

## DESCRIPTION

AMCOM's AM0040PM-VVA is a connectorized, fully matched Voltage Controlled Attenuator module. It has a wide frequency range from DC up to 4 GHz. It also features high linearity performance. The control is simply achieved by a DC input voltage ( $V_{ctrl}$ ) varied between 1 and 5 Volts. In addition, the module requires an external fixed supply voltage ( $V_{supply}$ ) of 2.7V. The dimensions of the module are 1.5" (L) x 1" (W) x 0.46" (H).

## FEATURES

- High Frequency Operation up to 4 GHz
- Fully matched connectorized module
- High linearity
- High input P1dB

## APPLICATIONS

- General purpose Voltage Controlled Attenuator
- Wideband system applications
- Automatic Gain Control
- Feedforward linearizer

## ELECTRICAL SPECIFICATIONS (@ 2 GHz, $V_{supply} = 2.7V$ , $T = 25^{\circ}C$ )

Parameters	Unit	MIN	TYP	MAX
Max $I_{supply}$	mA	-	2.5	-
Max $I_{ctrl}$	mA	-	20.5	-
S21 (Max Attenuation @ $V_{ctrl} = 1V$ )	dB	-	34	-
S21 (Min Attenuation or Insertion Loss @ $V_{ctrl} = 5V$ )	dB	-	3.5	-
Input Return Loss (@ $V_{ctrl} = 5V$ )	dB	10	12	-
Output Return Loss (@ $V_{ctrl} = 5V$ )	dB	9.5	11.5	-
IIP3 (Input Third Order Intercept Point)	dBm	-	50	-
IP1dB (Input Power @ 1dB Compression)	dBm	-	33	-

## ABSOLUTE MAXIMUM RATINGS (@ $T = 25^{\circ}C$ )

Parameters	Unit	Absolute MAX
$I_{supply}$	mA	18
$I_{control}$	mA	33.4
$P_{in}$ (RF input Power CW)	dBm	27
$P_{in}$ (RF input power with 12.5% duty cycle)	dBm	36
$P_{diss}$ (Total Power Dissipation)	W	0.3
$T_j$ (Junction Temperature)	$^{\circ}C$	150
$T_{stg}$ (Storage Temperature)	$^{\circ}C$	-60 to 150

**LINEAR DATA**

S-parameters @  $V_{\text{supply}} = 2.7V$ ,  $V_{\text{ctrl}} = 1V$ ,  $T = 25^{\circ}C$  \*

