

# INTELLIGENT INTERACTIVE SYNTHESIZER

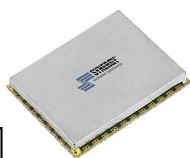
## SURFACE MOUNT MODEL: LFSW1545-50-1

**WIDE BANDWIDTH**

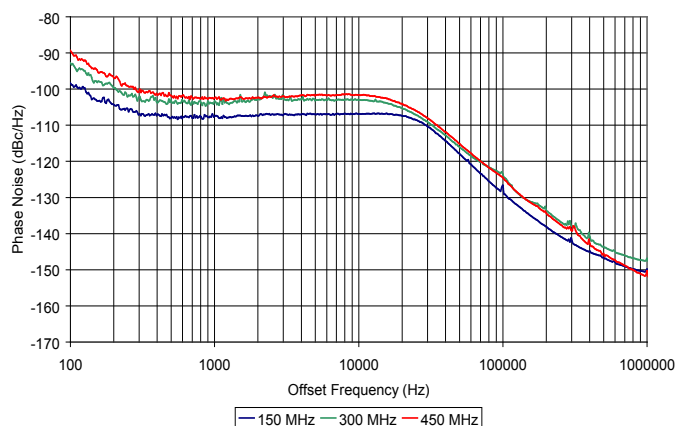
**150 - 450 MHz**

### 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



### Phase Noise



### SPECIFICATIONS

|                             |                              |             |            |
|-----------------------------|------------------------------|-------------|------------|
| Frequency                   | 150 - 450 MHz                |             |            |
| Step Size                   | 500 kHz                      |             |            |
| Reference Input Frequency   | 10 MHz *                     |             |            |
| Reference Input Voltage     | 1.0 V p-p to 3.3 V p-p       |             |            |
| Bias Voltage                | Vcc                          | V (Vdc)     | I (mA Max) |
|                             | Digital                      | +5          | 65         |
|                             | VCO                          | +5          | 30         |
|                             | Converter                    | +5          | 55         |
| Output Power                | +7 dBm (Min.)                |             |            |
| Spurious Suppression        | 73 dB (Typ.)                 |             |            |
| Harmonic Suppression        | 10 dB (Typ.)                 |             |            |
| Settling Time               | 10 mSec (Typ.) **            |             |            |
| Output Impedance            | 50 Ohms (Nom.)               |             |            |
| Typical Phase Noise         | Offset                       | Phase Noise |            |
|                             | @ 1 kHz                      | -98 dbc/Hz  |            |
|                             | @ 10 kHz                     | -98 dbc/Hz  |            |
|                             | @ 100 kHz                    | -120 dbc/Hz |            |
| Operating Temperature Range | -40 to +85 °C                |             |            |
| Programming                 | See Application Note: AN7100 |             |            |

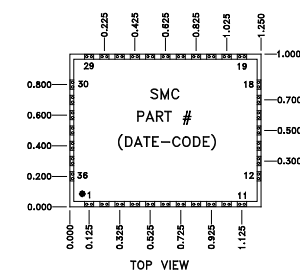
\* Reference input frequency is programmable in multiples of the step size, 10 MHz is the default setting. 150 MHz (Max.)

\*\* From the rising edge of LE to stable lock detect

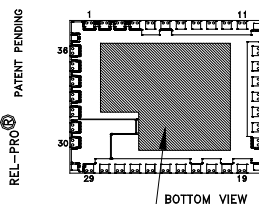
### Absolute Maximum Ratings

|                              |                |
|------------------------------|----------------|
| Storage Temp. Range          | -55 to +125 °C |
| Bias Voltage (Digital)       | +5.25 V        |
| Bias Voltage (VCO)           | +5.5 V         |
| Bias Voltage (Converter)     | +8.0 V         |
| DC Voltage Applied to RF Out | ±25 V          |

### Package # 197LF-L



### RECOMMENDED PCB LAYOUT



OPTIONAL SOLDER AREA FOR HIGH VIBRATION ENVIRONMENT

PACKAGE MOUNTING: SEE APPLICATION NOTE AN7200

### Port Configuration

|                           |                               |                           |
|---------------------------|-------------------------------|---------------------------|
| Pin 5 - RF out            | Pin 21 - Ref. In              | Pin 8,12,14,15,16,17 - NC |
| Pin 7 - Lock Detect Out * | Pin 23 - Vcc (Digital)        | All Others - Ground       |
| Pin 9 - Data In           | Pin 24 - Vtune (Output)       |                           |
| Pin 10 - Error Flag       | Pin 25 - Vcc (VCO)            | NC - No Connection        |
| Pin 11 - Clock In         | Pin 26 - Vout (Converter) *** |                           |
| Pin 13 - VCO (On/Off)**** | Pin 27 - Vcc (Tune) ***       |                           |
| Pin 19 - Latch Enable In  | Pin 28 - Vcc (Converter)      |                           |

\* High when locked (source/sink 500 uA)

\*\*\* Connect externally. Bypassed with a 10uF 35V tantalum capacitor.

