

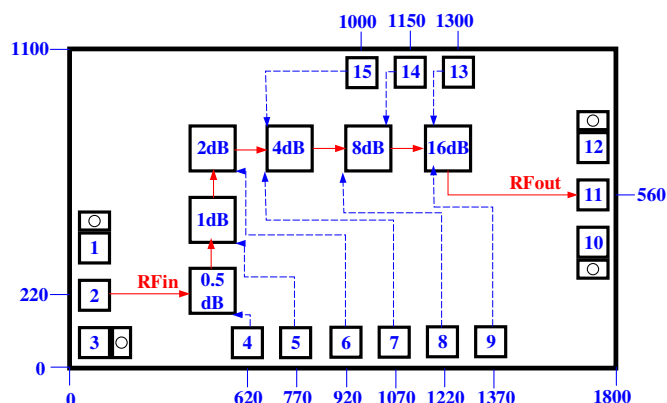
General Description

The MWA002 is broadband 6-bit GaAs pHEMT MMIC digital attenuators. Covering DC-20GHz, the insertion loss is less than 3.5dB typical.

Features

Frequency Range: DC – 20 GHz
 Insertion Loss: 3.3 dB @ 20GHz
 Attenuation Range: 0.5 ~ 31.5 dB
 Attenuation Accuracy: 0.5 dB
 Size: 1.8mm x 1.1mm

Functional Diagram (Typical bondpad: 100x100um)



(Die Thickness: 100 um)

Electrical Specifications, $V_{ss} = -5/0V, -3/0V$

Parameter	Frequency Range	Min	Typ	Max	Units
Insertion Loss	DC-20GHz		2.5	3.3	dB
Attenuation Range	DC-20GHz		31.5		dB
Return Loss	DC-20GHz		-13		dB
Attenuation step	DC-20GHz		0.5		dB
Attenuation Accuracy (RMS)			0.2		dB

Pin Function Descriptions:

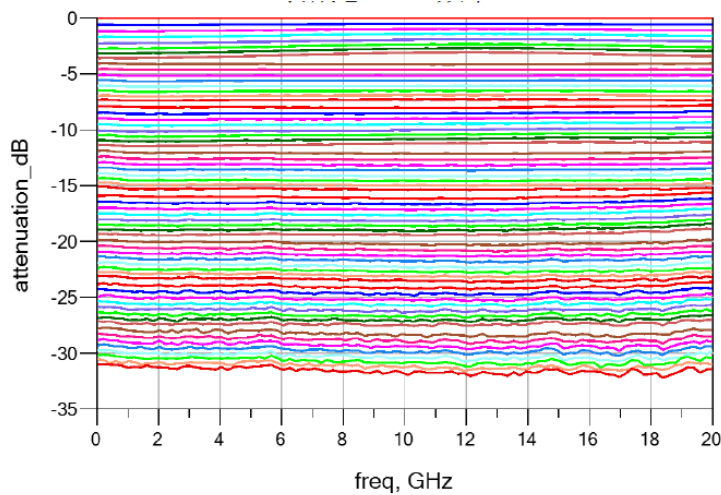
Pin NO.	Mnemonic	Description	Pin size(um)
2	RFin	Input RF	100X100
11	RFout	Output RF	100X100
1、3、10、12	GND	Ground	100X100
4、5、6、7、8、9、13、14、15	V1/V2/V3/V4/V5 V7/V8/V9	Control Voltage	100X100

