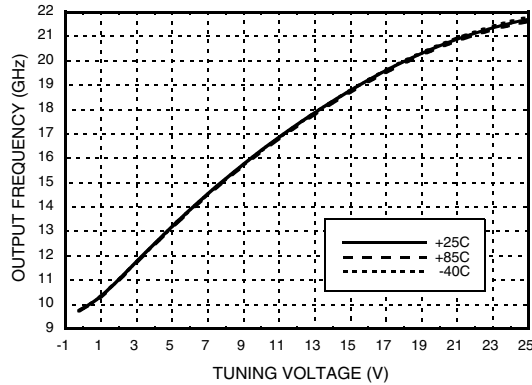


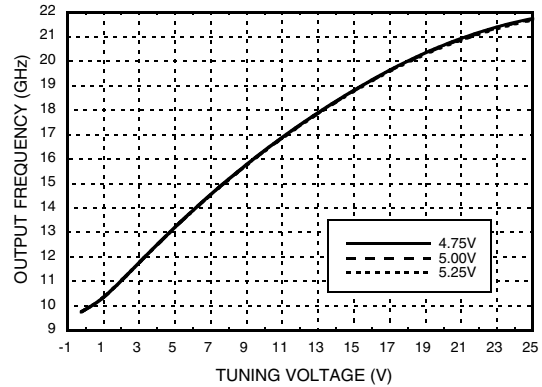


WIDEBAND MMIC VCO w/ BUFFER AMPLIFIER, 10 - 20 GHz

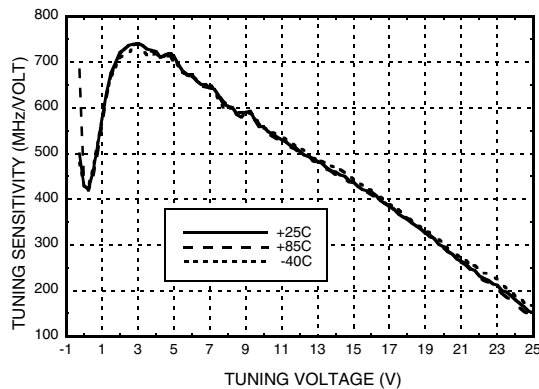
Frequency vs. Tuning Voltage, $V_{cc} = +5V$



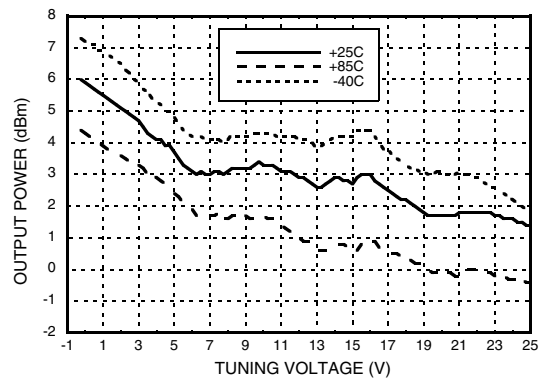
Frequency vs. Tuning Voltage, $T = +25\text{ }^\circ\text{C}$



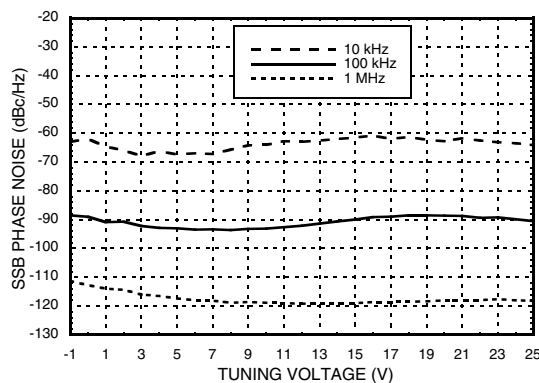
Sensitivity vs. Tuning Voltage, $V_{cc} = +5V, T = +25\text{ }^\circ\text{C}$