\*\*\*\* NC if unused.

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; 7,580,693; 7,586,381; 7,605,670; 7,636,021; 2,533,623  
 | Pending: 60/493075; 60/501371 & 60/501790; 60/527957 & 60/528670; 60/563481; 60/564173; 60/589090; 60/601823; 60/605791; EV31369834; 11/259766; 60/622485 & 60/710310; 10/937525/60/736901; 60/732787; 7,495,525; 2,548,311; 2,548,317; 7,545,229; 2,563,174; 7,580,693; 7,612,296; 2,524,751

Copyright © Synergy Microwave Corporation  
 201 McLean Boulevard • Paterson, New Jersey 07504 USA • Tel: (973) 881-8800 • Fax: (973) 881-8361  
 E-Mail: sales@synergymw.com • World Wide Web: http://www.synergymw.com

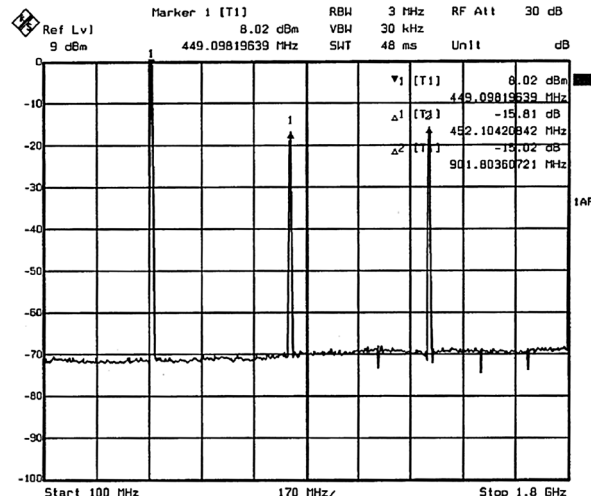
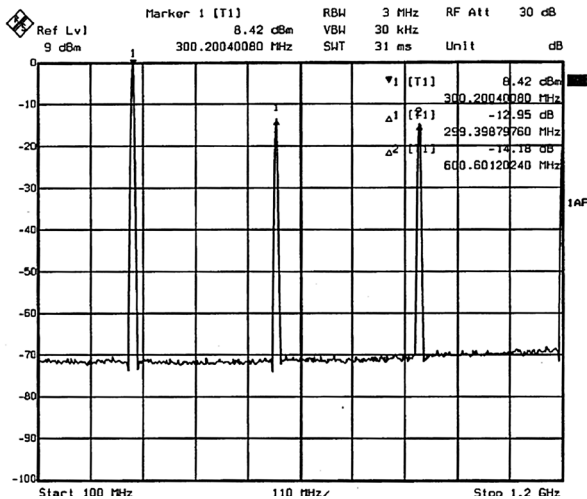
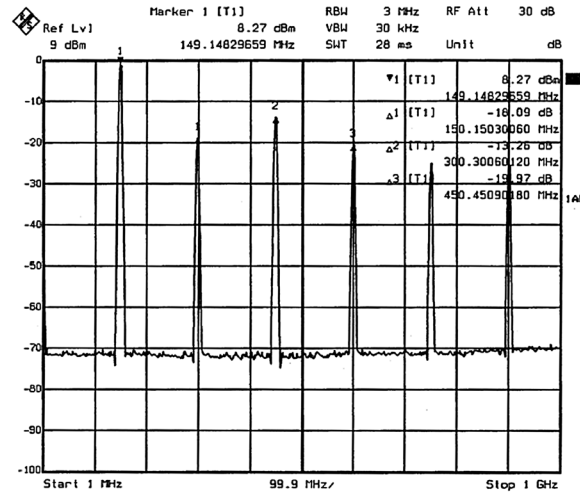
# INTELLIGENT INTERACTIVE SYNTHESIZER

## SURFACE MOUNT MODEL: LFSW1545-50-1

WIDE BANDWIDTH

150 - 450 MHz

### TYPICAL HARMONIC REJECTION



PERFORMANCE PLOTS

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; 7,580,693; 7,586,381; 7,605,670; 7,636,021; 2,533,623  
 Pending: 60/493075; 60/501371 & 60/501790; 60/527957 & 60/528670; 60/563481; 60/564173; 60/589090; 60/601823; 60/605791; EV31369834; 11/259766; 60/622485 & 60/710310; 10/937525/60/736901; 60/732787; 7,495,525; 2,548,311; 2,548,317; 7,545,229; 2,563,174; 7,580,693; 7,612,296; 2,524,751

