



L-Band Voltage Controlled Oscillator

1.435 - 1.525 GHz

V 1P.00

Preliminary

FE55-0005

Features

- Single supply 3 volt operation
- High Power Output: 10 dBm into 50 ohms
- Integrated Varactor
- 10 dB buffer amplifier
- Low Phase Noise due to InGaP HBT process

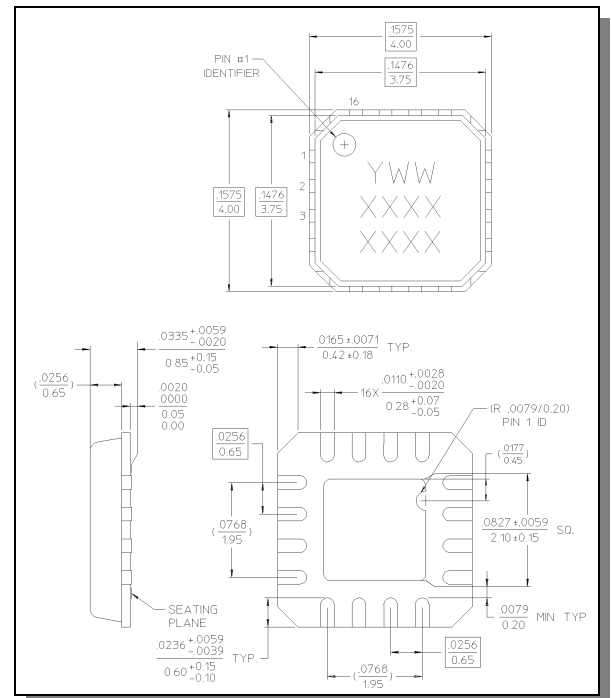
Description

M/A-COM's FE55-0005 is a MMIC based voltage controlled oscillator available as FQFP-16 4 mm surface mount package for easy assembly on standard pick and place SMT production lines. The FE55-0005 is designed to operate from a regulated 3 volt supply, and has been designed and tested from 2.7 to 3.3 volts.

The FE55-0005 is ideally suited for use as a stand-alone signal source or as part of a PLL signal source for FM/ FSK applications in L-Band. The FE55-0005 includes active transistor biasing to minimize effects of supply variation on frequency and power output.

The FE55-0005 is fabricated using a mature InGaP hetero-junction bipolar transistor (HBT) process. This product is 100% RF tested to ensure compliance to performance specifications

OUTLINE DRAWING



Electrical Specifications: $V_{DD} = +3.0 \text{ V}$ $T_A = 25^\circ\text{C}$, $Z_0 = 50\Omega$

Parameter	Units	Min	Typ	Max
Supply Voltage	Volts	2.7	—	3.3
Supply Current	mA	—	30	—
Tuning Voltage	Volts	0	—	3
Frequency Range	GHz	1.435	—	1.525
Power Output	dBm	10	—	12
Output VSWR	Ratio	—	—	2.0:1
Phase Noise	dBc/Hz	—	—	-70
Frequency Pulling	MHz	—	—	20
Frequency Pushing	MHz/ V	—	—	15

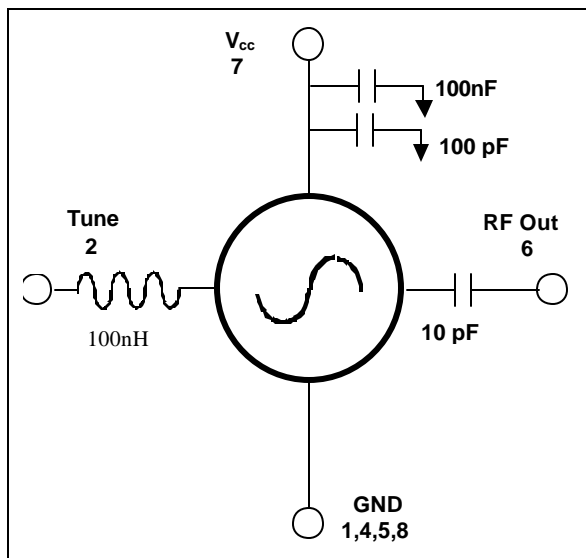
Absolute Maximum Ratings ^{1,2}

Parameter	Absolute Maximum
V _{CC}	+ 5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

1. Exceeding any one or a combination of these limits may cause permanent damage.
2. Adequate DC and RF grounding required on board.

