INTELLIGENT INTERACTIVE SYNTHESIZER
SURFACE MOUNT MODEL: FSW170280-50

WIDE BANDWIDTH
1700 - 2800 MHz

FEATURES:
- Exceptionally Low Phase Noise
- Interactive Communication
- Standard Programming Interface
- Ultra Wide Tuning Range
- Lead Free - RoHS Compliant
- Patented REL-PRO® Technology
- Small Size, Surface Mount
- Buffered Output

SPECIFICATIONS (Rev. E 04/04/11)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>1700 - 2800 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Size</td>
<td>500 kHz</td>
</tr>
<tr>
<td>Reference Input Frequency</td>
<td>10 MHz</td>
</tr>
<tr>
<td>Reference Input Voltage</td>
<td>1 V p-p to 3.3 V p-p</td>
</tr>
<tr>
<td>Bias Voltage</td>
<td>Voc V (Vdc)</td>
</tr>
<tr>
<td>Digital</td>
<td>+5</td>
</tr>
<tr>
<td>VCO</td>
<td>+5</td>
</tr>
<tr>
<td>Tune</td>
<td>+15</td>
</tr>
<tr>
<td>Lock Detect Indicator</td>
<td>CMOS 3.3 V</td>
</tr>
<tr>
<td>Output Power</td>
<td>+4 dBm (Min.)</td>
</tr>
<tr>
<td>Spurious Suppression</td>
<td>90 dB (Typ.)</td>
</tr>
<tr>
<td>Harmonic Suppression</td>
<td>20 dB (Typ.)</td>
</tr>
<tr>
<td>Settling Time</td>
<td>5 mSec (Typ.)</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 Ohms (Nom.)</td>
</tr>
</tbody>
</table>

Typical Phase Noise

<table>
<thead>
<tr>
<th>Offset</th>
<th>Phase Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 1 kHz</td>
<td>-86 dBc/Hz</td>
</tr>
<tr>
<td>@ 10 kHz</td>
<td>-86 dBc/Hz</td>
</tr>
<tr>
<td>@ 100 kHz</td>
<td>-112 dBc/Hz</td>
</tr>
</tbody>
</table>

Phase Noise

<table>
<thead>
<tr>
<th>Offset Frequency (Hz)</th>
<th>Phase Noise (dBc/Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>-70</td>
</tr>
<tr>
<td>1000</td>
<td>-80</td>
</tr>
<tr>
<td>10000</td>
<td>-90</td>
</tr>
<tr>
<td>100000</td>
<td>-100</td>
</tr>
<tr>
<td>1000000</td>
<td>-110</td>
</tr>
<tr>
<td>10000000</td>
<td>-120</td>
</tr>
<tr>
<td>100000000</td>
<td>-130</td>
</tr>
</tbody>
</table>

Operating Temperature Range

-40 to +85 °C

Programming

See Application Note: AN7100

1 Reference input frequency is programmable (See AN7100) in multiples of the step size, 10 MHz is the factory default setting. 150 MHz (Max.)

2 From the rising edge of LE to stable lock detect

Absolute Maximum Ratings

| Storage Temp. Range | -55 to +125 °C |
| Bias Voltage (Digital) | +5.25 V |
| Bias Voltage (VCO) | +5.5 V |
| Bias Voltage (Tune) | +16 V |
| DC Voltage Applied to RF Out | ±25 V |

This product is manufactured under one or more of the following patents. Approved: 5,160,810; 5,122,621; 5,390,349; 5,416,449; 5,650,754; 5,805,431; 6,525,623; 6,850,575; 7,088,189; 7,180,381; 7,196,591; 7,262,670; 7,265,642; 7,292,113; 7,365,612; 7,495,525; 2,548,311; 2,548,317; 7,545,229; 2,563,174; 7,580,693; 7,612,296; 2,524,751

| Package # | 273LF |

Port Configuration

- Pin 1, 2, 3 - NC
- Pin 4 - Error flag
- Pin 5 - Latch Enable In
- Pin 6 - Ref. In
- Pin 7 - Vcc (Digital)
- Pin 8 - Clock In
- Pin 9 - Vcc (VCO)
- Pin 13 - RF Out
- Pin 14 - Lock Detect Out *
- Pin 15 - Data In
- Pin 16 - Clock In

* High when locked (source/sink 500 uA)
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HARMONIC SUPPRESSION

REFERENCE SIDEBAND SUPPRESSION
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PERFORMANCE PLOTS
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PERFORMANCE PLOTS

REFERENCE SIDEBAND SUPPRESSION

ReFeRenCe Sideband SUPPReSSiOn

Ref 12 dBm
Att 40 dB

1 AP
CLRWR

A
SGL

5 MHz/
Center
2.8 GHz

Span 50 MHz

*3DB
RBW 2 kHz
VBW 2 kHz
SWT 12.5 s

10
-40
-30
-20
-10
0
10
1

Marker 1 [T1]
7.51 dBm 2.800000000 GHz

Delta 2 [T1]
-75.53 dB 20.000000000 MHz

Delta 3 [T1]
-75.38 dB -10.000000000 MHz

Delta 4 [T1]
-76.18 dB -20.000000000 MHz

Delta 1 [T1]
-75.59 dB 10.000000000 MHz

MSFH-400-25R #73
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