Variable Attenuator VA102

Product Features

- Single Voltage
- Pin diode based
- Voltage variable
- High Linearity
- SMD Type

Applications

- Repeater
- Base Station
- RF Sub-Systems



Package Type: HY-46B

Description

This Variable Attenuator has high gain throughout the broadband.

Electrical Specifications @ Ta=+25℃, Vcc=+3V, F=900MHz

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Attenuation	dB	27	2.8	1.5	-
Input Return Loss	dB	-10	-15	-20	-
Output Return Loss	dB	-11	-15	-21	-
IIP3	dBm	47	46	47	-
Input P1dB	dBm	-	30	-	-
Current	mA	0	10	34	-

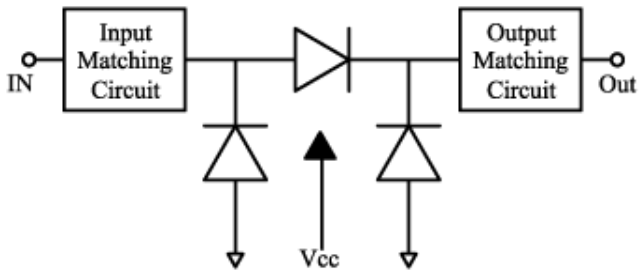
Absolute Maximum Ratings

PARAMETER	UNIT	MIN	MAX
Reference Voltage	VDC	-	3V
RF Input Power	dBm	-	30
Storage Temperature	℃	-40	125

Operating Ranges

PARAMETER	UNIT	MIN	TYP	MAX
Operating Frequency	MHz	100	-	3000
Reference Voltage	VDC	-	+3V	-
Control Voltage	VDC	+1.0V	-	+12V

Functional Diagram



Typical Performance Data @ Vcc=3V, f = 900MHz

Control Voltage	1.0V	2.5V	4.5V	7.0V	12V
Attenuation(dB)	27	6.5	2.8	2	1.5
Return Loss(dB)	-10	-15	-15	-17	-20
IIP3 (dBm)	47	46	46	46	47
Current (mA)	0	4	10	18	34

Typical Performance Data @ Vcc=3V, f = 1900MHz

Control Voltage	1.0V	2.5V	4.5V	7.0V	12V
Attenuation(dB)	23	7.5	3.3	2.7	2.1
Return Loss(dB)	-11	-18	-15	-18	-20
Current (mA)	0	4	10	18	34

Typical Performance Data @ Vcc=3V, f = 2300MHz

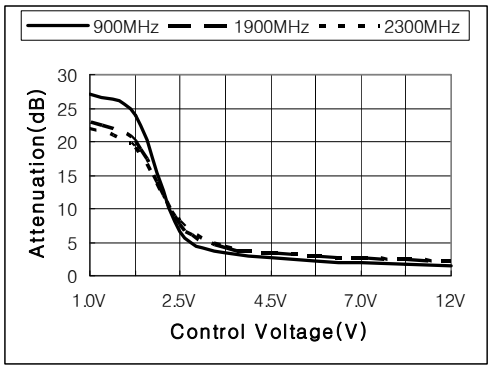
Control Voltage	1.0V	2.5V	4.5V	7.0V	12V
Attenuation(dB)	22	8	3.4	2.75	2.2
Return Loss(dB)	-12	-20	-15	-18	-20
Current (mA)	0	4	10	18	34

Typical Performance Data @ Vcc=3V, f = 2600MHz

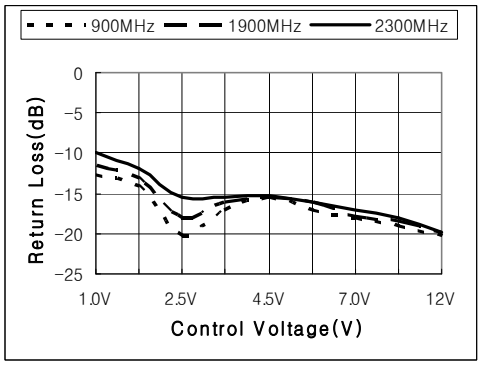
Control Voltage	1.0V	2.5V	4.5V	7.0V	12V
Attenuation(dB)	20	8.5	3.6	2.9	2.4
Return Loss(dB)	-13	-23	-16	-19	-22
Current (mA)	0	4	10	18	34

