

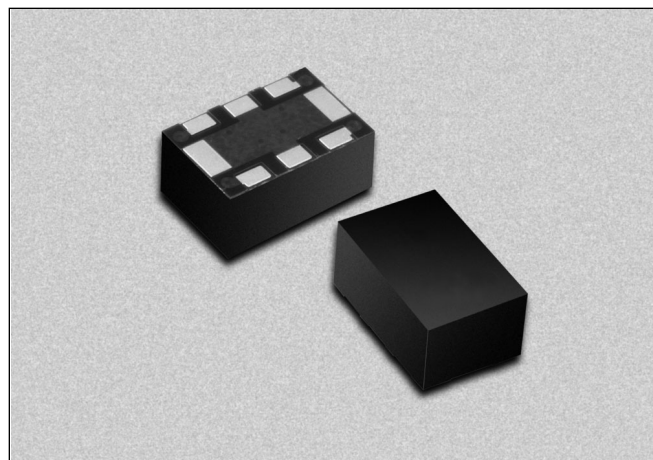
LGA Packaged Phase Shifter for UMTS Base Stations



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



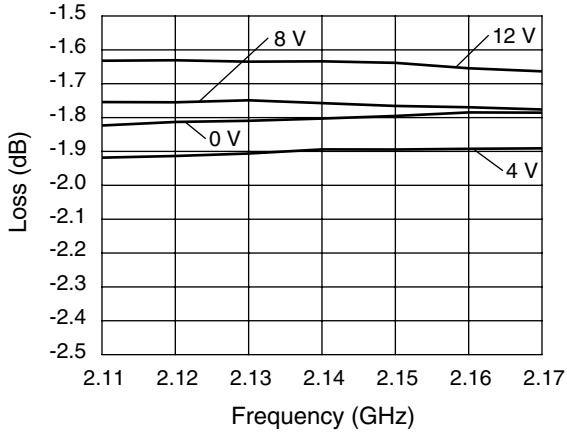
Description

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.

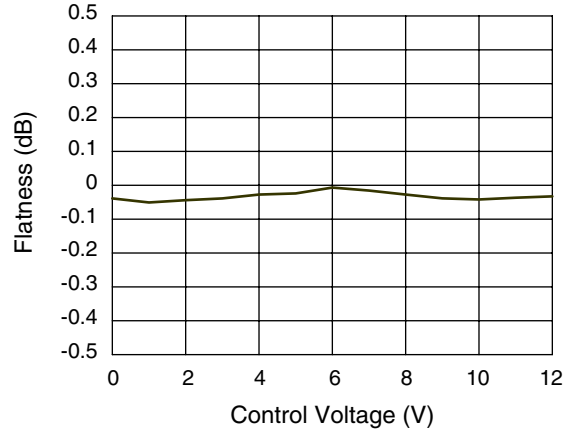
Electrical Specifications at 25°C

| 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 | μ 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 |

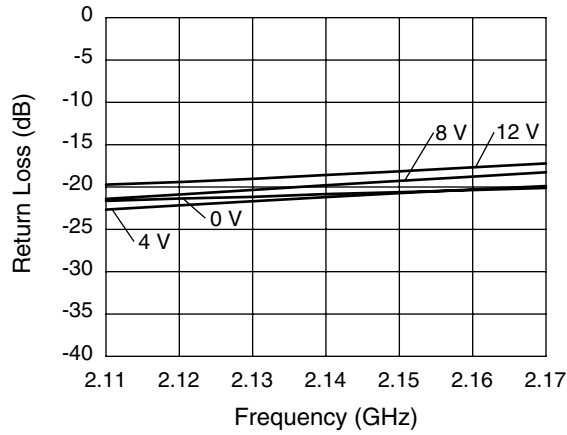
Typical Performance Data



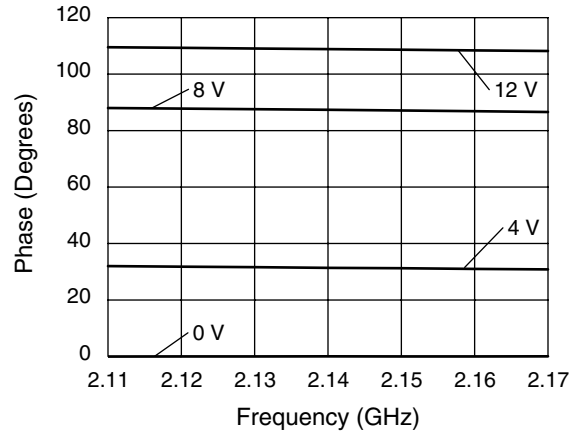
Insertion Loss vs. Frequency and Control Voltage



