SP6246: 2 Bit Discrete Phase Shifter 4.8 GHz-5.0 GHz

General Description

The SP6246 is an integrated phase shift module utilizing high linearity, low loss RFSOI switches and laminate delay lines assembled onto a compact laminate package 3.5 x 7 mm. The module is designed to provide well controlled phase shifts in frequency range 4800 MHz to 5000 MHz.

The SP6246 is designed with a symmetric pin-out to allow flexible routing in the application. It accepts two control lines using standard CMOS logic levels which are used to select between four phase states; the reference state, -61° delay compared to the reference, -122° delay compared to reference and -183° delay compared to reference.

A single 5 V supply is required and the power consumption is less than 0.03 W.

The SP6246 is suitable for application in 5G infrastructure antenna electronic tilt systems as well as other applications where a low loss, high linearity, high power handling phase shift function is required.

Features

- Frequency Range 4.8 to 5.0 GHz
- Reflective 50 Ω design
- Low insertion loss: 1 dB
- 2 bit / 4 phases: 0°, -61°, -122°, -183°
- Highly integrated bi-directional design
- High return loss: 25 dB
- High power handling at Tcase = 105° C
  - Pave = 36 dBm (5G, 10 dB PAR)
  - Pave = 43 dBm with 3 dB PAR
- High IP3: 80 dBm
- S/W timing: <0.5 us
- ESD rating: 1000 V
- 5V Single-supply operation
- Positive logic control CMOS / TTL compatible
- 3.5 mm x 7 mm laminate package

Applications

- Cellular wireless infrastructure
- PIN phase shifter replacement

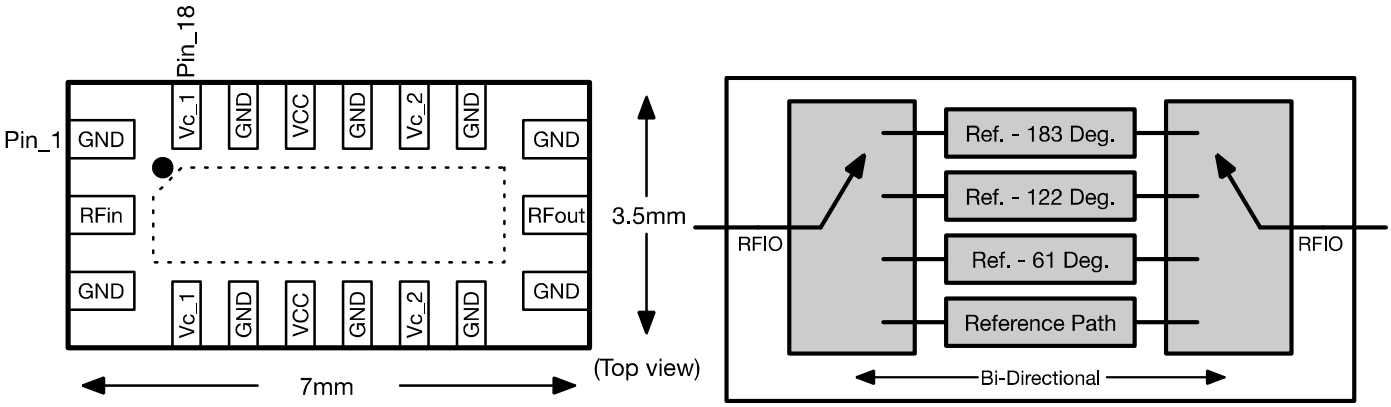

Figure 1 - Functional Diagram & Pinout

Pin Number	Pin Name	Description
2	RFin	RF Input
4,18	Vc_1	Phase Control Bit 1
6,16	VCC	+5V Supply Voltage
8,14	Vc_2	Phase Control Bit 2
11	RFout	RF Output
1,3,5,7,9,10,12,13,15,17,ePAD	GND	Ground

