

DLCRO SERIES

Lowest Noise Phase-Locked Resonator Oscillator

ELECTRICAL SPECIFICATIONS

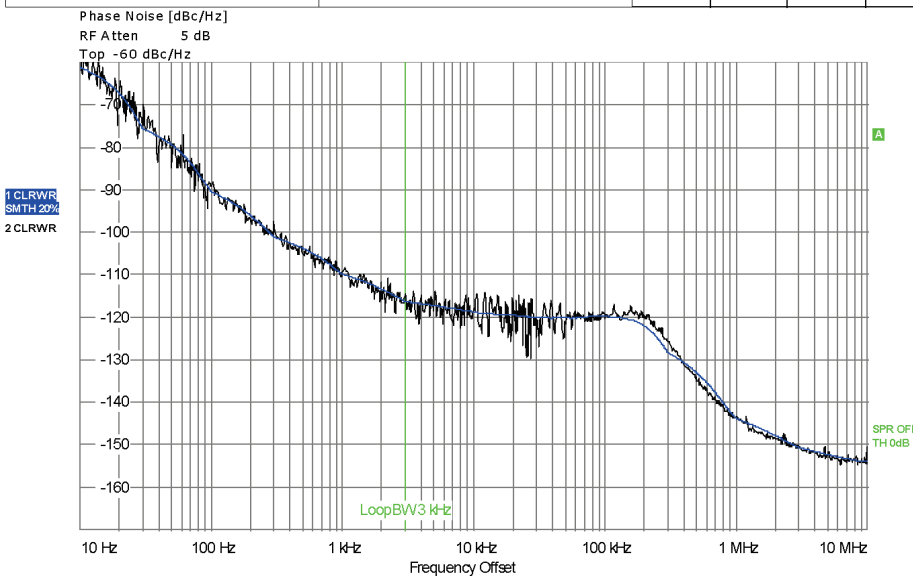
Output Frequency Range	125 MHz to 22 GHz Fundamental Outline up to 44 GHz with external multiplier		
Output Power	125 MHz to 18.5 GHz +13 dBm minimum 18.5 GHz to 22 GHz +10 dBm minimum Consult factory for multiplied frequencies		
Output Harmonics	125 MHz to 4.5 GHz -20 dBc maximum 4.5 GHz to 22 GHz -50 dBc maximum		
Output Spurious	-70 dBc maximum		
Phase Noise	See plots for typical; Performance Maximum Level at 12 GHz: 10 Hz -55 dBc/Hz 100 Hz -78 dBc/Hz 1 kHz -102 dBc/Hz 10 kHz -115 dBc/Hz 100 kHz -117 dBc/Hz 1 MHz -135 dBc/Hz 10 MHz -152 dBc/Hz		
Input Reference Frequency Range	1 MHz to 200 MHz		
Input Impedance	50 Ohms		
Load VSWR	1.5 : 1 nominal		
DC Power	Current in mA at 8 Vdc Max (Typ) 475 (425mA)	Current in mA at 12 Vdc Max (Typ) 390 (340mA)	Current in mA at 15 Vdc Max (Typ) 360 (310mA)
Phase Lock Alarm	Pin 2 TTL Low in lock, TTL High out of lock Pin 3 TTL High in lock, TTL Low out of lock		



The Narda-MITEQ DLCRO Series Phase Locked source offers excellent phase noise and spurious performance in a 2.25" x 2.25" x 0.61" housing. The dual loop configuration improves phase-noise and spurious performance compared to the single loop design where reference products may enter within loop filtering. Primary narrow VCXO loop filters spur and noise products due to external reference as close as 100 Hz by more than 30 dBc. Proprietary design allows for lower resolution and no integer multiples from input to output frequency. Available in fixed frequencies from 125 MHz to 22 GHz in fundamental outline and can operate to 44 GHz when assembled along with external multiplier (see Outline Information). The DLCRO can accept reference frequencies of 1 MHz and up to 200 MHz and will operate on any DC input from +8 Vdc to +15 Vdc (see specification table for current consumption).

