

WIDEBAND VCO w/ BUFFER AMPLIFIER MODULE, 38.4 - 43.2 GHz

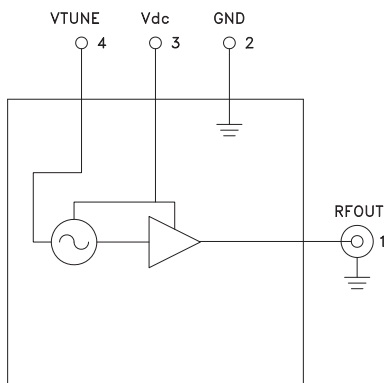


Typical Applications

The HMC-C073 VCO Module is ideal for:

- OC-768 Fiber Optic Systems
- Test and Measurement Equipment
- Lab Instrumentation
- Industrial/Medical Equipment
- Millimeterwave Subsystems

Functional Diagram



Features

- Wideband Tuning Frequency: 38.4 - 43.2 GHz
- High Output Power: +13 dBm
- High Output Voltage: 3.5V pp
- Low Phase Noise: -98 dBc/Hz @ 100 kHz Offset
- Low Jitter: 37 fs
- Single Positive Supply: +5V @ 350 mA
- Operating Temperature: -55°C to + 85°C
- Ultra-Small Hermetic Module
- Field Replaceable 2.4mm Connector

General Description

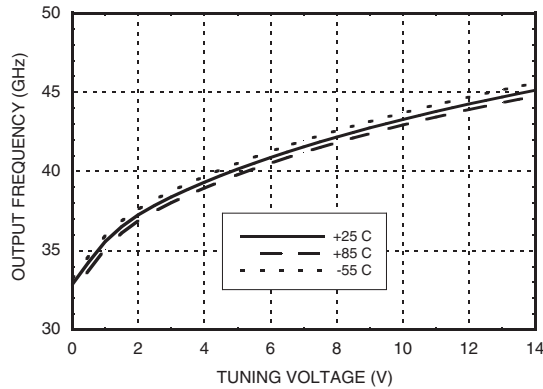
The HMC-C073 is a high performance VCO that operates over a 38.4 to 43.2 GHz band. An internal output buffer provides +13 dBm of output power and provides excellent pushing performance. Phase noise performance is excellent at -98 dBc/Hz at 100 kHz offset and the unit provides exceptional jitter of 37 fs (calculated). The Vtune port accepts an analog tuning voltage from +2 to +13V. Each VCO is housed in a very small hermetic module measuring 0.7" x 0.99" x 0.23". The module is supplied with a 2.4mm connector, which can be replaced by a GPO connector.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dc} = +5\text{V}$

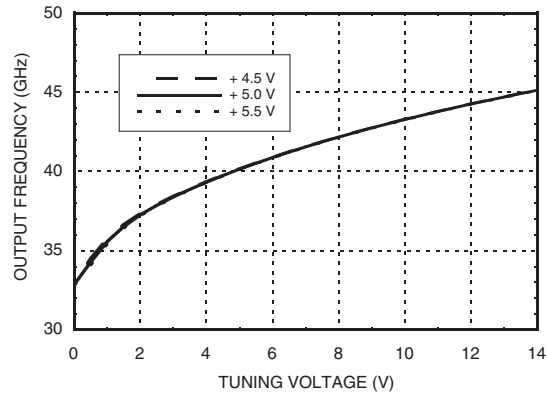
Parameter	Min.	Typ.	Max.	Units
Frequency Range	38.4 - 43.2			GHz
Power Output	10	13		dBm
SSB Phase Noise @ 10 kHz Offset		-74		dBc/Hz
SSB Phase Noise @ 100 kHz Offset		-98		dBc/Hz
Jitter (50 kHz to 80 MHz) (Calculated)		37		fs
Tune Voltage	2		13	V
Sub Harmonic (fo/4)		-40		dBc
Sub Harmonic (fo/2)		-30		dBc
Frequency Pushing		40		MHz/V
Frequency Pulling (into 2:0:1 Load)		5		kHz pp
Output Return Loss		17		dB
Voltage Supply (Vdc)	4.5	5	5.5	V
Supply Current		350	400	mA

