Attenuator Control (Q ₁)
18	Quadrature Attenuator Control (Q ₂)
14	RF Output
10	In-phase Attenuator Control (I ₂)
All Others	Ground

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