

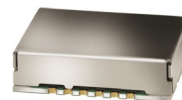
# Frequency Synthesizer

KSN-3580A+

50Ω 3440 to 3580 MHz

## The Big Deal

- Fractional N synthesizer
- Low phase noise and spurious
- Robust design and construction
- Small size 0.800" x 0.584" x 0.240"



CASE STYLE: DK1171

## Product Overview

The KSN-3580A+ is a Frequency Synthesizer, designed to operate from 3440 to 3580 MHz for WiMAX application. The KSN-3580A+ is packaged in a metal case (size of 0.800" x 0.584" x 0.240") to shield against unwanted signals and noise.

## Key Features

| Feature                                                                                                                                                                                                                                                        | Advantages                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low phase noise and spurious: <ul style="list-style-type: none"><li>• Phase Noise: -97 dBc/Hz typ. @ 10 kHz offset</li><li>• Step Size Spurious: -70 dBc typ.</li><li>• Comparison Spurious: -85 dBc typ.</li><li>• Reference Spurious: -85 dBc typ.</li></ul> | Low phase noise and spurious improve system EVM (Error Vector Magnitude).                                                                                                                                              |
| Robust design and construction                                                                                                                                                                                                                                 | To enhance the robustness of KSN-3580A+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer. |
| Small size, 0.800 " x 0.584" x 0.240"                                                                                                                                                                                                                          | The small size enables the KSN-3580A+ to be used in compact designs.                                                                                                                                                   |



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50Ω 3440 to 3580 MHz

## Features

- Fractional N synthesizer
- Integrated VCO + PLL
- Low phase noise and spurious
- Robust design and construction
- Low operating voltage (VCC VCO=+5V, VCC PLL=+3V)
- Small size 0.800" x 0.584" x 0.240"

## Applications

- WiMAX

## General Description

The KSN-3580A+ is a Frequency Synthesizer, designed to operate from 3440 to 3580 MHz for WiMAX application. The KSN-3580A+ is packaged in a metal case (size of 0.800" x 0.584" x 0.240) to shield against unwanted signals and noise. To enhance the robustness of KSN-3580A+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer.



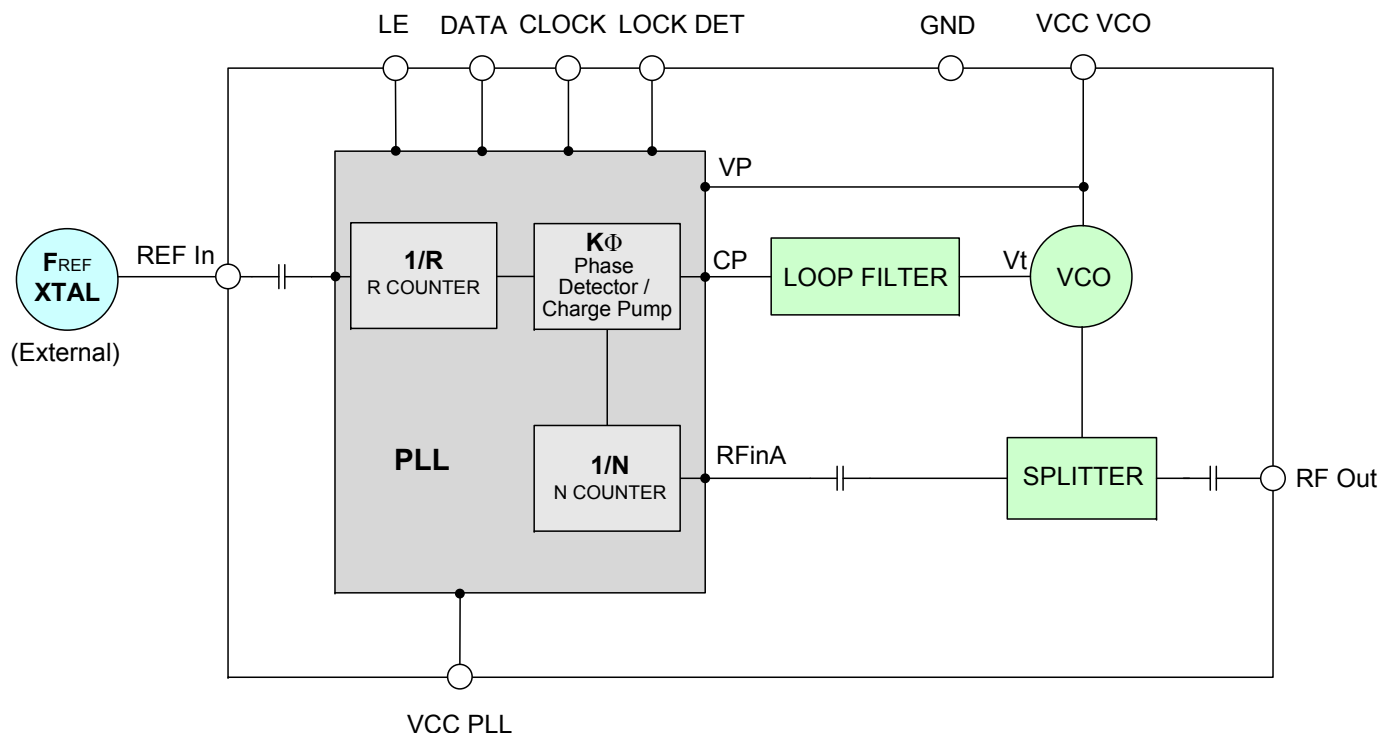
CASE STYLE: DK1171

PRICE: \$32.95 ea. QTY (1-9)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.*