TYPICAL PHASE NOISE: 13.025 GHz 10 MHz EXTERNAL REFERENCE

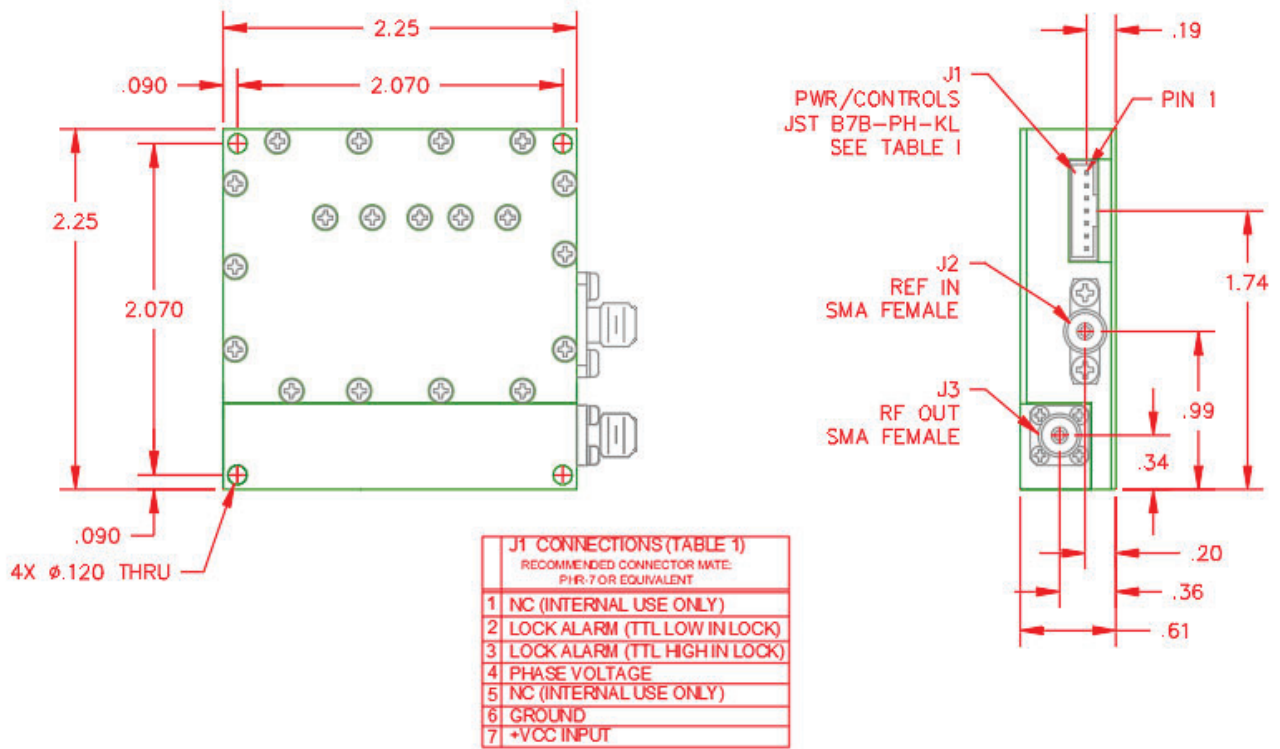
Settings		Residual Noise [T1 w/o spurs]		Phase Detector +20 dB	
Signal Frequency:	13.024999 GHz	Int PHN (10.0 .. 10.0 M)	-52.3 dBc		
Signal Level:	14.89 dBm	Residual PM	0.197 °		
Cross Corr Mode	Harmonic 1	Residual FM	589.069 Hz		
Internal Ref Tuned	Internal Phase Det	RMS Jitter	0.0420 ps		