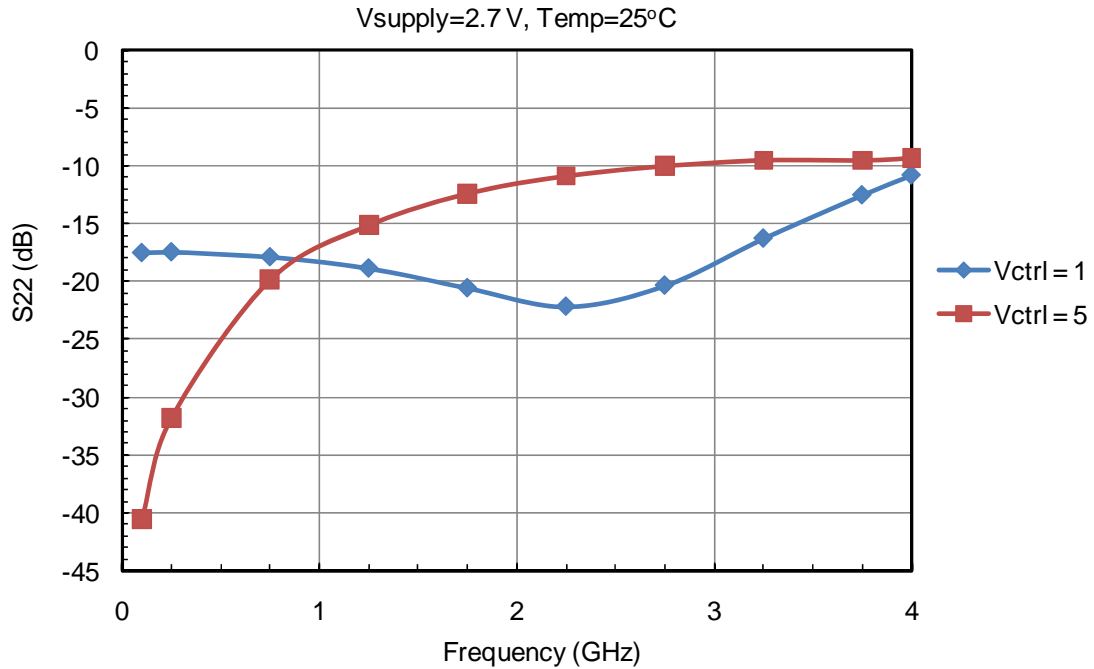
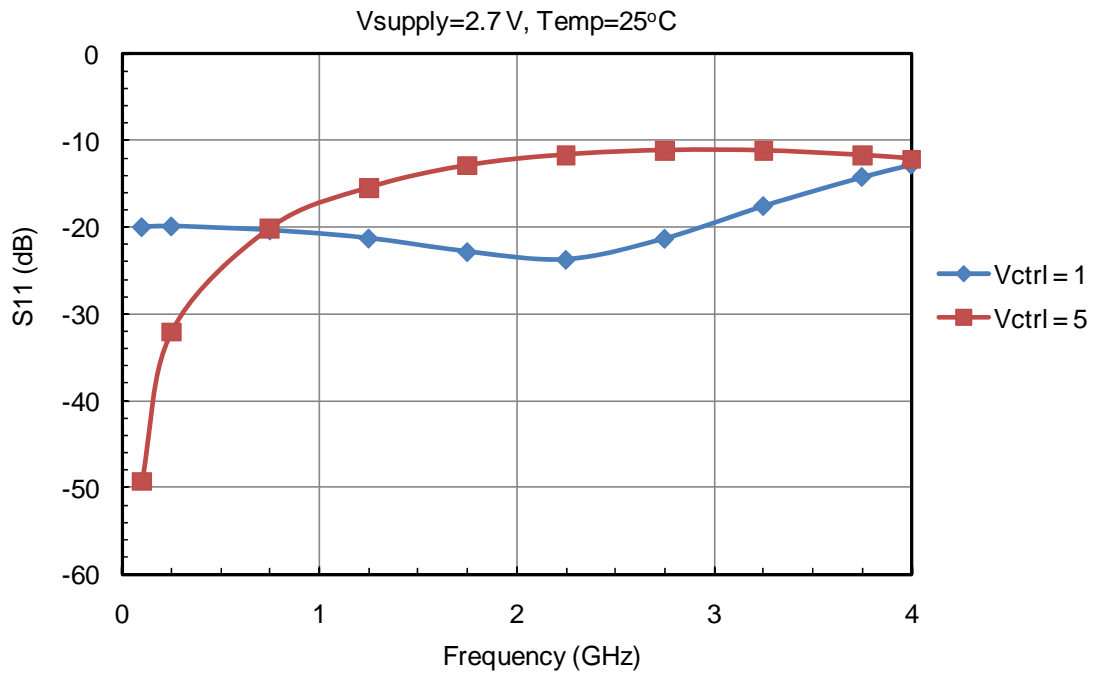
Freq(GHz)	MagS11	AngS11	MagS21	AngS21	MagS12	AngS12	MagS22	AngS22
0.05	0.12	-173.48	0.01	-30.29	0.01	80.84	0.13	-173.15
0.10	0.14	174.53	0.01	28.53	0.01	19.46	0.13	174.70
0.20	0.14	160.44	0.01	4.91	0.01	6.97	0.14	162.16
0.40	0.14	136.61	0.01	-8.07	0.01	-8.79	0.13	139.25
0.60	0.14	114.85	0.01	-20.46	0.01	-20.91	0.13	118.66
0.80	0.13	93.34	0.01	-34.73	0.01	-34.98	0.13	98.02
1.00	0.13	72.73	0.01	-48.67	0.01	-48.40	0.12	78.27
1.20	0.13	52.52	0.01	-64.76	0.01	-64.54	0.12	59.16
1.40	0.12	33.31	0.01	-81.66	0.01	-81.64	0.11	40.99
1.60	0.11	14.85	0.02	-99.24	0.02	-99.69	0.10	24.66
1.80	0.10	-2.31	0.02	-118.50	0.02	-118.18	0.09	10.02
2.00	0.09	-16.95	0.02	-137.70	0.02	-137.01	0.08	-1.29
2.20	0.07	-27.96	0.02	-157.33	0.02	-157.59	0.08	-9.57
2.40	0.06	-33.33	0.03	-177.15	0.03	-177.18	0.08	-15.94
2.60	0.06	-32.46	0.03	162.68	0.03	162.74	0.09	-21.19
2.80	0.07	-29.60	0.03	141.79	0.03	141.77	0.10	-29.24
3.00	0.08	-32.32	0.04	120.85	0.04	120.77	0.12	-40.16
3.20	0.10	-41.39	0.04	99.61	0.04	99.38	0.15	-54.49
3.40	0.13	-55.05	0.04	77.81	0.04	77.73	0.18	-72.75
3.60	0.16	-71.73	0.05	55.35	0.05	54.69	0.22	-93.71
3.80	0.19	-90.65	0.05	32.69	0.05	33.08	0.25	-113.64
4.00	0.22	-111.09	0.06	9.35	0.06	8.76	0.29	-136.23
4.20	0.25	-132.90	0.06	-14.60	0.06	-14.27	0.33	-158.27
4.40	0.28	-155.66	0.07	-38.72	0.07	-38.91	0.38	178.01
4.60	0.31	179.96	0.08	-64.22	0.08	-64.57	0.42	153.11
4.80	0.34	155.08	0.08	-89.72	0.08	-90.05	0.46	128.41
5.00	0.38	128.80	0.09	-116.45	0.09	-116.11	0.51	102.70