## Simplified Schematic



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REV. OR  
M128214  
EDR-10110F1  
KSN-3580A+  
Category-B4  
RAV  
100726  
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**Electrical Specifications** (over operating temperature -40°C to +85°C)

| Parameters                                  |                            | Test Conditions           | Min.                                | Typ. | Max. | Units            |
|---------------------------------------------|----------------------------|---------------------------|-------------------------------------|------|------|------------------|
| Frequency Range                             |                            | -                         | 3440                                | -    | 3580 | MHz              |
| Step Size                                   |                            | -                         | -                                   | 250  | -    | kHz              |
| Comparison Frequency                        |                            | -                         | -                                   | 30   | -    | MHz              |
| Settling Time                               |                            | Within $\pm 1$ kHz        | -                                   | 19   | -    | mSec             |
| Output Power                                |                            | -                         | +2.0                                | +5.0 | +7.5 | dBm              |
| SSB Phase Noise                             | @ 100 Hz offset            | -                         | -                                   | -77  | -    | dBc/Hz           |
|                                             | @ 1 kHz offset             | -                         | -                                   | -89  | -84  |                  |
|                                             | @ 10 kHz offset            | -                         | -                                   | -97  | -92  |                  |
|                                             | @ 100 kHz offset           | -                         | -                                   | -125 | -120 |                  |
|                                             | @ 1 MHz offset             | -                         | -                                   | -146 | -141 |                  |
| Step Size Spurious Suppression              |                            | Step Size 250 kHz         | -                                   | -70  | -60  | dBc              |
| 0.5 Step Size Spurious Suppression          |                            | 0.5 Step Size 125 kHz     | -                                   | -80  | -70  |                  |
| Reference & Comparison Spurious Suppression |                            | Ref. & Comp. Freq. 30 MHz | -                                   | -85  | -75  |                  |
| Non - Harmonic Spurious Suppression         |                            | -                         | -                                   | -90  | -    |                  |
| Harmonic Suppression                        |                            | -                         | -                                   | -25  | -19  |                  |
| VCO Supply Voltage                          |                            | 5.00                      | 4.75                                | 5.00 | 5.25 | V                |
| PLL Supply Voltage                          |                            | 3.00                      | 2.85                                | 3.00 | 3.15 |                  |
| VCO Supply Current                          |                            | -                         | -                                   | 56   | 63   | mA               |
| PLL Supply Current                          |                            | -                         | -                                   | 17   | 25   |                  |
| Reference Input<br>(External)               | Frequency                  | 30 (square wave)          | -                                   | 30   | -    | MHz              |
|                                             | Amplitude                  | 1                         | -                                   | 1    | -    | V <sub>P-P</sub> |
|                                             | Input impedance            | -                         | -                                   | 100  | -    | K $\Omega$       |
|                                             | Phase Noise @ 1 kHz offset | -                         | -                                   | -145 | -    | dBc/Hz           |
| RF Output port Impedance                    |                            | -                         | -                                   | 50   | -    | $\Omega$         |
| Input Logic Level                           | Input high voltage         | -                         | 2.55                                | -    | -    | V                |
|                                             | Input low voltage          | -                         | -                                   | -    | 0.55 | V                |
| Analog Lock Detect                          | Locked                     | -                         | 2.45                                | -    | 3.55 | V                |
|                                             | Unlocked                   | -                         | -                                   | -    | 0.40 | V                |
| Frequency Synthesizer PLL                   |                            | -                         | ADF4153                             |      |      |                  |
| PLL Programming                             |                            | -                         | 3-wire serial 3V CMOS               |      |      |                  |
| Register Map @ 3580 MHz                     | R0_Register                | -                         | (MSB) 111011100000010100000 (LSB)   |      |      |                  |
|                                             | R1_Register                | -                         | (MSB) 00101000100000111100001 (LSB) |      |      |                  |
|                                             | R2_Register                | -                         | (MSB) 111100010 (LSB)               |      |      |                  |
|                                             | R3_Register                | -                         | (MSB) 1111000111 (LSB)              |      |      |                  |

**Absolute Maximum Ratings**

| Parameters                               | Ratings                    |
|------------------------------------------|----------------------------|
| VCO Supply Voltage                       | 6V                         |
| PLL Supply Voltage                       | 4V                         |
| VCO Supply Voltage to PLL Supply Voltage | -0.3V to +5.8V             |
| Reference Frequency Voltage              | -0.3Vmin, VCC PLL +0.3Vmax |
| Data, Clock, LE Levels                   | -0.3Vmin, VCC PLL +0.3Vmax |
| Operating Temperature                    | -40°C to +85°C             |
| Storage Temperature                      | -55°C to +100°C            |

Permanent damage may occur if any of these limits are exceeded



## Typical Performance Data

| FREQUENCY<br>(MHz) | POWER OUTPUT<br>(dBm) |       |       | VCO CURRENT<br>(mA) |       |       | PLL CURENT<br>(mA) |       |       |
|--------------------|-----------------------|-------|-------|---------------------|-------|-------|--------------------|-------|-------|
|                    | -45°C                 | +25°C | +85°C | -45°C               | +25°C | +85°C | -45°C              | +25°C | +85°C |
|                    |                       |       |       |                     |       |       |                    |       |       |
| 3440               | 5.05                  | 4.71  | 4.24  | 54.96               | 56.39 | 57.38 | 14.90              | 17.12 | 18.37 |
| 3446               | 5.12                  | 4.78  | 4.29  | 55.01               | 56.41 | 57.40 | 14.62              | 16.83 | 18.09 |
| 3462               | 5.30                  | 4.96  | 4.41  | 55.09               | 56.46 | 57.41 | 14.88              | 17.10 | 18.38 |
| 3478               | 5.46                  | 5.08  | 4.52  | 55.16               | 56.49 | 57.41 | 14.45              | 16.65 | 17.93 |
| 3494               | 5.56                  | 5.15  | 4.58  | 55.22               | 56.52 | 57.40 | 15.04              | 17.28 | 18.58 |
| 3510               | 5.67                  | 5.23  | 4.63  | 55.24               | 56.48 | 57.40 | 12.41              | 14.58 | 15.75 |
| 3526               | 5.72                  | 5.26  | 4.64  | 55.19               | 56.45 | 57.37 | 14.93              | 17.14 | 18.47 |
| 3542               | 5.76                  | 5.28  | 4.66  | 55.16               | 56.40 | 57.34 | 14.43              | 16.62 | 17.93 |
| 3558               | 5.75                  | 5.21  | 4.63  | 55.11               | 56.39 | 57.32 | 14.90              | 17.13 | 18.45 |
| 3574               | 5.73                  | 5.23  | 4.65  | 54.96               | 56.31 | 57.31 | 14.54              | 16.75 | 18.04 |
| 3580               | 5.71                  | 5.22  | 4.64  | 54.91               | 56.27 | 57.28 | 14.82              | 17.04 | 18.35 |