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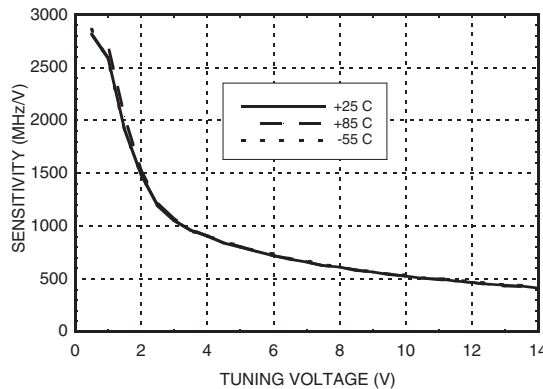
Frequency vs. Tuning Voltage, Vdc = +5V



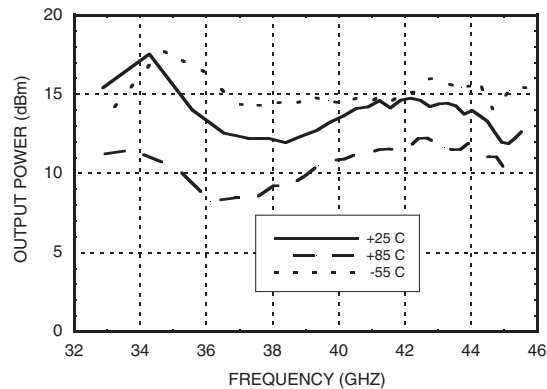
Frequency vs. Tuning Voltage, T = +25°C



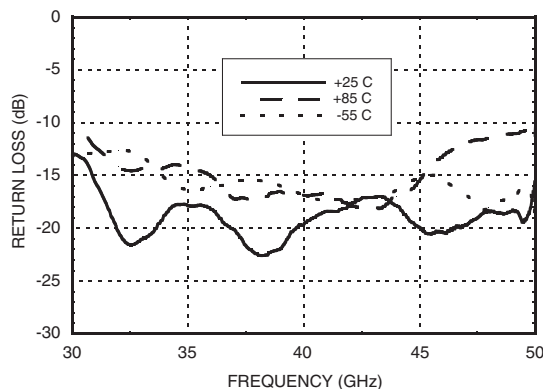
Sensitivity vs. Tuning Voltage, Vcc = +5V



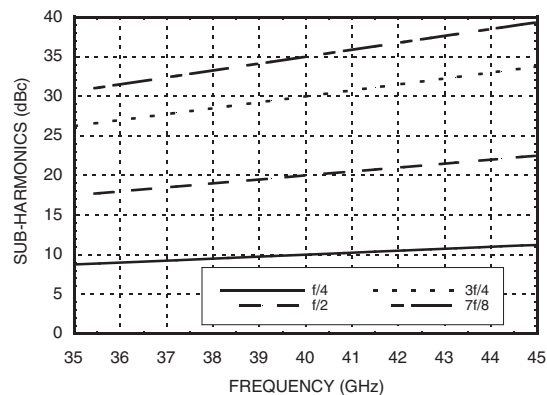
Output Power vs. Frequency, Vcc = +5V



Output Return Loss vs. Frequency, Vcc = +5V



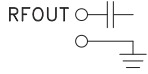

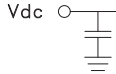
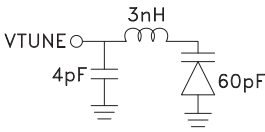
Sub-Harmonics vs. Frequency, Vcc = +5V