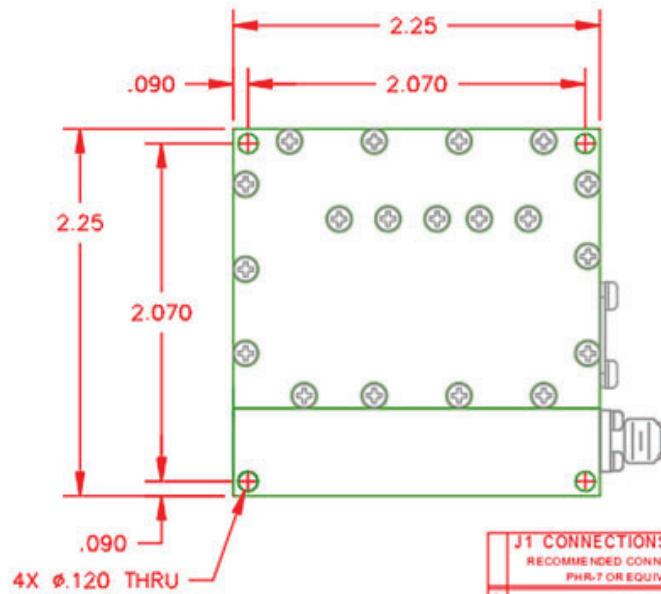
Measurement Aborted
DLCRO-010-13025-12P
Date: 8.JUN.2021 17:53:35

MECHANICAL SPECIFICATIONS		
	FUNDAMENTAL	MULTIPLIED
Outline Drawings	214799, 216313	227311
Mechanical Size	2.25" x 2.25" x 0.610"	3.00" x 3.00" x 1.03"
Weight	<100 Grams	<300 Grams
RF Connectors	SMA Female	SMA or K Female
DC Interface Connectors	7 Pin JST	7 Pin JST and Post
Mating Connectors	JST PHR-7	JST PHR-7 and Wire