| FREQUENCY<br>(MHz) | HARMONICS (dBc) |        |        |        |        |        |
|--------------------|-----------------|--------|--------|--------|--------|--------|
|                    | F2              |        |        | F3     |        |        |
|                    | -45°C           | +25°C  | +85°C  | -45°C  | +25°C  | +85°C  |
| 3440               | -31.51          | -36.26 | -34.41 | -42.45 | -44.72 | -47.03 |
| 3446               | -30.32          | -35.82 | -34.13 | -43.14 | -44.53 | -47.06 |
| 3462               | -30.05          | -34.97 | -33.84 | -42.50 | -43.54 | -48.18 |
| 3478               | -28.68          | -33.72 | -33.69 | -42.22 | -44.72 | -46.62 |
| 3494               | -27.03          | -32.40 | -34.53 | -40.09 | -45.76 | -45.88 |
| 3510               | -26.55          | -32.34 | -34.10 | -40.70 | -42.93 | -45.96 |
| 3526               | -27.47          | -33.52 | -33.86 | -42.18 | -43.64 | -48.59 |
| 3542               | -26.54          | -33.36 | -35.84 | -46.34 | -45.23 | -49.85 |
| 3558               | -26.36          | -35.28 | -36.40 | -41.85 | -50.23 | -47.27 |
| 3574               | -30.29          | -36.96 | -38.82 | -40.44 | -48.83 | -49.49 |
| 3580               | -30.56          | -38.24 | -38.87 | -40.08 | -47.99 | -48.40 |



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| FREQUENCY<br>(MHz) | PHASE NOISE (dBc/Hz) @ OFFSETS |        |        |         |         |
|--------------------|--------------------------------|--------|--------|---------|---------|
|                    | +25°C                          |        |        |         |         |
|                    | 100Hz                          | 1kHz   | 10kHz  | 100kHz  | 1MHz    |
| 3440               | -79.21                         | -88.35 | -96.09 | -124.60 | -145.24 |
| 3446               | -78.52                         | -88.97 | -96.88 | -124.60 | -145.51 |
| 3462               | -76.34                         | -90.47 | -97.38 | -125.04 | -145.84 |
| 3478               | -77.70                         | -91.05 | -98.17 | -125.29 | -146.36 |
| 3494               | -78.11                         | -88.56 | -97.61 | -125.83 | -146.38 |
| 3510               | -77.36                         | -89.12 | -98.63 | -125.69 | -146.44 |
| 3526               | -79.61                         | -90.53 | -97.55 | -125.53 | -146.84 |
| 3542               | -78.61                         | -91.53 | -97.32 | -126.00 | -146.56 |
| 3558               | -77.08                         | -90.13 | -98.32 | -125.78 | -146.55 |
| 3574               | -78.32                         | -90.69 | -97.88 | -125.85 | -146.74 |
| 3580               | -75.40                         | -90.10 | -97.81 | -125.50 | -147.09 |

| FREQUENCY<br>(MHz) | PHASE NOISE (dBc/Hz) @ OFFSETS |        |        |         |         |
|--------------------|--------------------------------|--------|--------|---------|---------|
|                    | -45°C                          |        |        |         |         |
|                    | 100Hz                          | 1kHz   | 10kHz  | 100kHz  | 1MHz    |
| 3440               | -76.10                         | -89.71 | -94.91 | -123.28 | -144.71 |
| 3446               | -76.82                         | -92.45 | -95.50 | -123.50 | -144.74 |
| 3462               | -78.06                         | -90.09 | -95.95 | -123.95 | -145.28 |
| 3478               | -76.67                         | -90.60 | -96.64 | -124.49 | -145.99 |
| 3494               | -81.24                         | -89.87 | -96.63 | -125.01 | -146.55 |
| 3510               | -77.51                         | -90.81 | -96.79 | -125.27 | -146.57 |
| 3526               | -75.29                         | -89.62 | -97.01 | -125.23 | -145.76 |
| 3542               | -78.52                         | -89.99 | -97.65 | -125.59 | -147.71 |
| 3558               | -77.33                         | -89.10 | -97.39 | -125.98 | -147.45 |
| 3574               | -78.03                         | -91.89 | -96.83 | -125.54 | -147.13 |
| 3580               | -77.61                         | -91.48 | -96.96 | -125.17 | -146.89 |

| FREQUENCY<br>(MHz) | PHASE NOISE (dBc/Hz) @ OFFSETS |        |        |         |         |
|--------------------|--------------------------------|--------|--------|---------|---------|
|                    | +85°C                          |        |        |         |         |
|                    | 100Hz                          | 1kHz   | 10kHz  | 100kHz  | 1MHz    |
| 3440               | -79.88                         | -90.29 | -97.52 | -124.93 | -145.51 |
| 3446               | -78.33                         | -90.65 | -98.18 | -125.07 | -145.69 |
| 3462               | -77.13                         | -90.61 | -98.09 | -125.49 | -146.17 |
| 3478               | -80.54                         | -91.13 | -98.42 | -125.22 | -146.33 |
| 3494               | -77.75                         | -90.18 | -98.47 | -125.53 | -146.98 |
| 3510               | -78.62                         | -91.95 | -98.33 | -125.94 | -146.82 |
| 3526               | -77.13                         | -88.55 | -98.68 | -125.56 | -146.54 |
| 3542               | -76.00                         | -89.43 | -98.06 | -125.43 | -146.77 |
| 3558               | -77.16                         | -89.97 | -98.47 | -125.55 | -146.19 |
| 3574               | -76.15                         | -89.82 | -98.20 | -125.65 | -146.70 |
| 3580               | -78.61                         | -91.82 | -98.13 | -125.57 | -146.24 |