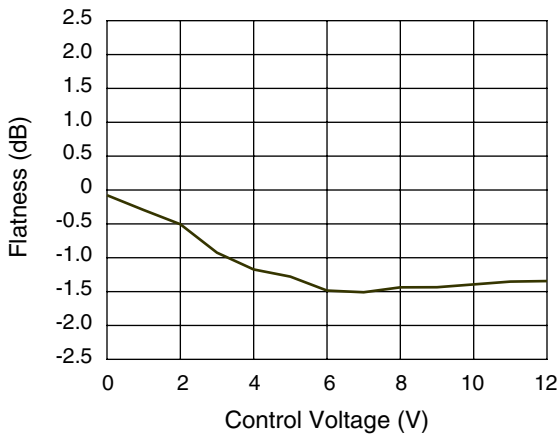
Insertion Loss Flatness vs. Control Voltage



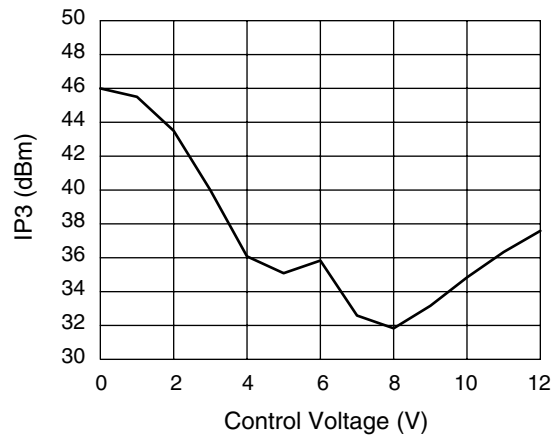
Input/Output Return Loss vs. Frequency and Control Voltage



Phase vs. Frequency and Control Voltage

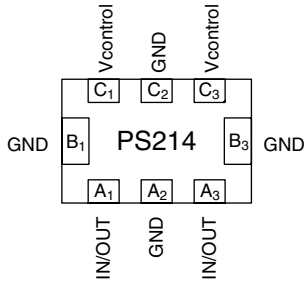


Phase Flatness vs. Control Voltage



IP3 vs. Control Voltage
 RF₁ = 2.140 GHz, RF₂ = 2.145 GHz @ 8 dBm

Pin Out (Bottom View)

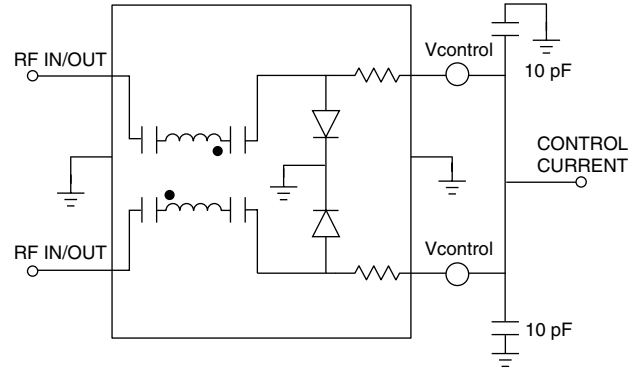


| Terminal No. | Terminal Name |
|----------------|---------------|
| A ₁ | IN/OUT |
| A ₂ | GND |
| A ₃ | IN/OUT |
| B ₁ | GND |
| B ₃ | GND |
| C ₁ | Vcontrol |
| C ₂ | GND |
| C ₃ | Vcontrol |

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 |

Connection Diagram



-315