Typical Performance

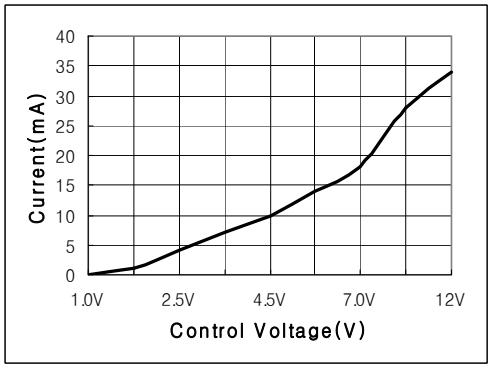
Attenuation vs. Control



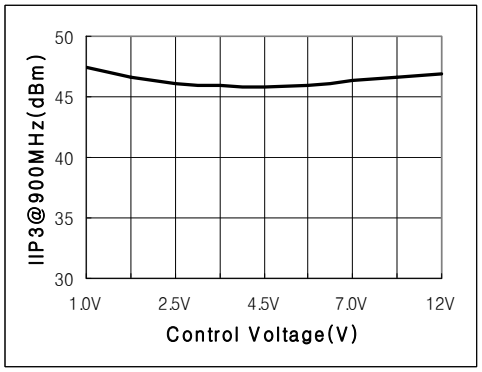
Return Loss vs. Control



Current vs. Control Voltage

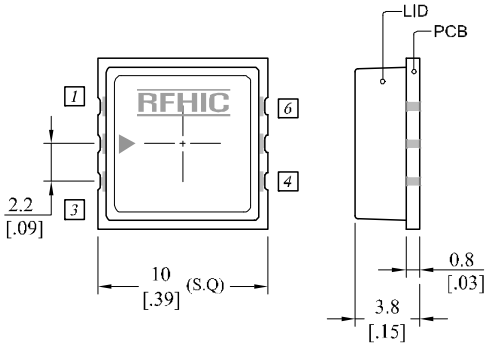


IIP3 vs. Control Voltage



Package Dimensions (Type: HY-46B)

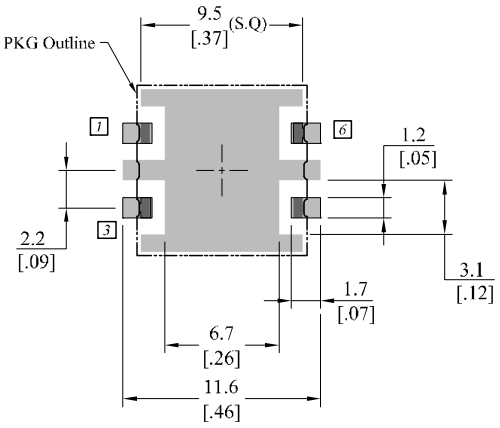
* Unit: mm[inch] | Tolerance: ±0.15[.006]



▲ Top View ▲ Side View

Pin Description			
Pin No	**Function**	**Pin No**	**Function**
1	Input 1	4	Vcc+5V
2	Ground	5	Ground
3	Control	6	Output 1

Recommended Pattern



*** Mounting Configuration Notes**

1. Ground / thermal via holes are critical for the proper performance of this device.
2. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
3. Mounting screws can be added near the part to fasten the board to a heatsink. Ensure that the ground / thermal via hole region contacts the heatsink.
4. Do not put solder mask on the backside of the PCB in the region where the board contacts the heatsink.
5. RF trace width depends upon the PCB material and construction.
6. Use 1 oz. Copper minimum.

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
VA102	2012.9.10	5.5	-	-

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