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| REFERENCE & COMPARISON<br>SPURIOUS<br>ORDER<br>n | REFERENCE & COMPARISON<br>SPURIOUS @Fcarrier<br>3440MHz+(n*Freference)<br>(dBc) note 1 |         |         | REFERENCE & COMPARISON<br>SPURIOUS @Fcarrier<br>3512MHz+(n*Freference)<br>(dBc) note 1 |         |         | REFERENCE & COMPARISON<br>SPURIOUS @Fcarrier<br>3580MHz+(n*Freference)<br>(dBc) note 1 |         |         |
|--------------------------------------------------|----------------------------------------------------------------------------------------|---------|---------|----------------------------------------------------------------------------------------|---------|---------|----------------------------------------------------------------------------------------|---------|---------|
|                                                  | -45°C                                                                                  | +25°C   | +85°C   | -45°C                                                                                  | +25°C   | +85°C   | -45°C                                                                                  | +25°C   | +85°C   |
| -5                                               | -100.51                                                                                | -107.55 | -105.95 | -102.80                                                                                | -105.92 | -103.67 | -103.78                                                                                | -99.91  | -102.85 |
| -4                                               | -101.62                                                                                | -107.42 | -102.13 | -99.29                                                                                 | -99.41  | -102.56 | -98.36                                                                                 | -97.79  | -100.49 |
| -3                                               | -109.52                                                                                | -115.91 | -106.46 | -102.22                                                                                | -105.18 | -105.53 | -106.61                                                                                | -108.48 | -110.77 |
| -2                                               | -104.40                                                                                | -100.72 | -99.13  | -93.75                                                                                 | -95.55  | -97.81  | -96.85                                                                                 | -96.56  | -95.84  |
| -1                                               | -97.27                                                                                 | -96.84  | -97.21  | -101.92                                                                                | -96.38  | -100.10 | -91.10                                                                                 | -93.88  | -90.82  |
| 0 <sup>note 2</sup>                              | -                                                                                      | -       | -       | -                                                                                      | -       | -       | -                                                                                      | -       | -       |
| +1                                               | -100.96                                                                                | -98.65  | -96.18  | -93.05                                                                                 | -98.63  | -90.65  | -92.22                                                                                 | -93.14  | -88.92  |
| +2                                               | -100.63                                                                                | -105.41 | -104.23 | -102.78                                                                                | -106.17 | -112.05 | -96.09                                                                                 | -95.99  | -96.32  |
| +3                                               | -97.11                                                                                 | -100.72 | -100.84 | -96.71                                                                                 | -101.12 | -104.76 | -105.23                                                                                | -106.04 | -110.56 |
| +4                                               | -105.89                                                                                | -102.39 | -106.76 | -105.99                                                                                | -102.73 | -109.21 | -99.10                                                                                 | -95.71  | -97.21  |
| +5                                               | -99.63                                                                                 | -107.36 | -99.56  | -97.23                                                                                 | -102.71 | -96.08  | -99.46                                                                                 | -101.75 | -96.25  |

Note 1: Reference frequency = Comparison frequency = 30 MHz

Note 2: All spurs are referenced to carrier signal (n=0).

| STEP SIZE<br>SPURIOUS<br>ORDER<br>n | 0.5 STEP SIZE & STEP SIZE<br>SPURIOUS @Fcarrier<br>3440MHz+(n*Fstep size)<br>(dBc) note 3 |         |         | 0.5 STEP SIZE & STEP SIZE<br>SPURIOUS @Fcarrier<br>3512MHz+(n*Fstep size)<br>(dBc) note 3 |         |         | 0.5 STEP SIZE & STEP SIZE<br>SPURIOUS @Fcarrier<br>3580MHz+(n*Fstep size)<br>(dBc) note 3 |         |         |
|-------------------------------------|-------------------------------------------------------------------------------------------|---------|---------|-------------------------------------------------------------------------------------------|---------|---------|-------------------------------------------------------------------------------------------|---------|---------|
|                                     | -45°C                                                                                     | +25°C   | +85°C   | -45°C                                                                                     | +25°C   | +85°C   | -45°C                                                                                     | +25°C   | +85°C   |
| -5.0                                | -109.85                                                                                   | -116.06 | -119.09 | -118.55                                                                                   | -115.44 | -116.70 | -111.03                                                                                   | -110.07 | -113.05 |
| -4.5                                | -116.78                                                                                   | -116.53 | -120.11 | -118.38                                                                                   | -119.51 | -118.62 | -120.61                                                                                   | -118.34 | -118.54 |
| -4.0                                | -115.57                                                                                   | -115.04 | -118.75 | -118.35                                                                                   | -117.36 | -118.46 | -113.22                                                                                   | -117.20 | -118.05 |
| -3.5                                | -114.81                                                                                   | -116.00 | -117.15 | -117.50                                                                                   | -112.33 | -114.42 | -115.24                                                                                   | -115.63 | -118.75 |
| -3.0                                | -112.74                                                                                   | -114.03 | -117.22 | -114.03                                                                                   | -112.71 | -112.83 | -108.12                                                                                   | -110.61 | -107.54 |
| -2.5                                | -111.70                                                                                   | -113.37 | -115.03 | -116.77                                                                                   | -108.87 | -113.97 | -114.65                                                                                   | -114.30 | -116.24 |
| -2.0                                | -105.24                                                                                   | -108.07 | -106.87 | -108.24                                                                                   | -111.26 | -111.39 | -109.57                                                                                   | -105.39 | -104.98 |
| -1.5                                | -105.81                                                                                   | -108.05 | -102.82 | -104.75                                                                                   | -103.73 | -106.58 | -105.30                                                                                   | -105.47 | -104.63 |
| -1.0                                | -89.48                                                                                    | -101.83 | -97.95  | -98.89                                                                                    | -99.25  | -101.30 | -85.30                                                                                    | -92.06  | -90.17  |
| -0.5                                | -91.11                                                                                    | -89.13  | -89.08  | -88.83                                                                                    | -88.93  | -89.92  | -86.59                                                                                    | -88.44  | -89.94  |
| 0 <sup>note 4</sup>                 | -                                                                                         | -       | -       | -                                                                                         | -       | -       | -                                                                                         | -       | -       |
| +0.5                                | -89.58                                                                                    | -90.31  | -89.43  | -89.36                                                                                    | -89.22  | -91.54  | -88.64                                                                                    | -90.55  | -90.16  |
| +1.0                                | -89.52                                                                                    | -100.16 | -96.15  | -102.15                                                                                   | -100.13 | -101.14 | -85.78                                                                                    | -92.06  | -92.57  |
| +1.5                                | -106.30                                                                                   | -108.49 | -103.15 | -107.23                                                                                   | -108.12 | -104.11 | -108.91                                                                                   | -103.83 | -107.75 |
| +2.0                                | -107.87                                                                                   | -108.29 | -105.43 | -109.08                                                                                   | -109.79 | -112.01 | -111.32                                                                                   | -105.07 | -105.75 |
| +2.5                                | -115.06                                                                                   | -112.97 | -112.15 | -114.45                                                                                   | -113.13 | -116.25 | -113.34                                                                                   | -112.08 | -113.51 |
| +3.0                                | -115.13                                                                                   | -114.11 | -116.41 | -114.57                                                                                   | -117.97 | -116.56 | -112.64                                                                                   | -111.56 | -116.44 |
| +3.5                                | -113.71                                                                                   | -115.36 | -116.70 | -118.59                                                                                   | -116.86 | -117.32 | -115.71                                                                                   | -116.37 | -117.28 |
| +4.0                                | -120.02                                                                                   | -114.97 | -118.83 | -120.24                                                                                   | -117.21 | -118.60 | -113.10                                                                                   | -116.11 | -117.08 |
| +4.5                                | -118.32                                                                                   | -115.55 | -117.96 | -117.49                                                                                   | -121.19 | -114.58 | -118.00                                                                                   | -116.18 | -119.96 |
| +5.0                                | -113.51                                                                                   | -111.28 | -119.67 | -115.80                                                                                   | -118.45 | -115.54 | -110.27                                                                                   | -111.14 | -106.01 |

