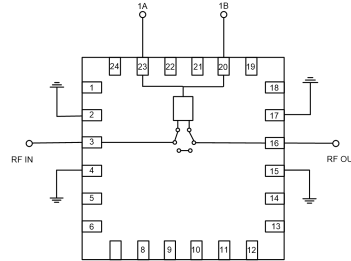


GaAs MMIC CNC Attenuator Chip, DC-10GHz

Performance characteristics

Frequency range: DC-10GHz
 Insertion loss: 1.8dB typ
 Attenuation range: 31.5dB
 Bit count: 1
 Additional phase shift: $-5^{\circ} \sim +5^{\circ}$
 50Ohm input/output
 Chip size: QFN 4X4

Functional Block Diagram



Product Introduction

GDA-0010-1D-CQ4 is a GaAs MMIC 1-bit CNC attenuator chip, with a frequency range of DC~10GHz, insertion loss of 1.8dB, switching speed of 20ns, and 0/-5V control. The amplifier adopts a 4X4mm surface mount lead-free ceramic casing, which can achieve airtight packaging. The surface of the pin pads is treated with gold plating technology, suitable for reflow soldering installation process.

Usage restriction parameter¹

Control voltage range	-8V~+0.5V
Maximum input power	+27dBm
Working temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

【1】 Exceeding any of the above maximum limits may result in permanent damage.

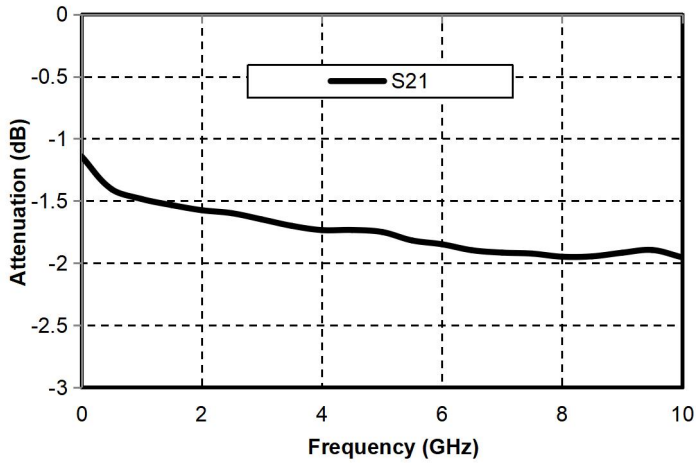
Electrical parameters(Ta=+25° C)

Index	Minimum	Typical value	Maximum value	Unit
Frequency range	DC~10			GHz
Insertion loss	-	1.8	-	dB
Attenuation range	31.5			dB
Attenuation number	1			bite
Attenuation step	31.5			dB
Attenuation accuracy (all frequency bands)	±0.6			dB
Phase fluctuation (full frequency band)	-5 ~ +5			degree
Input return loss	-	18	-	dB
Output Return Loss	-	18	-	dB
Switching speed	-	20	-	ns
P-1dB	-	23	-	dBm