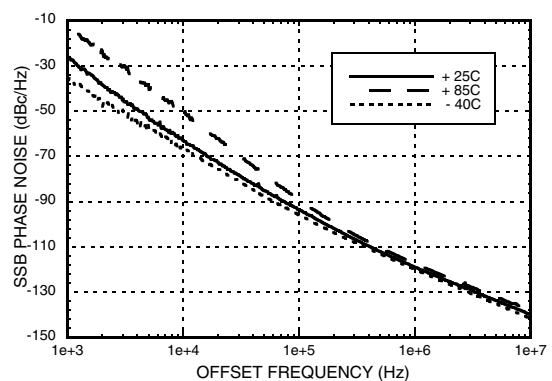
Output Power vs. Tuning Voltage, $V_{cc} = +5V$



SSB Phase Noise vs. Tuning Voltage, $T = +25\text{ }^\circ\text{C}$



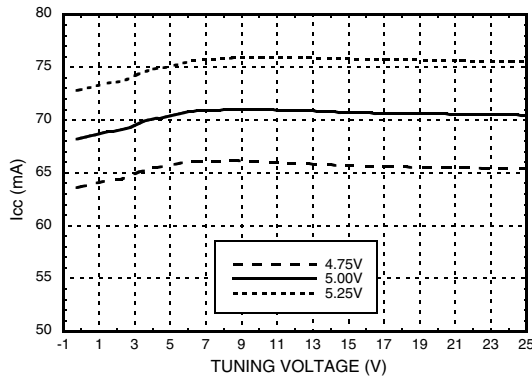
Typical SSB Phase Noise vs. Temperature $V_{tune} = +10V$





WIDEBAND MMIC VCO w/ BUFFER AMPLIFIER, 10 - 20 GHz

Supply Current vs. Vcc, T = +25 °C



Absolute Maximum Ratings

Vcc	+5.5 Vdc
Vtune	-1.0 to +25V
Storage Temperature	-65 to +150 °C
ESD Sensitivity (HBM)	Class 1A

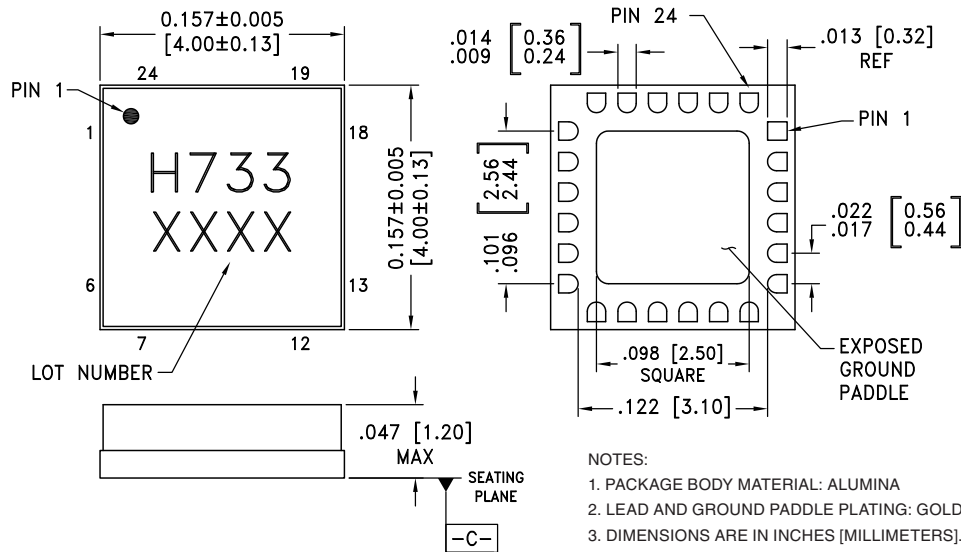
Reliability Information

Junction Temperature To Maintain 1 Million Hour MTTF	135 °C
Nominal Junction Temperature (T = 85 °C)	119 °C
Thermal Resistance (Junction to GND paddle, 5V supply)	97 °C/W
Operating Temperature	-40 °C to +85 °C



