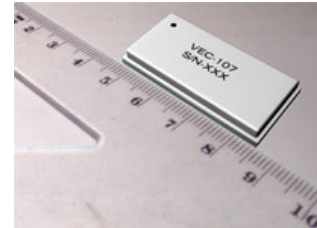


## VEC-107 : Wideband SMT Digital Phase Shifter 1.6 – 2.7 GHz

### Features

- 1.6 to 2.7 GHz Operation (Semicustom frequency bands are optional)
- 6 Bit SMT Phase Shifter with Driver
- 360° Coverage, LSB = 5.6°
- P1dB > +30 dBm, IP3 > +40dBm
- +5V or +3.3V Vcc/Logic Operation
- Very Low DC Power Consumption
- GaAs based, Fast switching
- SMT Package : 1.5"×0.75"×0.2"
- Coaxial SMA Package : Optional



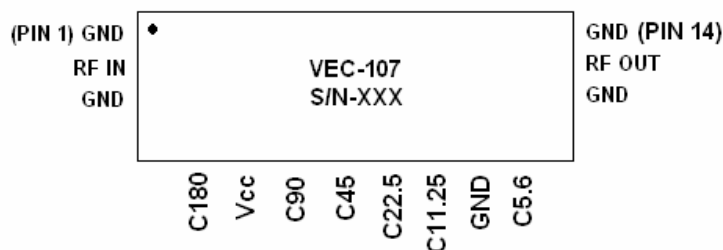
### Application

- Phased Array Antenna
- Satellite Communication
- Smart Antenna Systems
- 3G Cellular and WLAN Base Stations

### Description

The VEC-107 is a 6 bit miniature Digital Phase Shifter with 360° phase coverage in 5.6° Increments. This product is fully matched to 50 Ohms on both the input and output.

Pin Out (Top View)



PIN Number	Designation
2	RF IN
13	RF OUT
4	C180
6	C90
7	C45
8	C22.5
9	C11.25
11	C5.6
5	Vcc
1	GND
3	GND
10	GND
12	GND
14	GND

**Truth Table**

Symbol	Control Voltage	State
A1,A2,A3,A4,A5,A6	Logic High	Reference
A1,A2,A3,A4,A5,A6	Logic Low	Phase Shift

Logic Low = 0 to +0.3 V

Logic High = According to Vcc Level

**Recommended Operating Condition <sup>1</sup>**

Parameter	Symbol	Min	Typ	Max	Units
Supply Voltage (option 1)	Vcc	+ 4.5	+ 5	+ 5.5	V
Supply Voltage (option 2)	Vcc	+ 3	+ 3.3	+ 3.6	V
Control Voltage	A1 thru A6				
Logic High		0.7*Vcc <sup>2</sup>	Vcc	1.1*Vcc	V
Logic Low		0	0	+ 0.3	V
Operating Temperature	Tb	-40		+85	° C

1. Operation at other than Recommended Condition values may result in performance outside the guaranteed limits.
2. But not less than +3V.

**Maximum Ratings <sup>3</sup>**

Parameter	Symbol	Absolute Maximum	Units
RF Input Power	Pin	+33	dBm
Source Supply Voltage	Vcc	-0.2 , +7	V
Control Voltage	A1 thru A6	-0.2 , +7	V
Storage Temperature	Tstg	-55 to +125	° C

3. Operating outside of these ranges may reduce product reliability or cause damage.

**Electrical Characteristics**

Parameter	Typical	Typical
Frequency Range	<b>1800 – 2500 MHz</b>	<b>1600 – 2700 MHz</b>
Insertion Loss (Reference State)	5.3 ± 0.1 dB	5.3 ± 0.4 dB
Insertion Loss Temp Variation	-0.015 dB/°C	-0.015 dB/°C
Loss Change Between States	+ 0.3/-0.2 dB	+ 0.8/-0.5 dB
Input Return Loss (All State)	<16 dBr	<14.5dBr
Output Return Loss (All State)	<17.5 dBr	<16.5dBr
RMS Phase Error	1.8°	3.4°
<b>Absolute Phase:</b>		
5.6°	6.05° ± 0.6°	5.85° ± 0.8°
11.25°	11.95° ± 1.25°	11.75° ± 1.45°
22.5°	21.85° ± 0.35°	22.15° ± 0.65°
45°	44.9° ± 0.6°	45.65° ± 0.75°
90°	89.3° ± 1.35°	91.45° ± 2.85°
180°	179.4° ± 2.5°	182.5° ± 5.75°
Phase Stability Over Temp	± 0.25°	± 0.25°
Input P1dB @ Vcc = +5V	> +30 dBm	> +30 dBm
@ Vcc = +3.3V	+27 dBm	+27 dBm
Input IP3 @ Vcc = +5V	> +40 dBm	> +40 dBm
@ Vcc = +3.3V	+37 dBm	+37 dBm
Switching Speed	< 500 nsec	< 500 nsec
Power Supply : Vcc = +5V	I < 1.5 mA	I < 1.5 mA