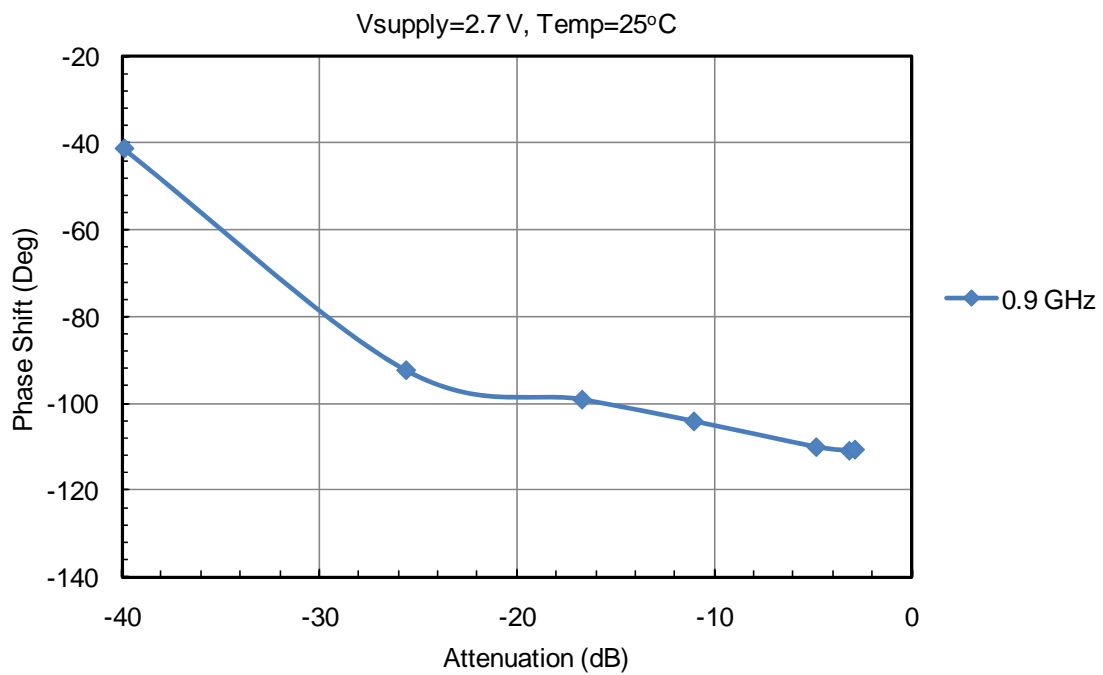
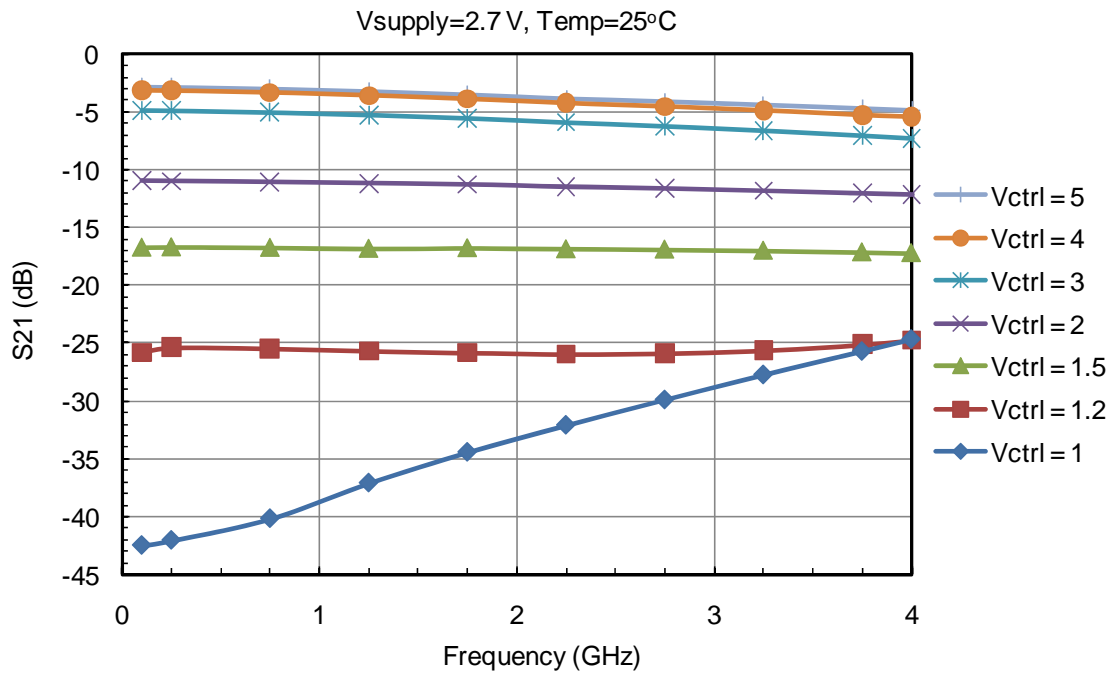
\* Download S-parameters file from website: <http://www.amcomusa.com>