Note 3: Step size 250 KHz

Note 4: All spurs are referenced to carrier signal (n=0).



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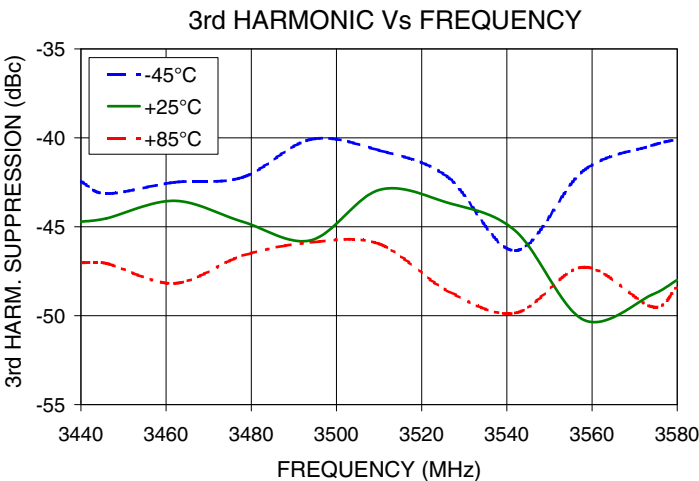
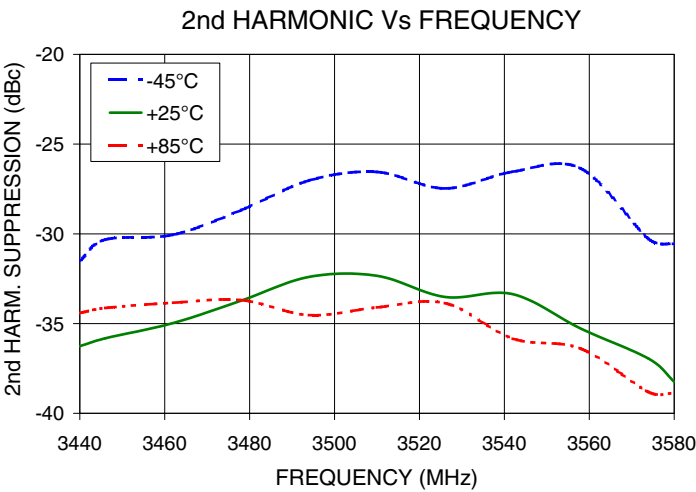
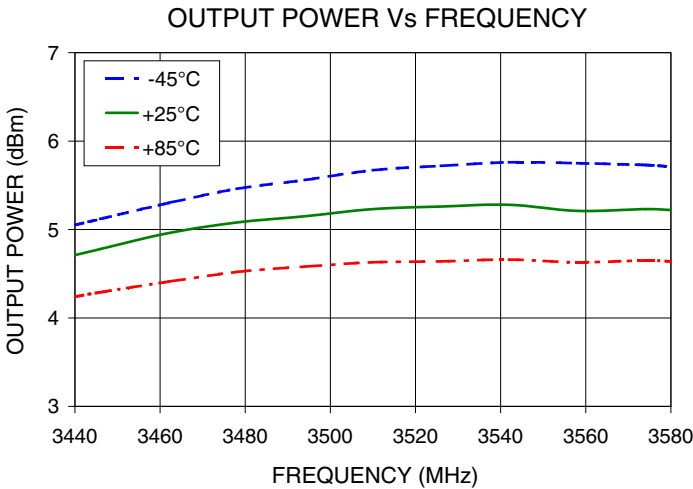
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Typical Performance Curves