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing



BOTTOM VIEW

NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA
2. LEAD AND GROUND PADDLE PLATING: GOLD FLASH OVER NI.
3. DIMENSIONS ARE IN INCHES [MILLIMETERS].
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm DATUM -C-
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

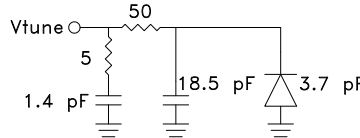
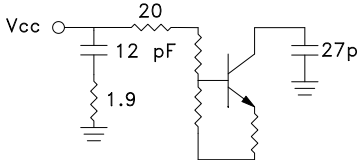

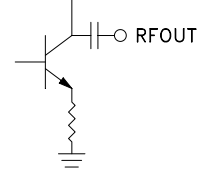
Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [2]
HMC733LC4B	Alumina, White	Gold over Nickel	MSL3 [1]	H733 XXXX

[1] Max peak reflow temperature of 260 °C

[2] 4-Digit lot number XXXX

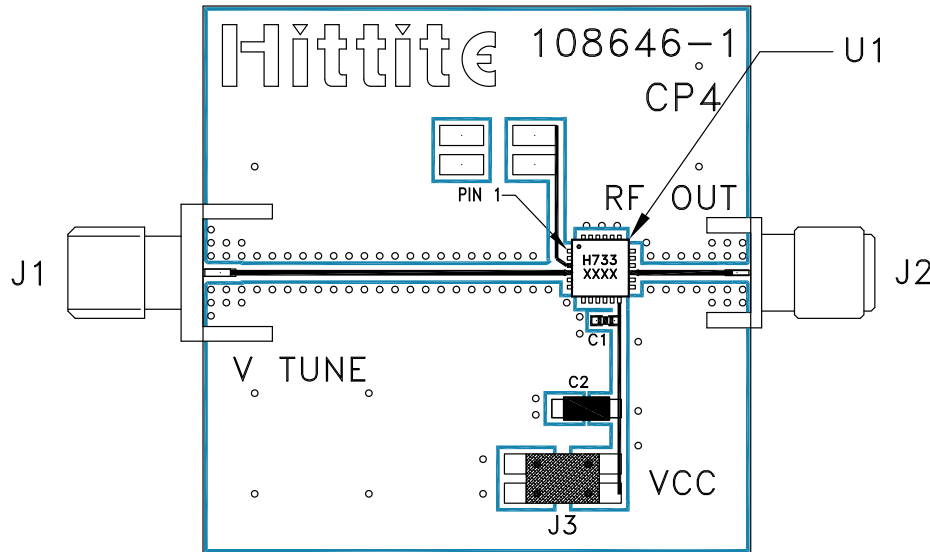

**WIDEBAND MMIC VCO w/ BUFFER
AMPLIFIER, 10 - 20 GHz**
Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1 - 3, 5 - 11, 13, 17 - 24	N/C	No Connection. These pins may be connected to RF/DC ground. Performance will not be affected.	
4	Vtune	Control Voltage and Modulation Input. Modulation bandwidth dependent on drive source impedance.	
12	Vcc	Supply Voltage Vcc= +5V	
14, 16	GND	Package bottom has an exposed metal paddle that must also be RF & DC grounded.	
15	RFOUT	RF output (AC coupled)	



**WIDEBAND MMIC VCO w/ BUFFER
AMPLIFIER, 10 - 20 GHz**

Evaluation PCB



List of Materials for Evaluation PCB 108648 [1]

Item	Description
J1	PCB Mount SMA RF Connector, Johnson
J2	PCB Mount SMA Connector, SRI
J3	DC Header
C1	1000 pF Capacitor, 0402 Pkg.
C2	4.7 μF Capacitor, Tantalum
U1	HMC733LC4B VCO
PCB [2]	108646 Eval Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the application should use RF circuit design techniques. Signal lines should have 50 Ohm impedance while the package ground leads and exposed ground paddle should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Hittite upon request.

**WIDEBAND MMIC VCO w/ BUFFER
AMPLIFIER, 10 - 20 GHz**

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