

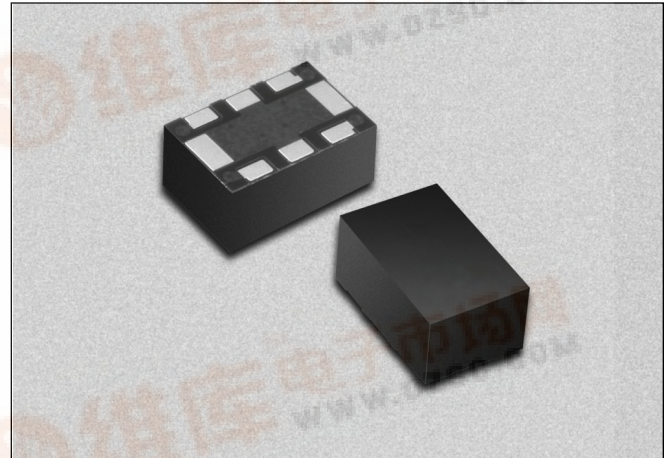
# LGA Packaged Phase Shifter for UMTS Base Stations



PS214-315

## Features

- Designed for UMTS 2140 ± 30 MHz Band
- 100 Degree Phase Shift Range
- 1.5 Degree Phase Deviation
- 0.3 dB Insertion Loss Deviation
- 0–12 V Control Voltage Range
- Specified 33 dBm IP3
- Small Footprint LGA Package



## Description

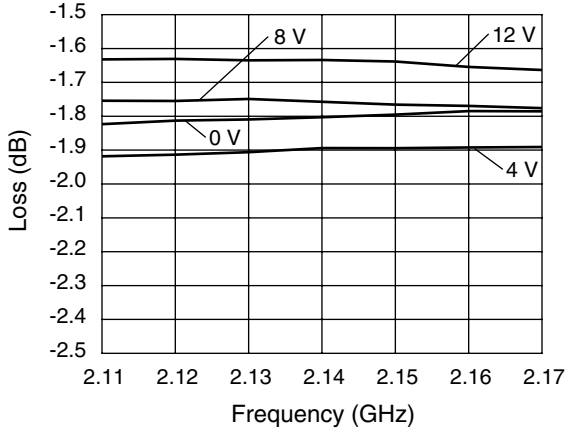
The PS214-315 is a voltage controlled phase shifter specifically designed for use in power amplifier distortion compensation circuits centered at 2140 MHz in UMTS band base stations. Its characteristics are specified in a 60 MHz bandwidth. The PS214-315 employs a monolithic quadrature hybrid and a pair of selected silicon varactor diodes to achieve 100 degree phase shift and low insertion loss. The PS214-315 is packaged in the small outline LGA (Land Grid Array) surface mount package with the internal elements affixed to an organic BT substrate.

## Electrical Specifications at 25°C

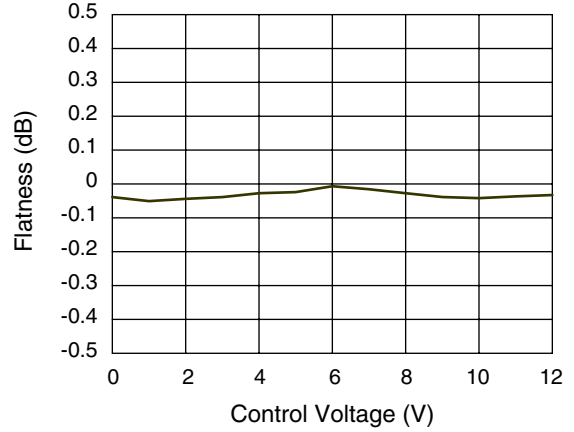
Parameter	Condition	Min.	Typ.	Max.	Unit
Frequency Range (BW)	$F_O = 2140$	2110		2170	MHz
Phase Shift	At $F_O$ , $C_V = 12$ V			100	Deg.
Phase Deviation in BW	$C_V = 0-12$ V		1.5	2.0	Deg.
Control Voltage ( $C_V$ ) Range		0		12	V
Control Current	$C_V = 12$ V			1	$\mu$ A
Insertion Loss in BW	$C_V = 0$ V			2.3	dB
I.L. Deviation in BW	$C_V = 0-12$ V			0.3	dB
I.L. Variation	At $F_O$ , $C_V = 0-12$ V			0.7	dB
VSWR in BW				1.8	
IM3	$P_{IN} = 8$ dBm, 2140/2145 MHz, $C_V = 0$ V			-50	dBc
IP3	Derived from IM3	33			dBm



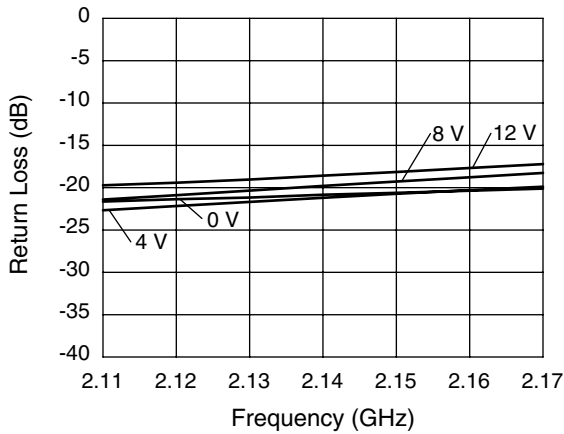
**Typical Performance Data**



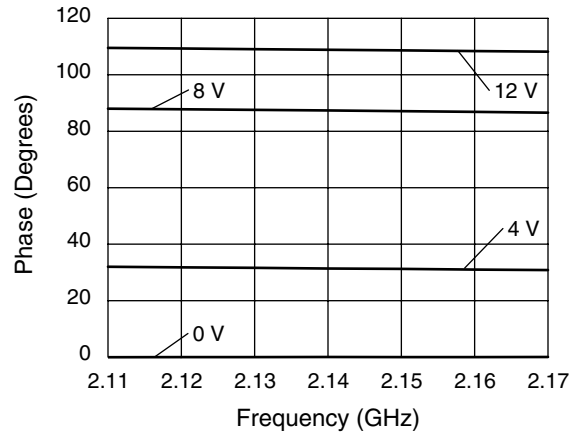
**Insertion Loss vs. Frequency and Control Voltage**



