PSPS-F synthesizers - Fixed frequency synthesizers

Descriptions

Polaris' surface mount PLL synthesizers operate in the frequency range from 3.4 GHz to 13.6 GHz and are available in a surface mountable package measuring 26.2 mm x 26.2 mm x 4.0 mm. These synthesizers employ a microwave fractional-N PLL architecture to provide fine frequency resolution with excellent spurious and phase noise. These synthesizers are categorized into fixed frequency synthesizers (PSPS-F synthesizers) and variable frequency synthesizers (PSPS-V synthesizers).

The PSPS-F synthesizers can be easily customized to any fixed frequency upon request within 3.4 GHz to 13.6 GHz.

Features

- Very wide output frequency range from 3.4 GHz to 13.6 GHz
- Microwave fractional-N PLL synthesizer with low noise floor
- Low reference spurious
- Fine frequency step size
- Internal MCU with high performance
- Phase lock indicator alarm
- Single supply voltage
- Internal LDO regulator with low noise
- Small size

Applications

- VSAT/Satellite Communication Systems
- Radar
- Test Equipment
- Microwave Transmitters & Receivers
- Cable TV Links (CATV)
- LMDS
- Local Area Networks (LAN)
- Point to point and point to multipoint microwave links

Specifications

Parameters		Units	Specifications				Remarks
			Min.	Typ.		Max.	
Single Frequency		GHz	3.4	-		13.6	
Frequency Step Size		MHz	0.001	1		125	
Impedance (Input/Output)		Ω	50				
RF Output Power		dBm	-7			2	
Spurious		dBc		-75		-65	
Harmonics		dBc		-25		-15	
Frequency Stability		ppm	Same as the reference				
Phase Noise (typ.) at PFD=100 MHz	Frequency / Offset		3.4 GHz	6.8 GHz	10 GHz	12 GHz	
	100 Hz	dBc/Hz	-91	-85	-82	-80	
	1 KHz		-103	-97	-94	-92	
	10 KHz		-108	-102	-99	-97	
	100 KHz		-110	-104	-101	-99	
	1 MHz		-133	-127	-124	-122	
External Reference	Frequency	MHz	10 to 250				
	Input Power	dBm	-4	0		4	
Phase Lock Indicator Alarm		-	3.3 V (Locked), 0V (Unlocked)				
Supply Voltage		Vdc	5.5	6		6.5	
Current Consumption		mA	-	250		300	
Operating Temperating		℃	-20 to 70				Option T: -35 to 50
Storage Temperature		℃	-40 to 85				
Size (L x W x H)		mm	26.2 x 26.2 x 4.0				

Ordering Information

PSPS-F-aaa-b...b

- aaa: Reference Frequency (MHz)
- b...b: Output Frequency (MHz)

Example

PSPS-F-50-12595

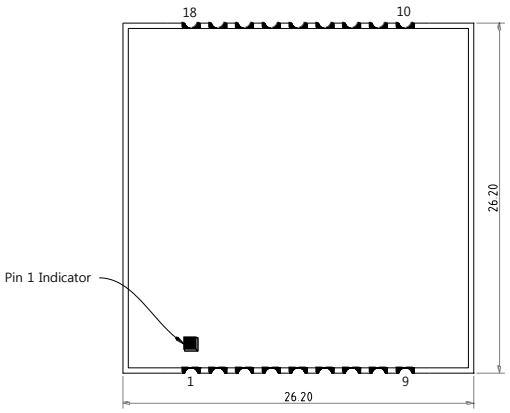
. 50: Reference Frequency 50 MHz

. 12595: Output Frequency 12,595 MHz

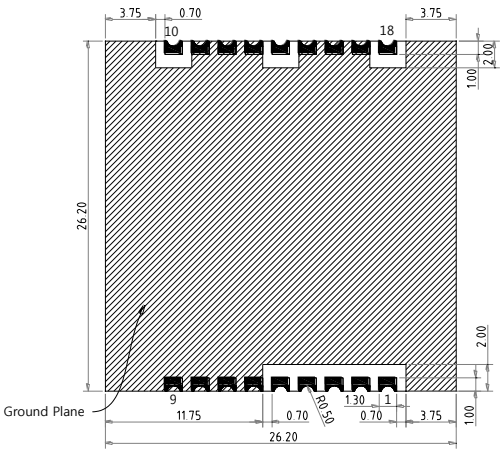
Outline Drawings

Dimensions are in millimeters.

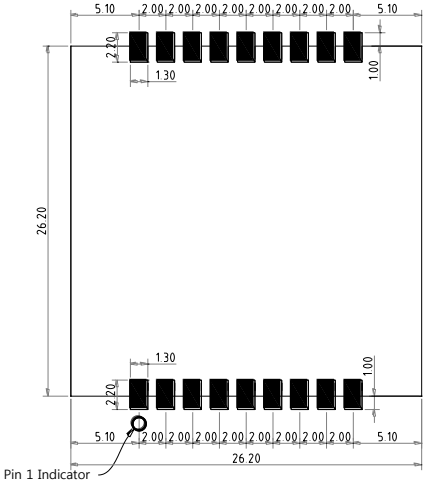
Top View



Bottom View



Footprint



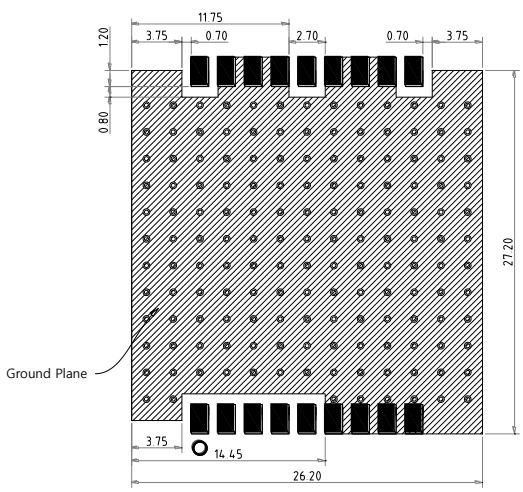
Front View

Denotes copper layout with solder mask over bare copper.

Denotes copper land pattern free of solder mask.

Denotes copper land pattern free of solder mask.

Recommended PCB Layout



Denotes copper layout with solder mask over bare copper.

Denotes copper land pattern free of solder mask.

Several holes of Φ 0.3 on ground plane are recommended for good grounding.

Pin Out Details	
1	N/C (Open)
2	N/C (Open)
3	N/C (Open)
4	N/C (Open)
5	REF_IN (Reference Input)
6 – 9	GND
10	LD (Lock Detect)
11 – 13	GND
14	RF_OUT (RF Output)
15 - 17	GND
18	VCC

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