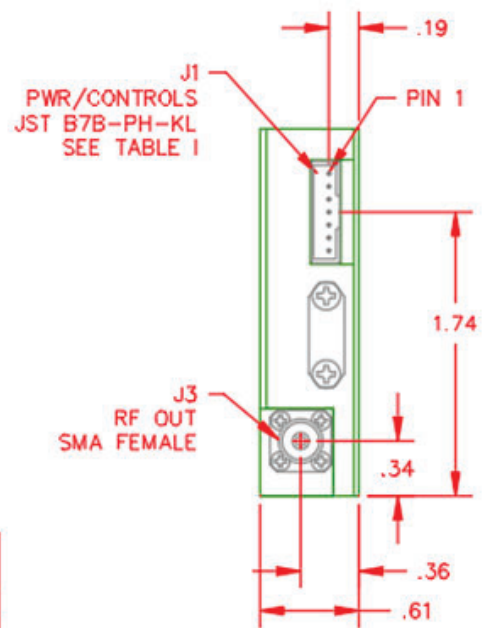
**DLCRO WITH EXTERNAL REFERENCE
OUTLINE DRAWING 214799**



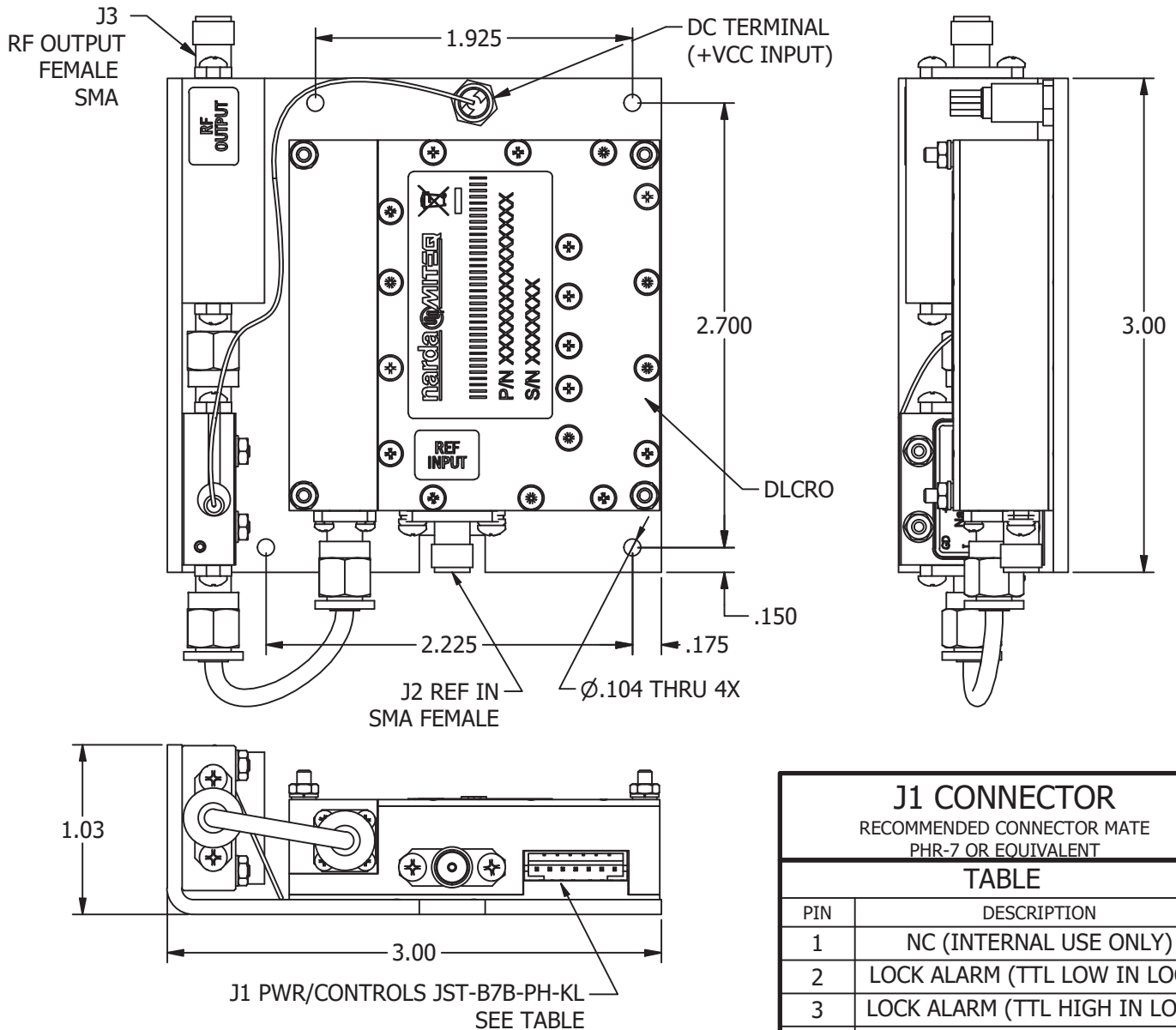
DLCRO WITH INTERNAL REFERENCE
OUTLINE DRAWING 216313



J1 CONNECTIONS (TABLE 1)	
RECOMMENDED CONNECTOR MATE: PHR-7 OR EQUIVALENT	
1	NC (INTERNAL USE ONLY)
2	LOCK ALARM (TTL LOW IN LOCK)
3	LOCK ALARM (TTL HIGH IN LOCK)
4	PHASE VOLTAGE
5	NC (INTERNAL USE ONLY)
6	GROUND
7	+VCC INPUT