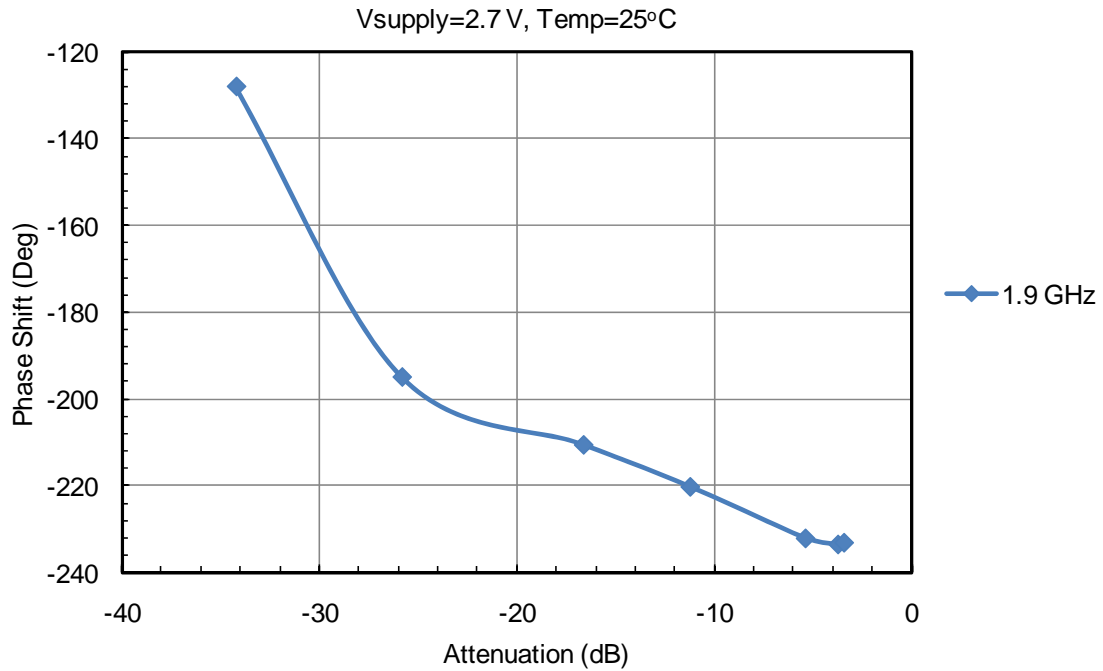
S-parameters @  $V_{\text{supply}} = 2.7V$ ,  $V_{\text{ctrl}} = 5V$ ,  $T = 25^{\circ}C$  \*