Truth Table

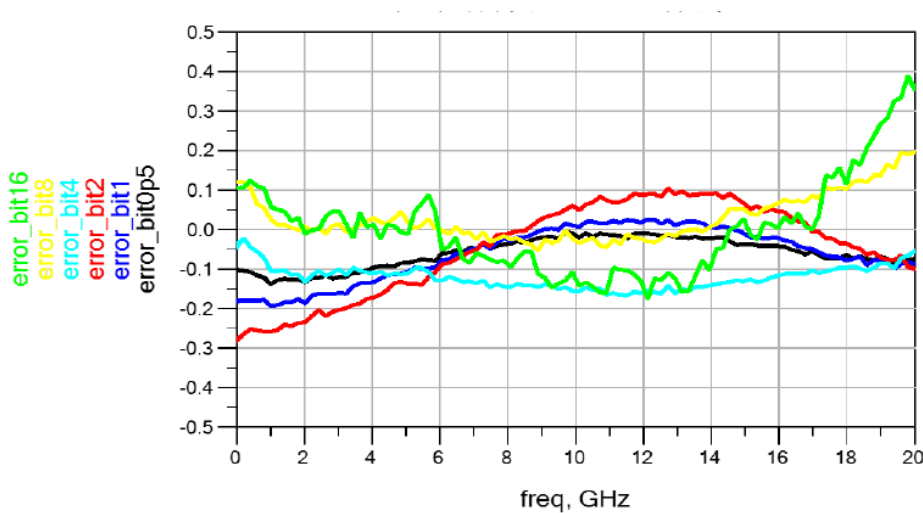
0.5dB	1dB	2dB	4dB		8 dB		16dB		Status
V1	V2	V3	V4	V7	V5	V8	V6	V9	
-5	-5	-5	0	-5	-5	0	0	-5	Ref
0	-5	-5	0	-5	-5	0	0	-5	0.5dB
-5	0	-5	0	-5	-5	0	0	-5	1dB
-5	-5	0	0	-5	-5	0	0	-5	2dB
-5	-5	-5	-5	0	-5	0	0	-5	4dB
-5	-5	-5	0	-5	0	-5	0	-5	8dB
-5	-5	-5	0	-5	-5	0	-5	0	16dB

DC-20 GHz Test Results

Attenuation vs Frequency

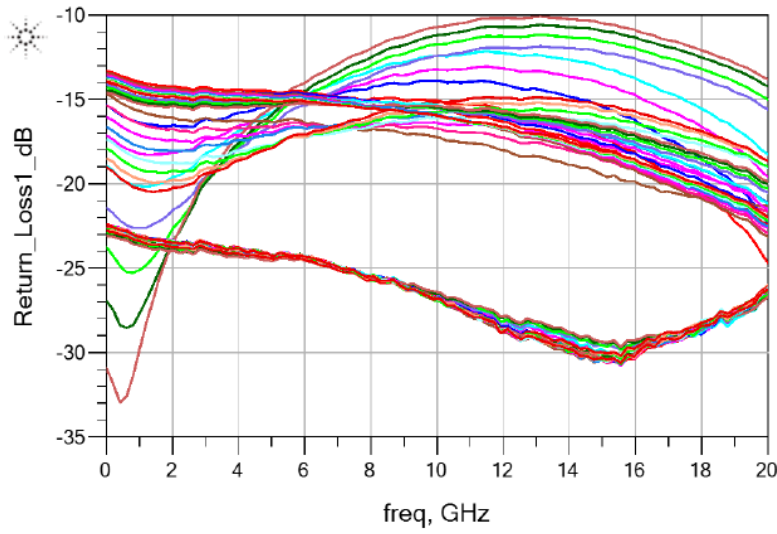


Attenuation Accuracy vs Frequency

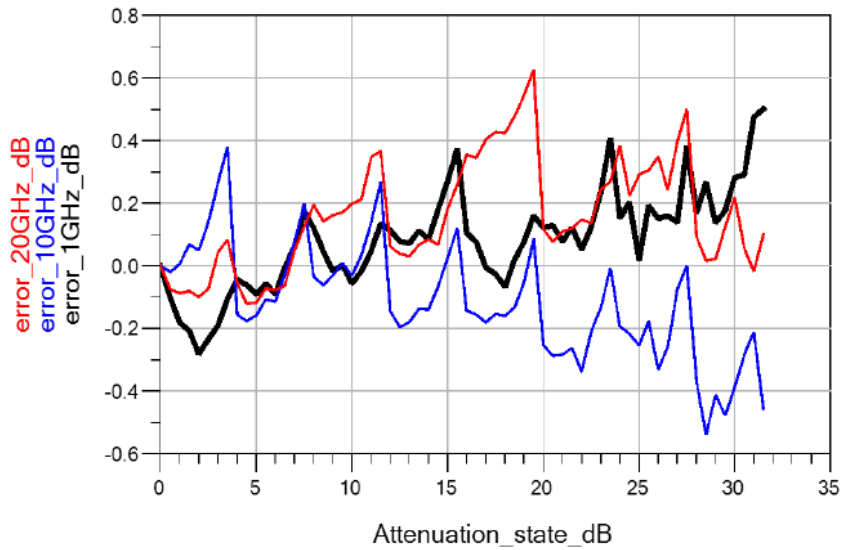




Input Return Loss



Attenuation Accuracy VS Attenuation_state



Insertion Loss