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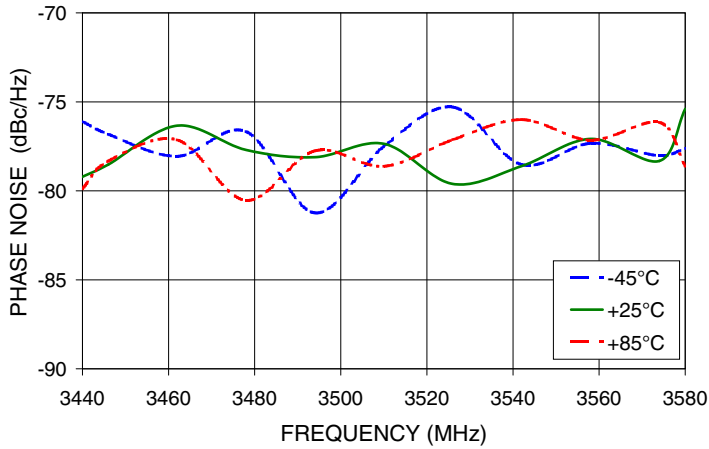


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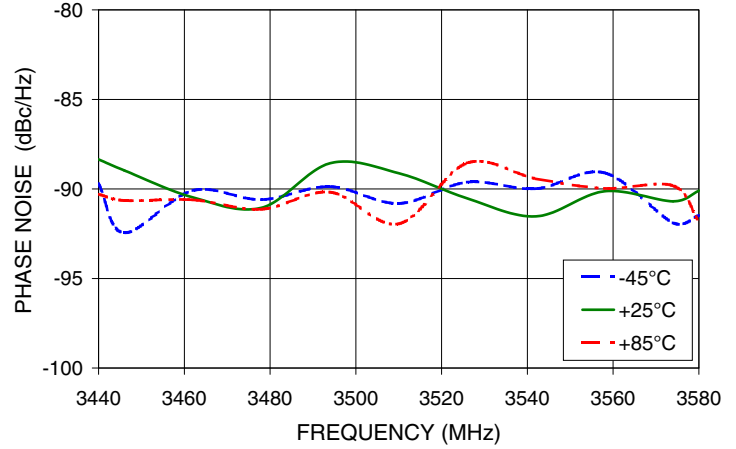


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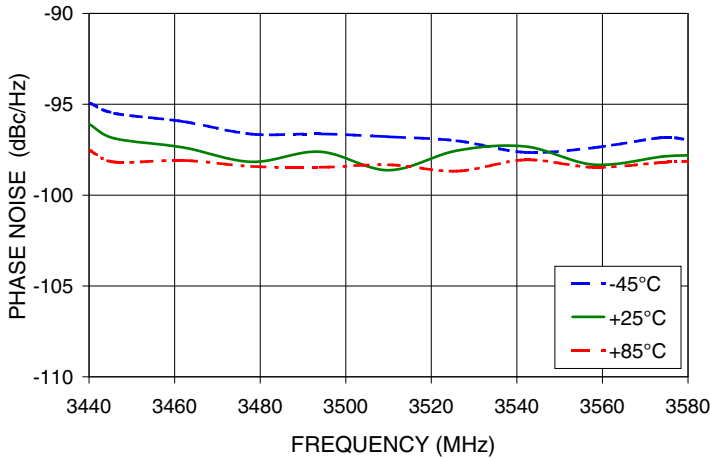
PHASE NOISE @ 100Hz offset