Copyright © Synergy Microwave Corporation  
 201 McLean Boulevard • Paterson, New Jersey 07504 USA • Tel: (973) 881-8800 • Fax: (973) 881-8361  
 E-Mail: sales@synergymw.com • World Wide Web: http://www.synergymw.com

**SYNERGY**  
 MICROWAVE CORPORATION  
 [ 2 of 3 ]

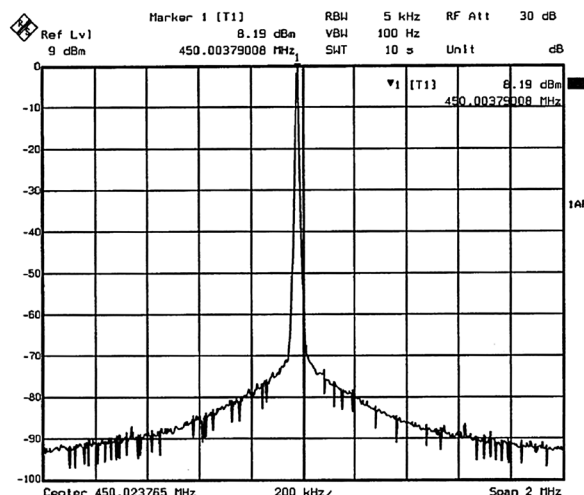
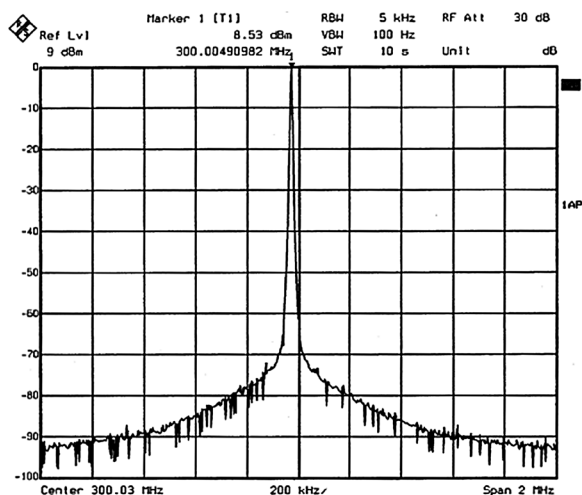
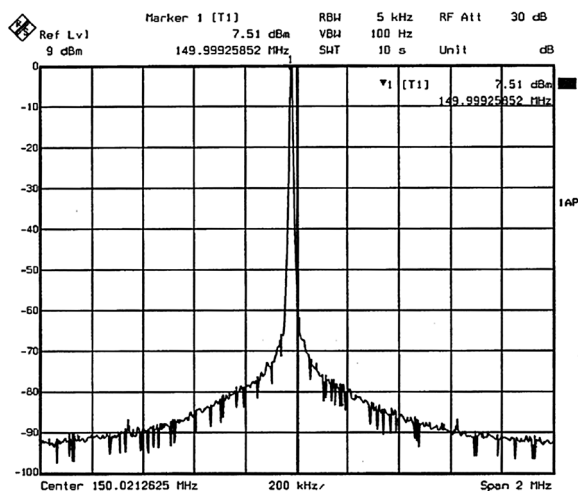
# INTELLIGENT INTERACTIVE SYNTHESIZER

## SURFACE MOUNT MODEL: LFSW1545-50-1

WIDE BANDWIDTH

150 - 450 MHz

### REFERENCE SIDEBAND SUPPRESSION



PERFORMANCE PLOTS

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; 7,580,693; 7,586,381; 7,605,670; 7,636,021; 2,533,623  
| Pending: 60/493075; 60/501371 & 60/501790; 60/527957 & 60/528670; 60/563481; 60/564173; 60/589090; 60/601823; 60/605791; EV31369834; 11/259766; 60/622485 & 60/710310; 10/937525/60/736901; 60/732787; 7,495,525; 2,548,311; 2,548,317; 7,545,229; 2,563,174; 7,580,693; 7,612,296; 2,524,751

Copyright © Synergy Microwave Corporation  
201 McLean Boulevard • Paterson, New Jersey 07504 USA • Tel: (973) 881-8800 • Fax: (973) 881-8361  
E-Mail: sales@synergymwave.com • World Wide Web: <http://www.synergymwave.com>

**SYNERGY**<sup>®</sup>  
MICROWAVE CORPORATION  
[ 3 of 3 ]