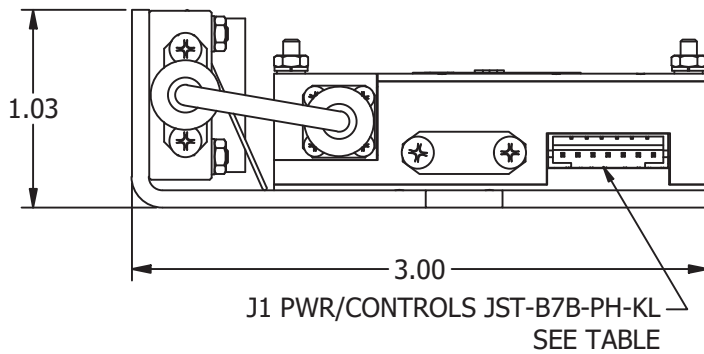
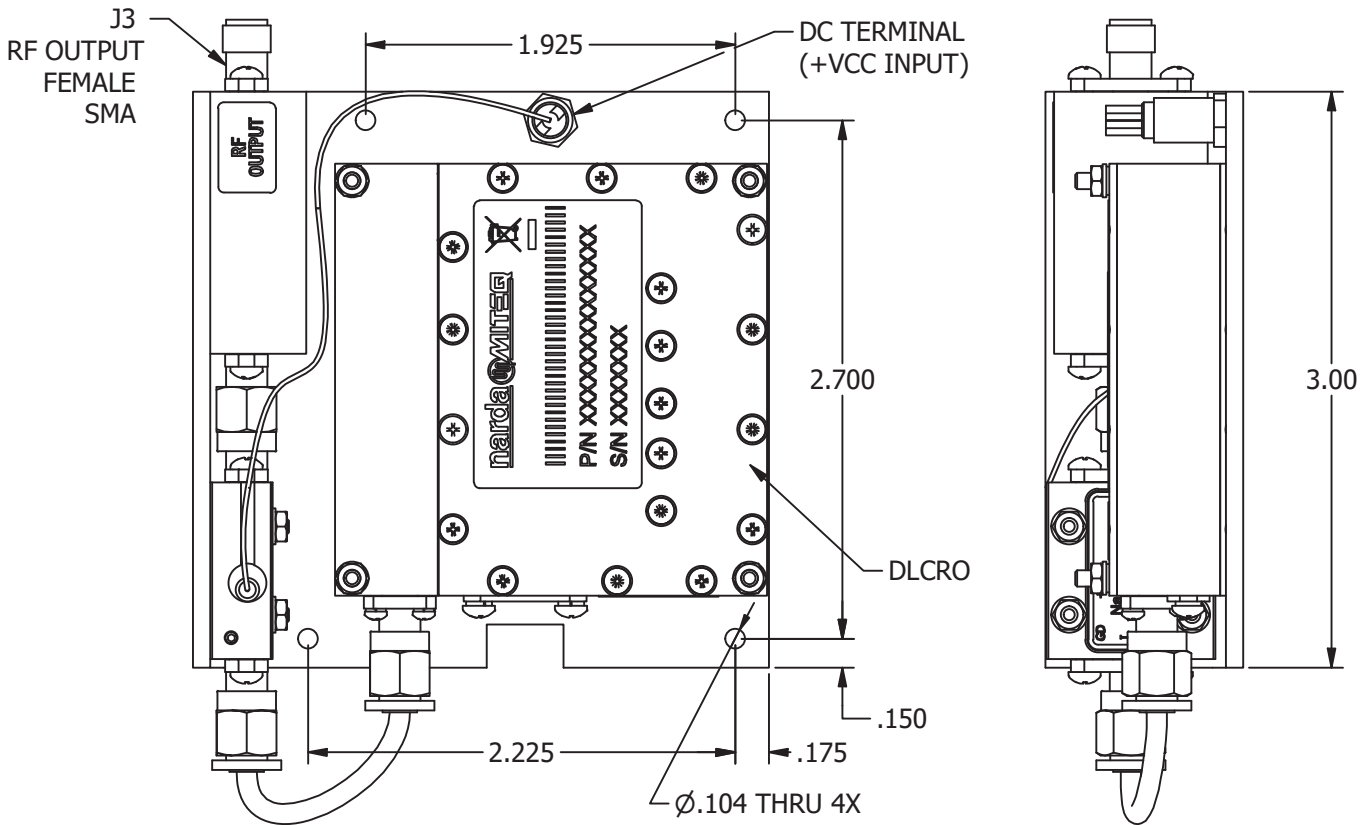