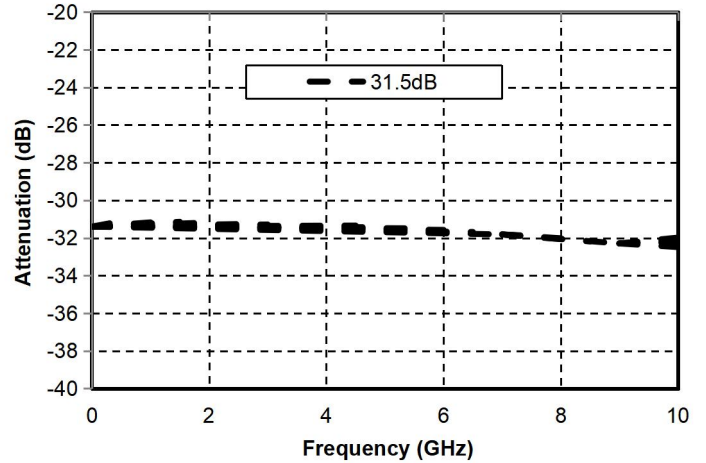
GaAs MMIC Attenuator Chip, DC-10GHz

Main indicator testing curve

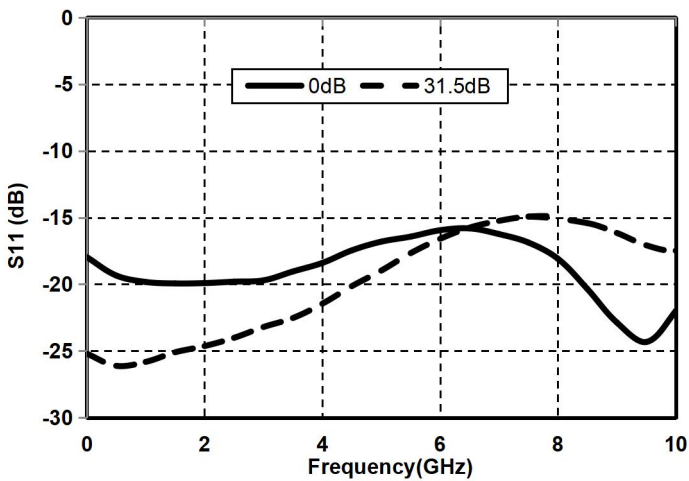
Insertion loss vs. frequency



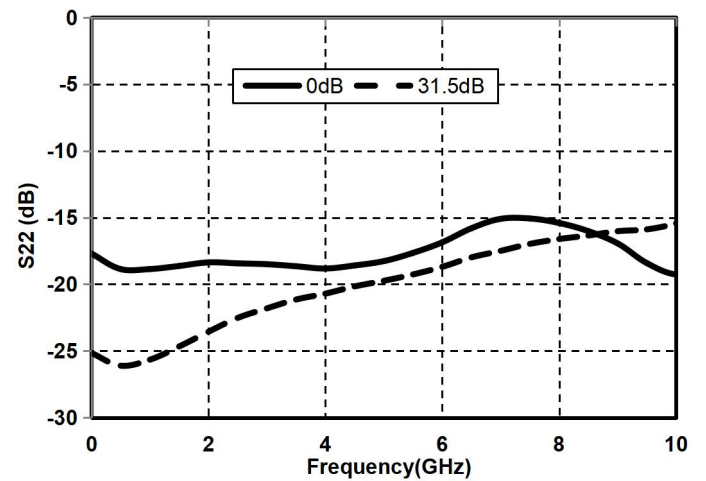
Reference attenuation state vs. frequency