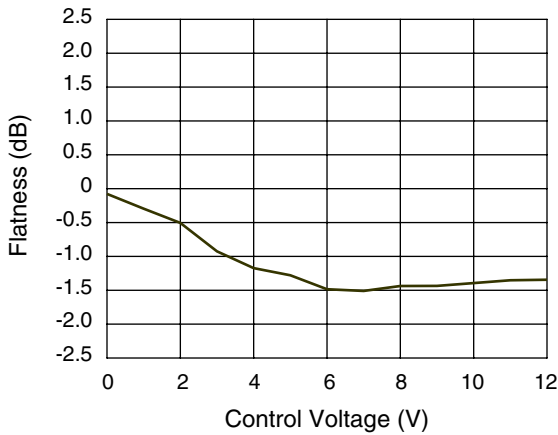
**Insertion Loss Flatness vs. Control Voltage**



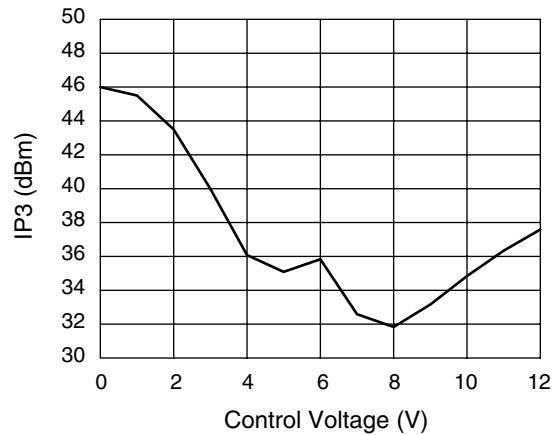
**Input/Output Return Loss vs. Frequency and Control Voltage**



**Phase vs. Frequency and Control Voltage**

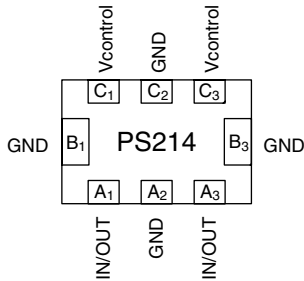


**Phase Flatness vs. Control Voltage**

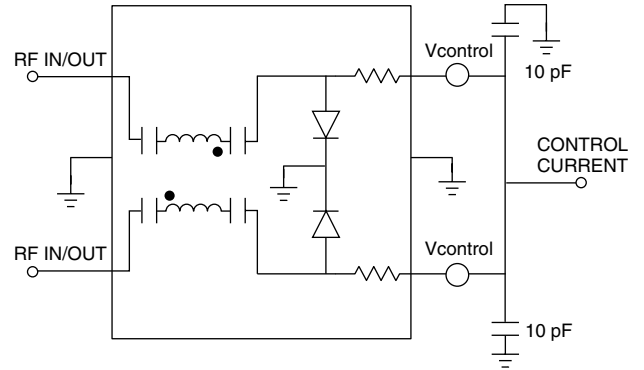


**IP3 vs. Control Voltage**  
 RF<sub>1</sub> = 2.140 GHz, RF<sub>2</sub> = 2.145 GHz @ 8 dBm

**Pin Out (Bottom View)**

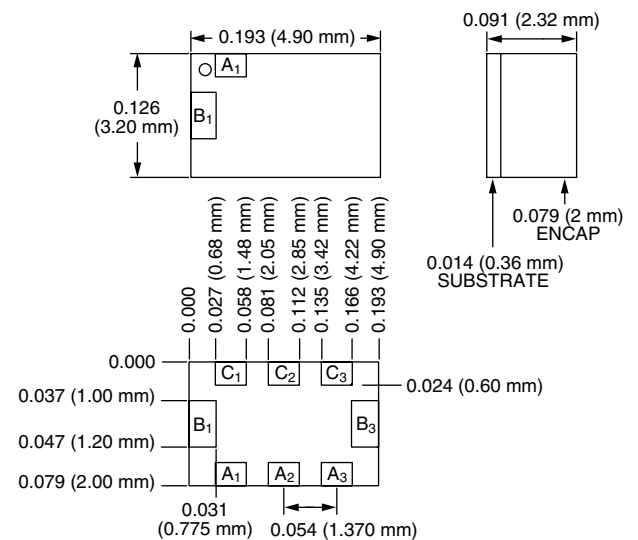


**Connection Diagram**



Terminal No.	Terminal Name
A <sub>1</sub>	IN/OUT
A <sub>2</sub>	GND
A <sub>3</sub>	IN/OUT
B <sub>1</sub>	GND
B <sub>3</sub>	GND
C <sub>1</sub>	Vcontrol
C <sub>2</sub>	GND
C <sub>3</sub>	Vcontrol

**-315**



**Absolute Maximum Ratings**

Characteristic	Value
RF Input Power	20 dBm
Control Voltage	15 V
Operating Temperature	-40 to +85°C
Storage Temperature	-40 to +85°C