Pin Configuration

Pin No.	Pin Name	Function
1	GND	GND
2	GND	GND
3	GND	GND
4	GND	GND
5	GND	GND
6	GND	GND
7	GND	GND
8	No Connect	No Connect
9	No Connect	No Connect
10	RF Out	RF Output
11	No Connect	No Connect
12	No Connect	No Connect
13	VCC	Collector Voltage (V _{CC})
14	No Connect	No Connect
15	V_TUNE	Tuning Voltage
16	GND	GND

Recommended Bias Configuration ^{3,4}

3. For optimum performance, V_{CC} bypass capacitors should be placed within 0.5 inches of the V_{CC} leads.
4. For optimum performance, V_{tune} inductor should be placed within 0.3 inches of the V_{tune} leads.

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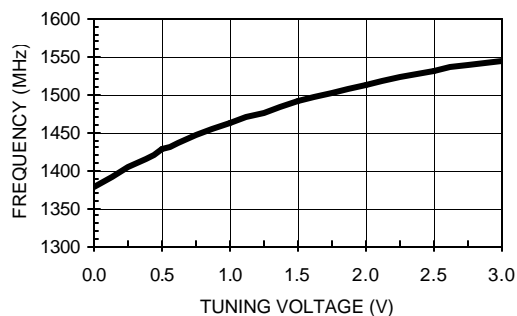
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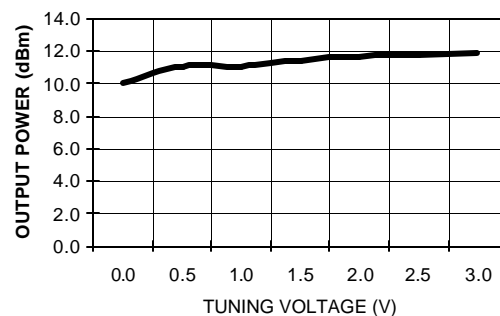
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Typical Performance Curves

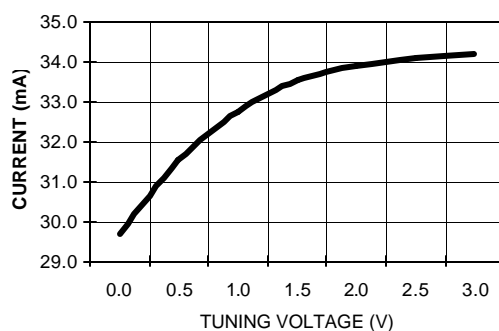
Frequency vs. Tuning Voltage



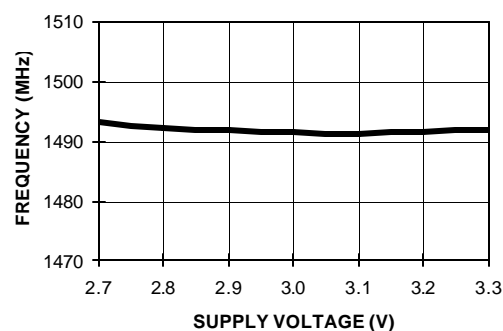
Output Power vs. Tuning Voltage



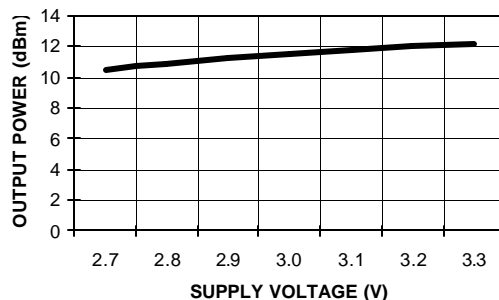
Current vs. Tuning Voltage



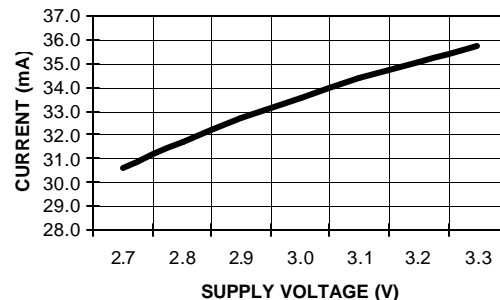
Frequency vs. Supply Voltage



Output Power vs. Supply Voltage



Current vs. Supply Voltage



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Ordering Information

Part Number	Package
FE55-0005	FQFP-16 4 mm

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