Surface Mount

Voltage Variable Attenuator

SYVA-30+

50Ω 16 to 30 MHz

CASE STYLE: AH202-1
PRICE: $11.95 ea. QTY. (10)

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Control Voltage	6V
Control Current	10 mA
RF Input Level	+15 dBm

Permanent damage may occur if any of these limits are exceeded.

Pad Connections

RF IN	1
CONTROL 1*	8
CONTROL 2*	5
RF OUT	4
GROUND	2,3,6,7

* Connect together externally

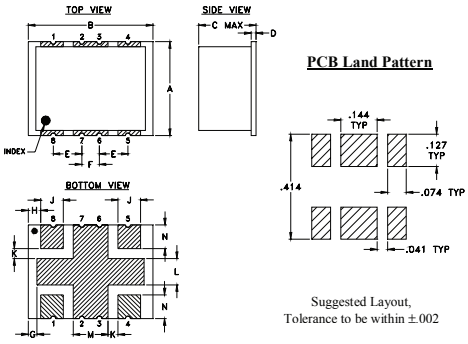
Features

- low insertion loss, 0.7 dB typ.
- high attenuation,32 dB typ.
- excellent return loss, 25 dB typ.

Applications

- variable gain amplifier
- feed forward amps
- ALC circuits

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.38	.50	.25	.020	.115	.070	.035
9.65	12.70	6.35	0.51	2.92	1.78	0.89

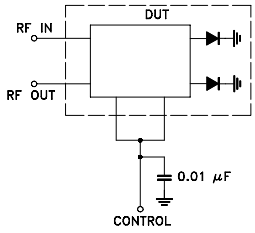
H	J	K	L	M	N	wt
.050	.090	.040	.105	.140	.095	grams
1.27	2.29	1.02	2.67	3.56	2.41	0.80

Electrical Specifications

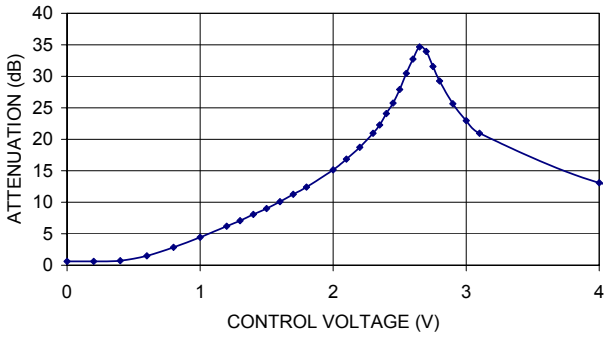
Parameter	Condition	Min.	Typ.	Max.	Units
Frequency Range		16	—	30	MHz
Insertion Loss	at 0V Control Voltage	—	0.7	1.2	dB
Attenuation		26	32	—	dB
IP3[1]	at 0V Control Voltage	—	48	—	dBm
Input Return Loss		—	25	—	dB
Output Return Loss		—	28	—	dB
Control Voltage[2]		—	0-4	—	V
Control Current			4		mA
Input Power		—	—	10	dBm

1. Input IP3 tested with two tones separated by 0.1 MHz at 0 dBm each and 0V control voltage.
2. Using recommended control port biasing.

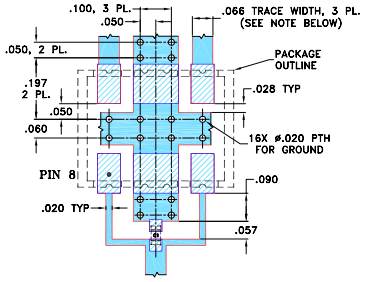
Simplified schematic of DUT



SYVA-30+
TYPICAL ATTENUATION AT 23 MHz



Demo Board MCL P/N: TB-560+
Suggested PCB Layout (PL-312)



CAPACITOR C1: .010 uF, 0603 SIZE.