DLCRO WITH EXTERNAL MULTIPLIER AND EXTERNAL REFERENCE
 OUTLINE DRAWING 227311-1



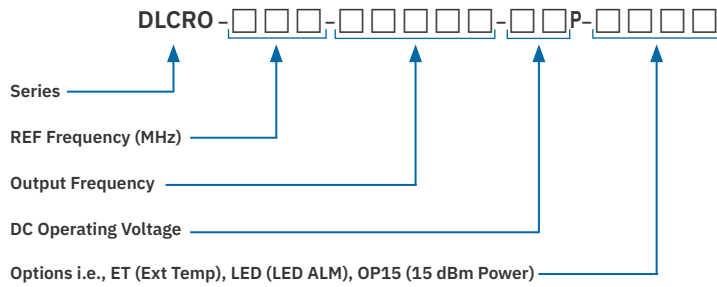
J1 CONNECTOR	
RECOMMENDED CONNECTOR MATE PHR-7 OR EQUIVALENT	
TABLE	
PIN	DESCRIPTION
1	NC (INTERNAL USE ONLY)
2	LOCK ALARM (TTL LOW IN LOCK)
3	LOCK ALARM (TTL HIGH IN LOCK)
4	PHASE VOLTAGE
5	NC (INTERNAL USE ONLY)
6	GND
7	+VCC INPUT

DLCRO WITH EXTERNAL MULTIPLIER AND EXTERNAL REFERENCE
 OUTLINE DRAWING 227311-2



J1 CONNECTOR	
RECOMMENDED CONNECTOR MATE PHR-7 OR EQUIVALENT	
TABLE	
PIN	DESCRIPTION
1	NC (INTERNAL USE ONLY)
2	LOCK ALARM (TTL LOW IN LOCK)
3	LOCK ALARM (TTL HIGH IN LOCK)
4	PHASE VOLTAGE
5	NC (INTERNAL USE ONLY)
6	GND
7	+VCC INPUT

ORDERING INFORMATION



Example Part Numbers:

- DLCRO-010-13025-8P Standard DLCRO, 10 MHz External Reference 13.025 GHz Out, 8 Volts DC
- DLCRO-I-13025-8P Internal Reference, 13.025 GHz Out, 8 Volts DC
- DLCRO-010-13025-8P-ET External Temp DLCRO, 10 MHz Reference 13.025 GHz Out, 8 Volts DC, -40°C to 75°C
- DLCRO-010-13025-8P-LED Standard DLCRO with LED Alarm (Vcc in lock 0 Volts No Lock)
- DLCRO-010-13025-8P-OP15, Minimum output power +15dBm

Final options can be combined with extra dash No's, i.e., DLCRO-010-130250-8P-ET-OP15

KEY FEATURES

- > High Performance in small outline
- > Industry Leading Phase Noise
- > Excellent Spurious
- > Superior Performance to Cost Ratio
- > 100% Burn-In, Temperature and Phase Pop Tested
- > Three Year Warranty

ENVIRONMENTAL SPECIFICATIONS

Temperature	
Operating	-10°C to +60°C (see Note 1)
Storage	-50°C to +100°C
Humidity	
	95% at 40°C non-condensing
Shock (survival)	
	30g's, 10 mS pulse (see Note 2)
Vibration (survival)	
	20 Hz to 2000 Hz to 4g's rms (see Note 2)

Notes:

- 1) Extended temperature ranges available, please consult sales engineering.
- 2) Very low G sensitivity models available, please consult sales engineering for performance and outlines.



DLCRO Series

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Narda-MITEQ is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.

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