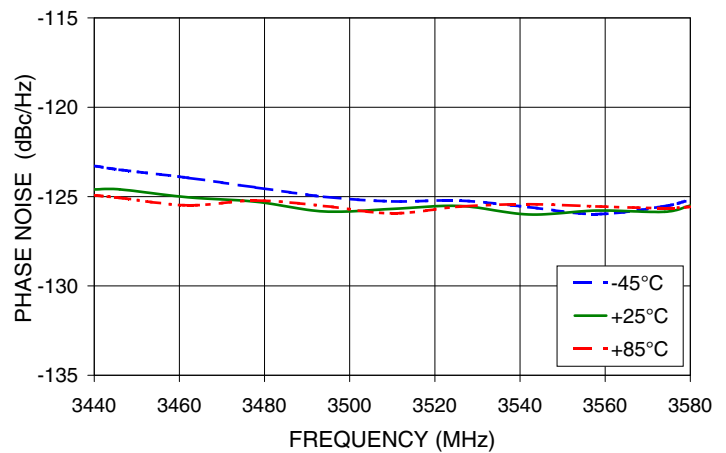
PHASE NOISE @ 1kHz offset



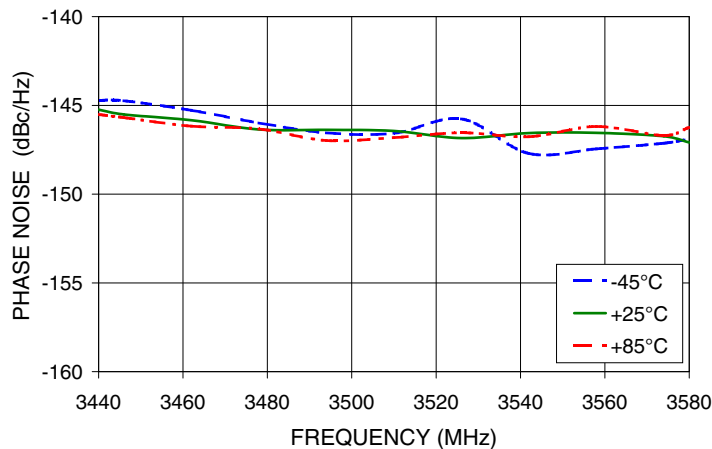
PHASE NOISE @ 10kHz offset



PHASE NOISE @ 100kHz offset



PHASE NOISE @ 1MHz offset



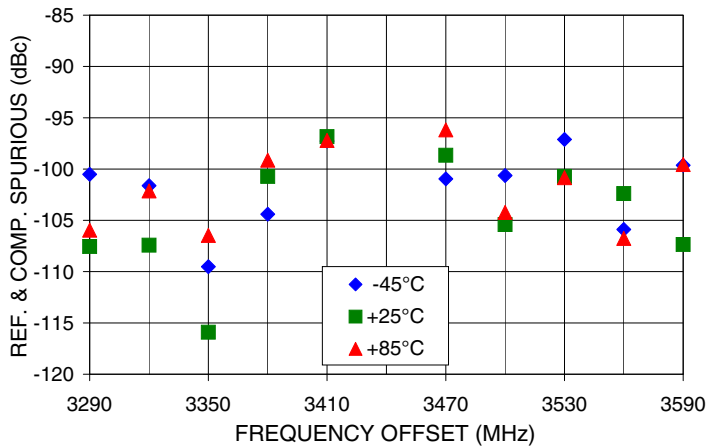
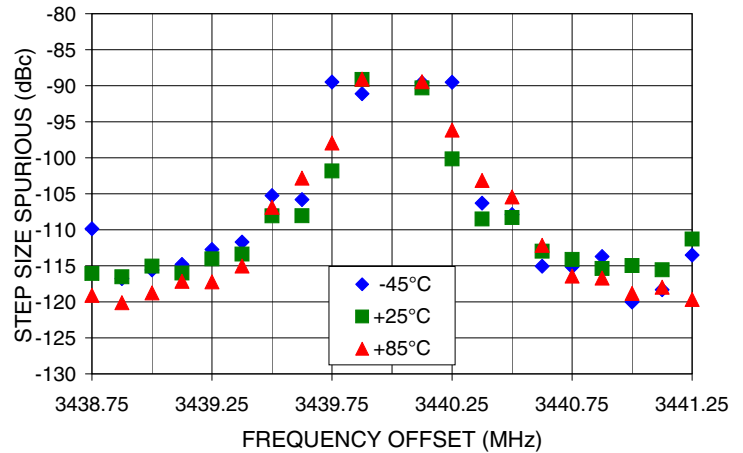
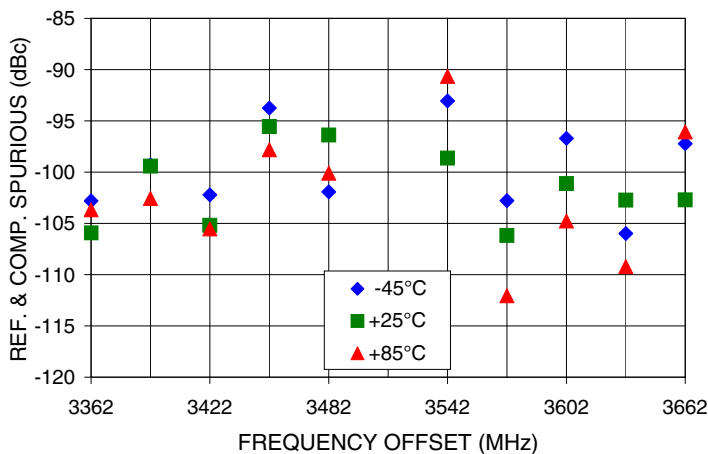
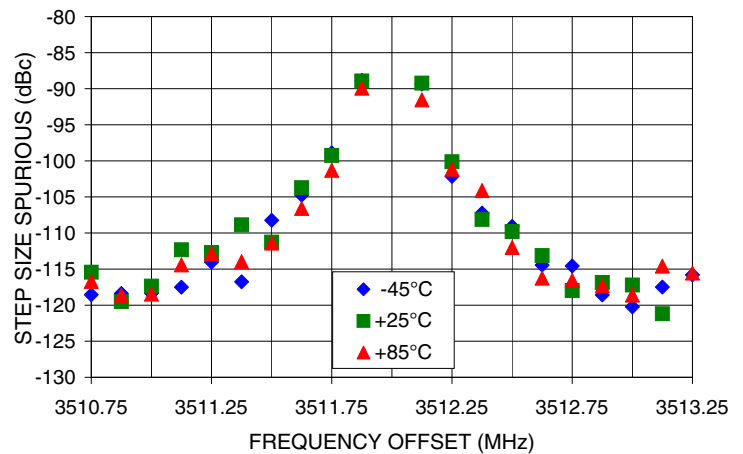
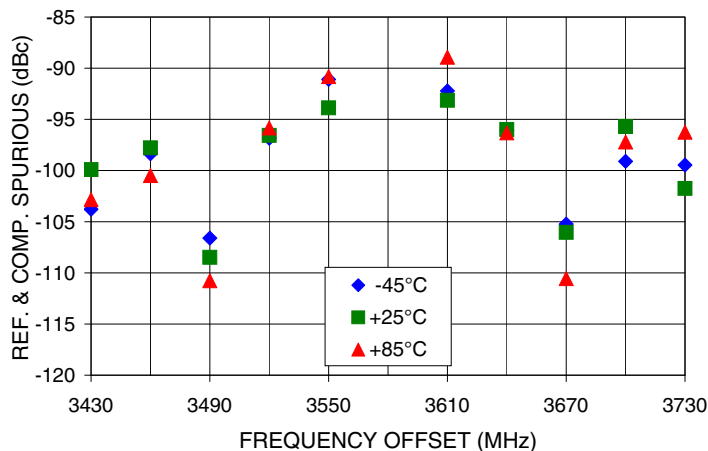
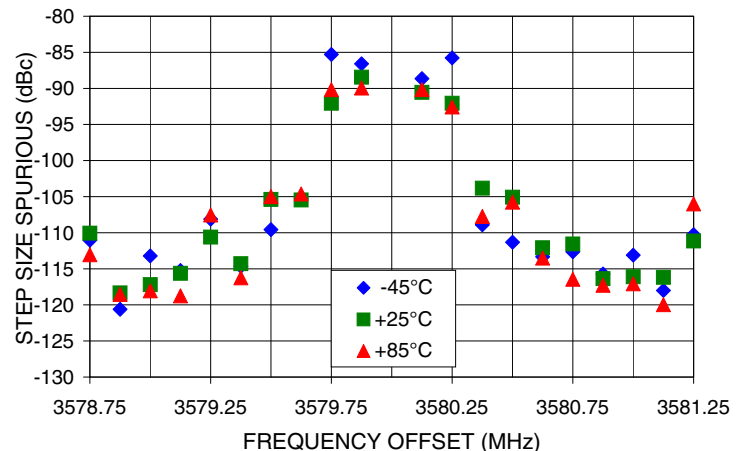
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REFERENCE & COMPARISON SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3440MHz0.5 STEP SIZE & STEP SIZE SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3440MHzREFERENCE & COMPARISON SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3512MHz0.5 STEP SIZE & STEP SIZE SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3512MHzREFERENCE & COMPARISON SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3580MHz0.5 STEP SIZE & STEP SIZE SPURIOUS  
Vs FREQ. OFFSET @ Fcar = 3580MHz