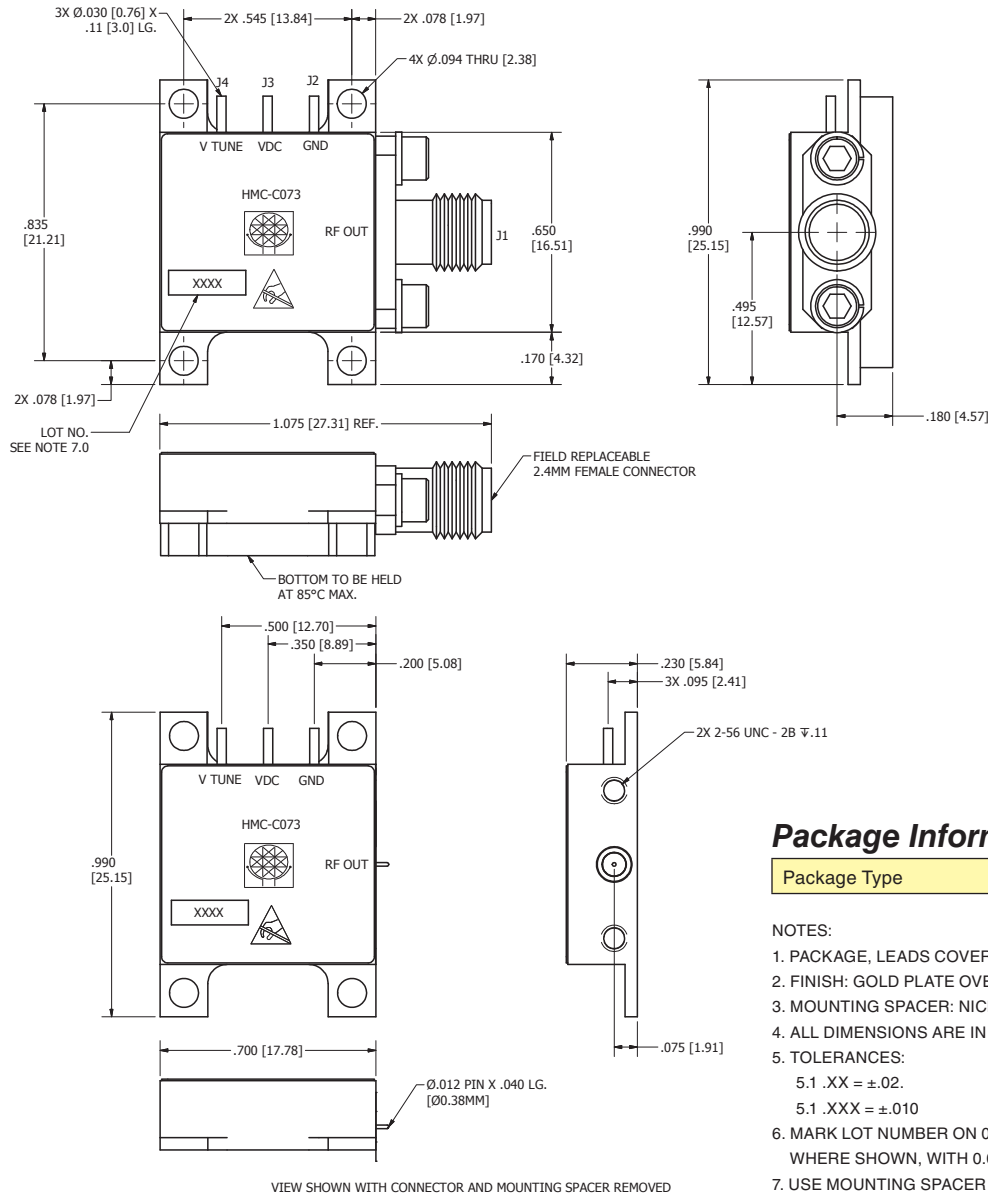



**WIDEBAND VCO w/ BUFFER AMPLIFIER
MODULE, 38.4 - 43.2 GHz**
Absolute Maximum Ratings

Vdc	+5.5V
Vtune	+15V
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
Max Junction Temperature	150 °C
Thermal Resistance	29 °C/W

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RFOUT	RF output (AC coupled) uses a female 2.4mm connector.	
2	GND	Must be connected to power supply ground.	
3	Vdc	Supply Voltage Vdc = +4.5V to 5.5V	
4	VTUNE	2 to +13V	

**WIDEBAND VCO w/ BUFFER AMPLIFIER
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Outline Drawing

Package Information

Package Type	C-19
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NOTES:

1. PACKAGE, LEADS COVER MATERIAL: KOVAR
2. FINISH: GOLD PLATE OVER NICKEL PLATE.
3. MOUNTING SPACER: NICKEL PLATED ALUMINUM.
4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].
5. TOLERANCES:
 - 5.1 .XX = \pm .02.
 - 5.1 .XXX = \pm .010
6. MARK LOT NUMBER ON 0.080 X 0.250 LABEL WHERE SHOWN, WITH 0.030 MIN. TEXT HEIGHT.
7. USE MOUNTING SPACER PART NUMBER 123399.