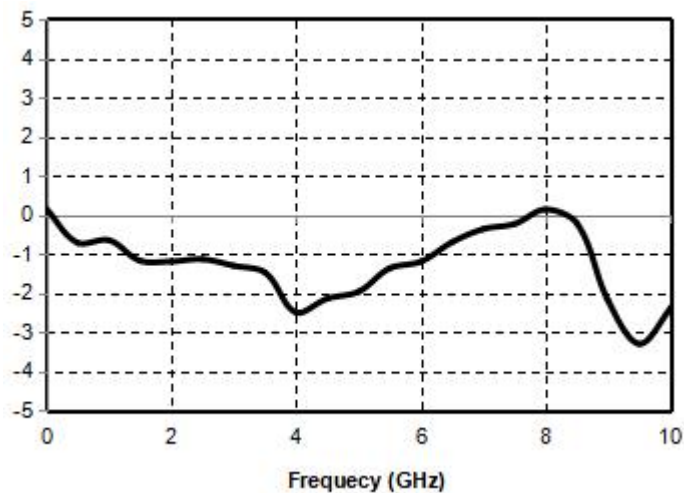
Input Echo vs. Frequency



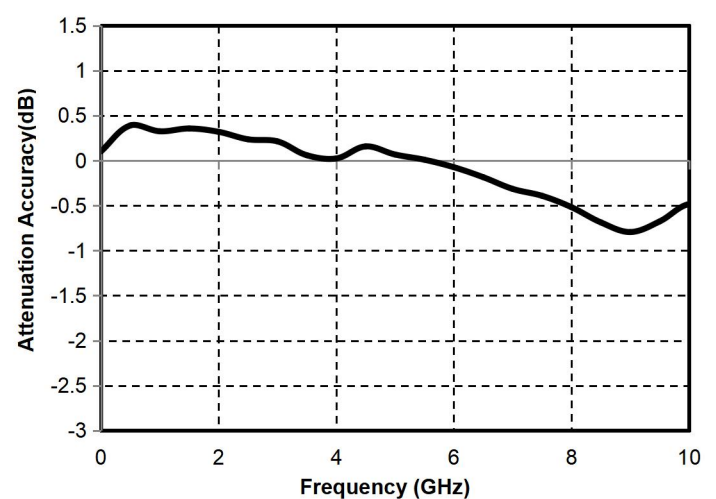
Output Echo vs. Frequency



Attenuation additional phase shift vs. frequency

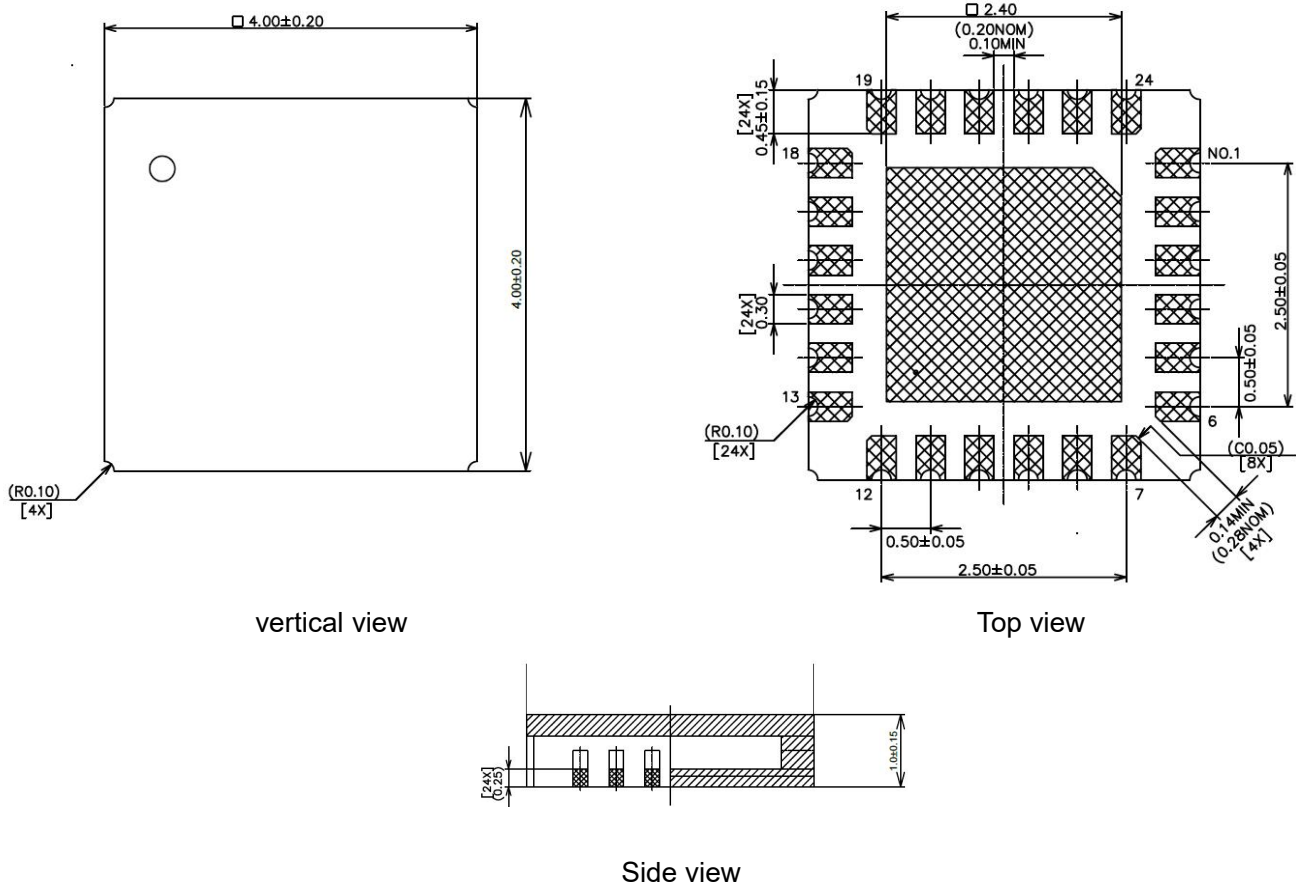


Attenuation accuracy vs. frequency



GaAs MMIC Attenuator Chip, DC-10GHz

External structure



The units in the figure are all millimeters.

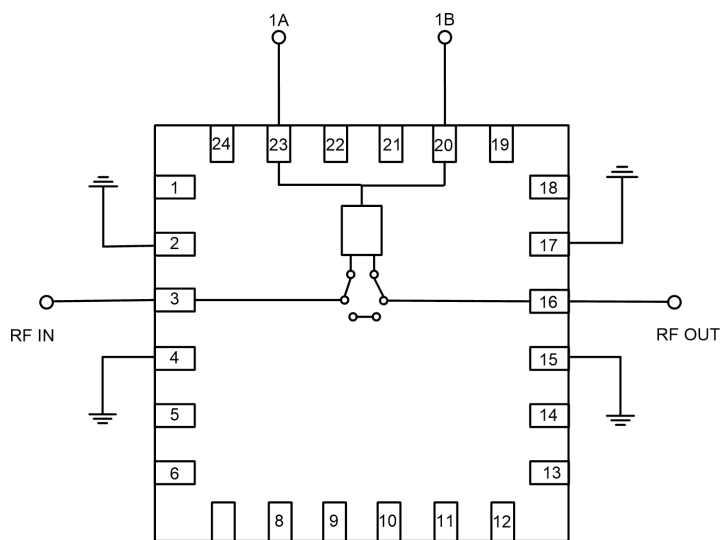
Pin Definition		
Bond point number	Functional symbols	Function Description
3	RFIN	RF signal input terminal requires the installation of a DC isolation capacitor
16	RFOUT	RF signal output terminal requires the installation of a DC isolation capacitor
2、4、15、17	GND	The bottom of the chip needs to be well grounded with RF and DC
20(1B)、23 (1A)	VC	Attenuation control end
other	NC	No welding required, can be grounded

Truth table

1A	1B	Attenuation state
-5V	0V	31.5dB attenuation state
0V	-5V	0 state

GaAs MMIC Attenuator Chip, DC-10GHz

Recommended circuit



Precautions for use

- Sealing material: Ceramic material that meets ROHS specifications
- Lead frame material: copper alloy
- Lead surface coating: gold, with a gold layer thickness greater than 1.5um
- Maximum reflow soldering peak temperature: 260 °C