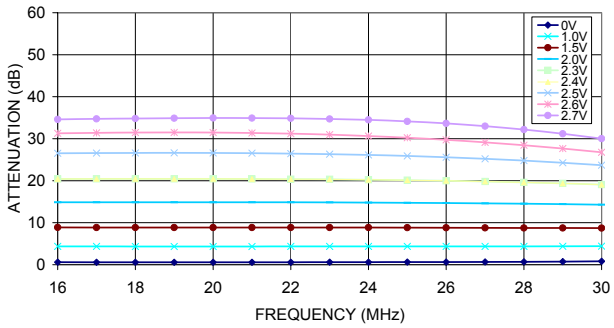
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

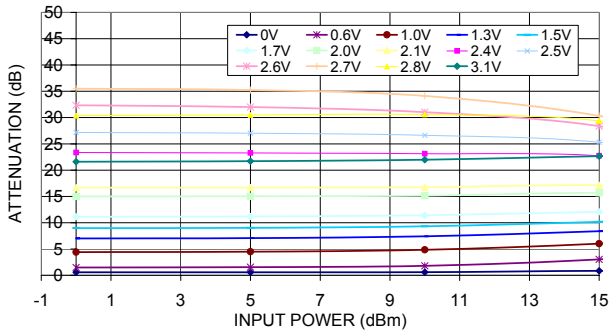
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

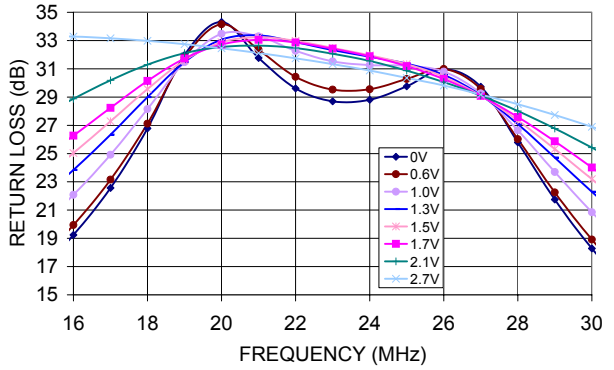
SYVA-30+
ATTENUATION Vs. FREQUENCY
OVER CONTROL VOLTAGES



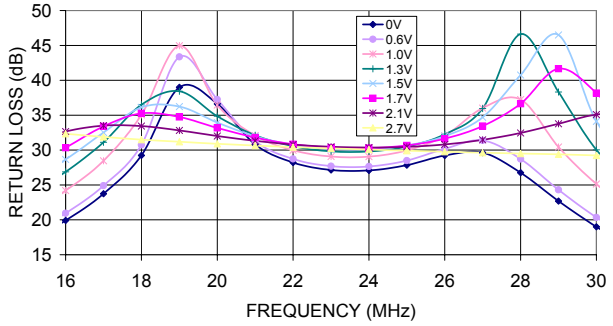
SYVA-30+
ATTENUATION Vs. INPUT POWER
OVER CONTROL VOLTAGES AT 23MHz



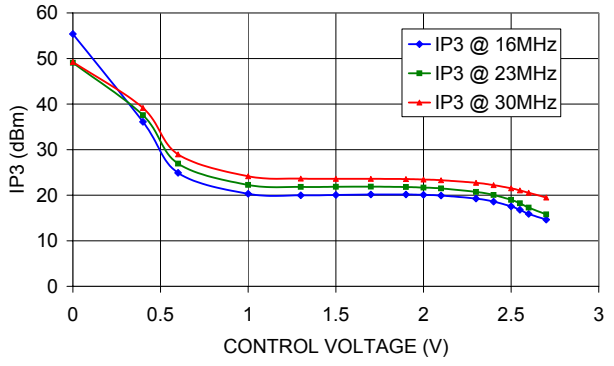
SYVA-30+
INPUT RETURN LOSS Vs. FREQUENCY
OVER CONTROL VOLTAGES



SYVA-30+
OUTPUT RETURN LOSS Vs. FREQUENCY
OVER CONTROL VOLTAGES



SYVA-30+
IP3 Vs. CONTROL VOLTAGE Vs. FREQUENCY



SYVA-30+
PHASE SHIFT Vs. FREQUENCY
OVER CONTROL VOLTAGES 15-30 MHz
(WITH RELATION TO 0V CONTROL VOLTAGE)