Table 1 - Pin Descriptions

Vc_1	Vc_1	Phase Delay
1	1	0° (reference path)
0	1	64°
1	0	128°
0	0	192°

Table 2 – Control Logic

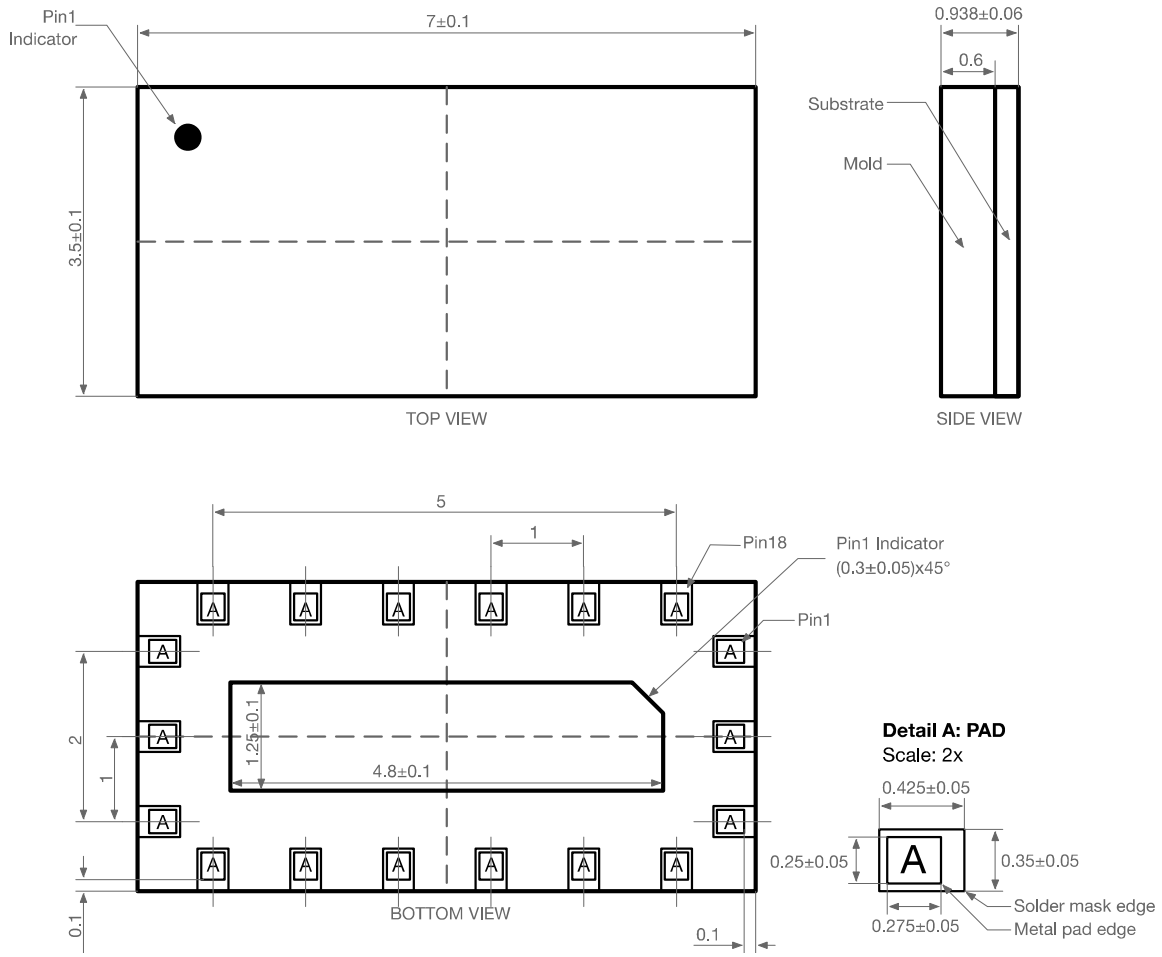

Fig 2: Package Details

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