Freq(GHz)	MagS11	AngS11	MagS21	AngS21	MagS12	AngS12	MagS22	AngS22
0.05	0.03	84.35	0.74	-1.07	0.74	-1.75	0.02	72.75
0.10	0.01	147.08	0.73	-10.34	0.73	-10.27	0.01	147.86
0.20	0.02	-139.28	0.73	-23.68	0.73	-23.54	0.02	-134.90
0.40	0.04	-144.25	0.73	-48.94	0.73	-48.77	0.05	-141.40
0.60	0.07	-165.22	0.72	-73.64	0.72	-73.68	0.08	-162.42
0.80	0.10	170.65	0.72	-98.54	0.72	-98.32	0.11	174.08
1.00	0.13	146.12	0.71	-123.00	0.71	-122.89	0.14	150.67
1.20	0.16	122.05	0.70	-147.59	0.70	-147.35	0.17	126.50
1.40	0.19	98.48	0.70	-171.95	0.70	-172.36	0.20	102.48
1.60	0.21	75.04	0.69	163.56	0.68	163.58	0.22	79.26
1.80	0.23	51.58	0.68	139.08	0.68	139.07	0.25	55.15
2.00	0.25	29.09	0.67	114.74	0.66	114.68	0.26	31.94
2.20	0.27	6.42	0.66	90.49	0.66	90.57	0.28	9.44
2.40	0.28	-15.14	0.65	66.35	0.65	65.99	0.30	-13.89
2.60	0.29	-36.64	0.64	41.78	0.64	41.30	0.31	-35.96
2.80	0.30	-58.41	0.63	17.23	0.63	17.53	0.32	-57.56
3.00	0.30	-79.92	0.63	-7.04	0.63	-7.40	0.33	-80.11
3.20	0.30	-102.18	0.61	-32.07	0.61	-31.91	0.33	-101.59
3.40	0.29	-123.83	0.61	-56.22	0.61	-55.99	0.34	-122.76
3.60	0.28	-145.97	0.60	-81.40	0.60	-82.01	0.34	-145.51
3.80	0.27	-168.17	0.59	-106.12	0.59	-105.59	0.34	-165.52
4.00	0.25	169.98	0.58	-131.20	0.58	-131.91	0.34	172.92
4.20	0.24	148.19	0.57	-157.10	0.57	-156.93	0.35	152.95
4.40	0.22	126.64	0.56	177.26	0.56	177.02	0.36	132.56
4.60	0.21	105.65	0.55	151.16	0.55	151.05	0.37	111.92
4.80	0.20	85.07	0.54	124.33	0.53	123.83	0.38	90.25
5.00	0.19	65.64	0.52	97.47	0.51	97.88	0.40	69.48

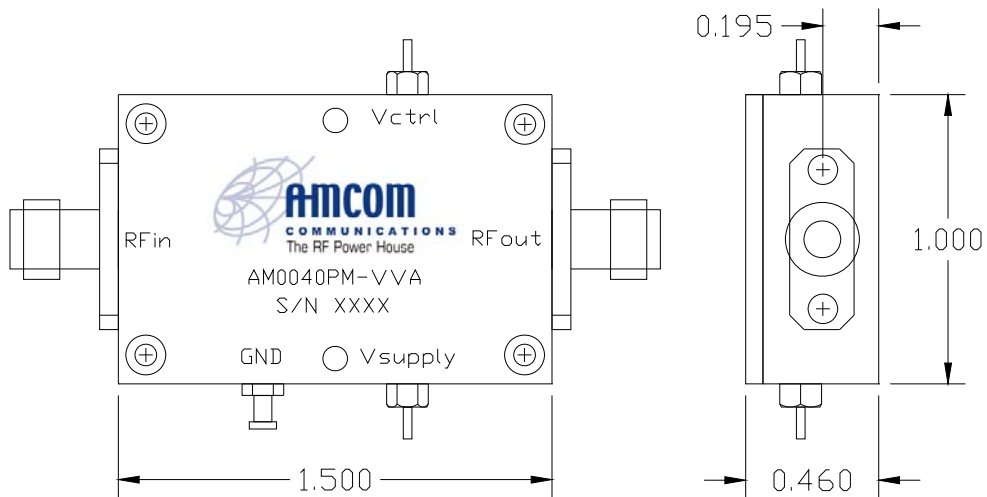
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MODULE OUTLINE \*



\* All Dimension are in inch