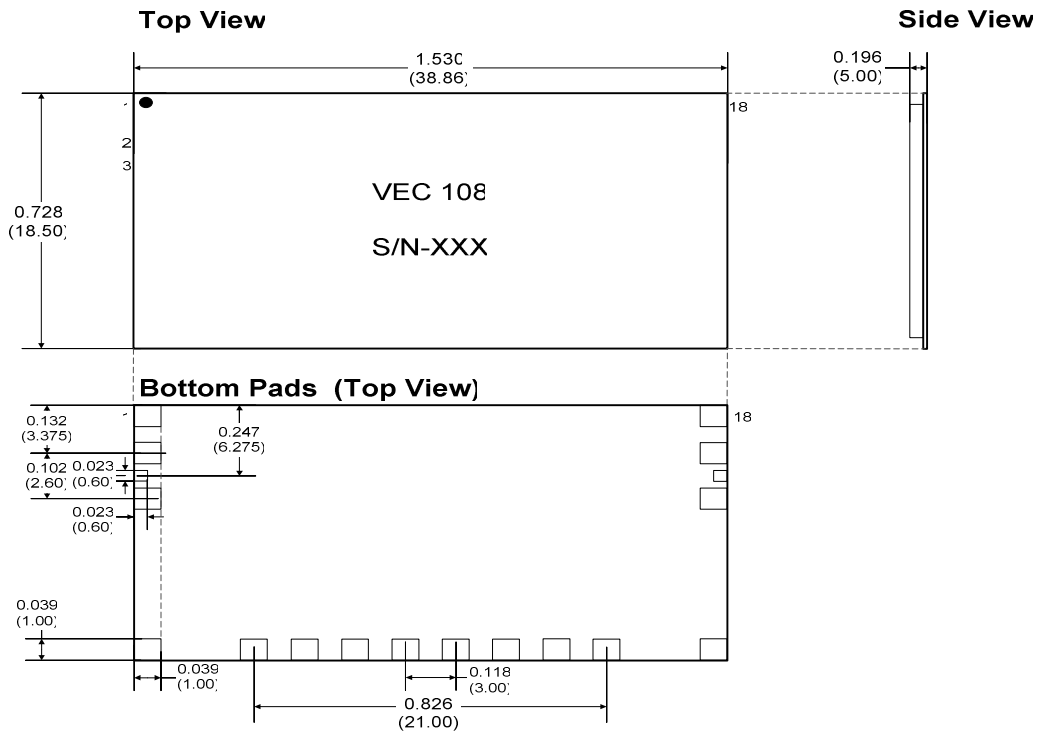
Preliminary

Added Value RF/Microwave Solutions

[www.vectria.co.il](http://www.vectria.co.il)

## Nominal Package Dimensions

Dimensions in inches (millimeters)



## Operating Instruction

This device is static sensitive. Please handle it with care.



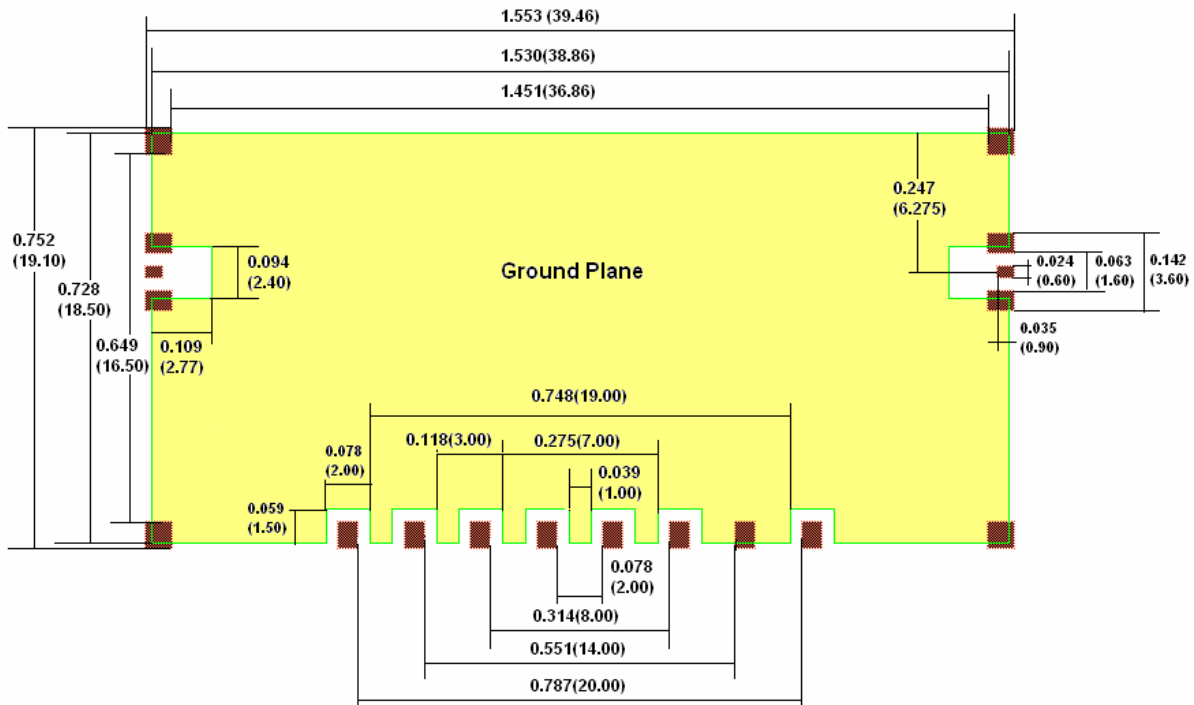


Preliminary

*Added Value RF/Microwave Solutions*

[www.vectria.co.il](http://www.vectria.co.il)

## Surface Mount Land Pattern Dimensions in inches (millimeters)



## Contacts

Tel: +972-8-6724459 Fax: +972-8-6726559 Web: [www.Vectria.co.il](http://www.Vectria.co.il)

Cellular : +972-54-7538252 e-mail : [Sales@vectria.co.il](mailto:Sales@vectria.co.il)

Mailing Address: Givaty 46 Ashkelon 78471 ISRAEL

Main Facility : Shderot Hatasia 8, Northern Industrial zone, Ashkelon 78678, ISRAEL