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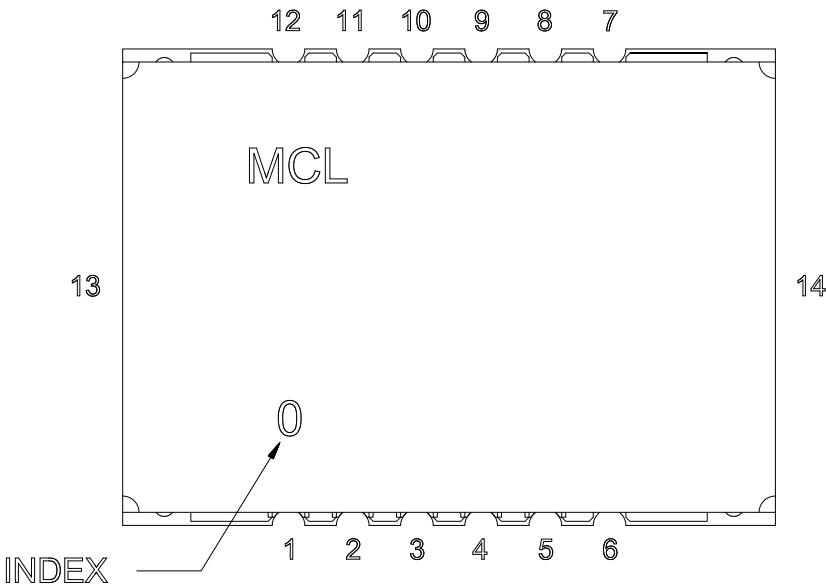


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Pin Configuration

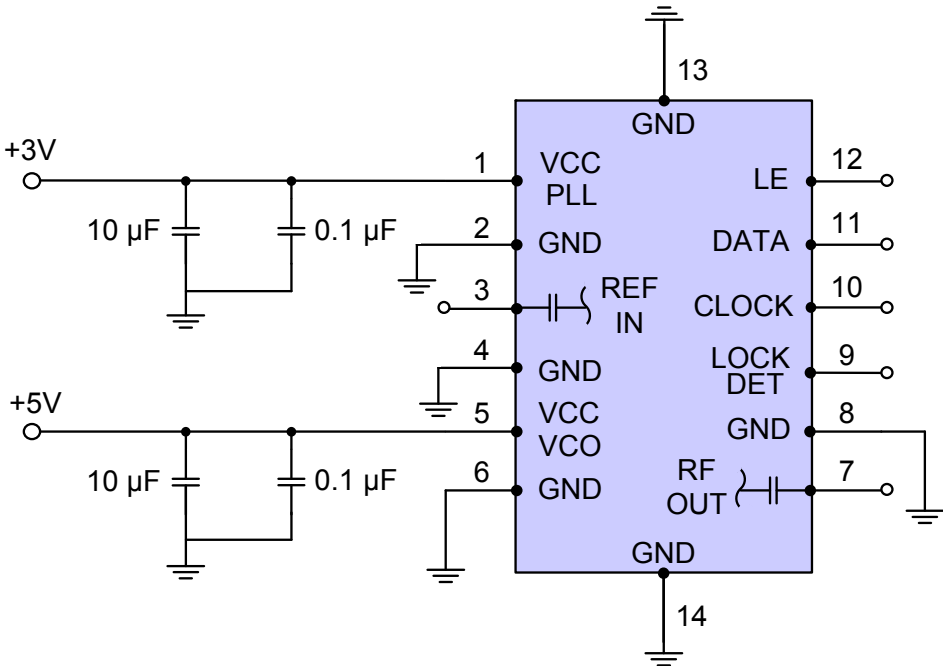


Pin Connection

| Pin Number | Function |
|------------|----------|
| 1          | VCC PLL  |
| 2          | GND      |
| 3          | REF IN   |
| 4          | GND      |
| 5          | VCC VCO  |
| 6          | GND      |
| 7          | RF OUT   |
| 8          | GND      |
| 9          | LOCK DET |
| 10         | CLOCK    |
| 11         | DATA     |
| 12         | LE       |
| 13         | GND      |
| 14         | GND      |

Recommended Application Circuit

Note: REF IN and RF OUT ports are internally AC coupled.



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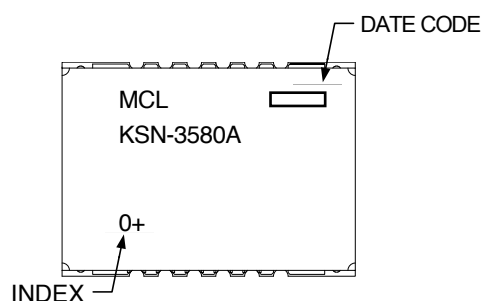


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## Device Marking



### Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

**Case Style:** DK1171

**Tape & Reel:** TR-F28

**Suggested Layout for PCB Design:** PL-249

**Evaluation Board:** TB-567-2+

**Environment Ratings:** ENV03T2



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