



**TYPICAL CHARACTERISTICS  
ON  
TCDRO-12G-CD-1**

**PMI Model: TCDRO-12G-CD-1 IS A TEMPERATURE COMPENSATED DIELECTRIC RESONATOR OSCILLATOR WITH A CENTER FREQUENCY OF 12.0 GHz. THIS MODEL PROVIDES A MINIMUM OUTPUT POWER OF 18 dBm WITH ALL SPURS HELD TO A -85 dBc. THE MECHANICAL TUNNING FREQUENCY IS  $\pm 10$  MHz AND THE UNIT HAS A PHASE NOISE OF -95 dBc/Hz. THE UNIT REQUIRES +15 vdc AND 200 mA AND MEASURES 1.80" x 1.00" x 0.50".**



**July 27, 2018**

**DESIGNED BY: PMI ENGINEERING**

**TESTED AND REPORTED BY: E. KRETZ**



**TYPICAL CHARACTERISTICS  
ON  
TCDRO-12G-CD-1**

**TABLE OF CONTENTS**

1.	Product Feature: -----	3
2.	Test Data Summary: -----	4
3.	Carrier Signal: -----	5
4.	Spurious: -----	5
5.	Harmonics: -----	6
6.	Phase Noise: -----	6



# TYPICAL CHARACTERISTICS ON TCDRO-12G-CD-1

## OUTLINE DRAWING

### DESCRIPTION

PMI MODEL: TCDRO-12G-CD-1 IS A TEMPERATURE COMPENSATED DIELECTRIC RESONATOR OSCILLATOR WITH A CENTER FREQUENCY OF 12.0 GHz. THIS MODEL PROVIDES A MINIMUM OUTPUT POWER OF +18 dBm WITH ALL SPURS HELD TO -85 dBc AND HARMONICS HELD TO -25 dBc. THE MECHANICAL TUNING FREQUENCY IS ±10 MHz AND THE UNIT HAS A PHASE NOISE OF -95 dBc/Hz. THE UNIT REQUIRES +15 VDC AND 200 mA AND MEASURES 1.80" x 1.00" x 0.50".

### SPECIFICATIONS

- FREQUENCY RANGE: 12.0 GHz
- TUNING RANGE: ±10 MHz MINIMUM
- OUTPUT POWER: 18 dBm MINIMUM
- OUTPUT POWER VARIATION OVER TEMPERATURE RANGE: ±1.0 dB MAXIMUM
- FREQUENCY ACCURACY: 0.1% MAXIMUM
- FREQUENCY PUSHING: 15 kHz/V MAXIMUM
- FREQUENCY PULLING (1.5:1 VSWR): 0.5 MHz PK-PK MAXIMUM
- FREQUENCY DRIFT TEMPERATURE COEFFICIENT: 0.8 ppm/°C
- HARMONICS: -25 dBc MAXIMUM
- SPURIOUS: -85 dBc MINIMUM
- PHASE NOISE: 10 kHz OFFSET = -90 dBc/Hz  
100 kHz OFFSET = -95 dBc/Hz
- INPUT POWER: +15 ± 0.5 VDC @ 200 mA MAXIMUM
- CONNECTORS: SMA FEMALE
- WEIGHT: 3 oz MAXIMUM
- SIZE: 1.80" x 1.00" x 0.50"
- FINISH: NICKEL PLATED

### ENVIRONMENTAL RATINGS

- TEMPERATURE: -50 °C TO +85 °C (OPERATING)  
-55 °C TO +125 °C (STORAGE)
- HUMIDITY: MIL-STD-202, METHOD 103B COND. B
- SHOCK: MIL-STD-202, METHOD 213B COND. B
- VIBRATION: MIL-STD-202, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202, METHOD 107D COND. A

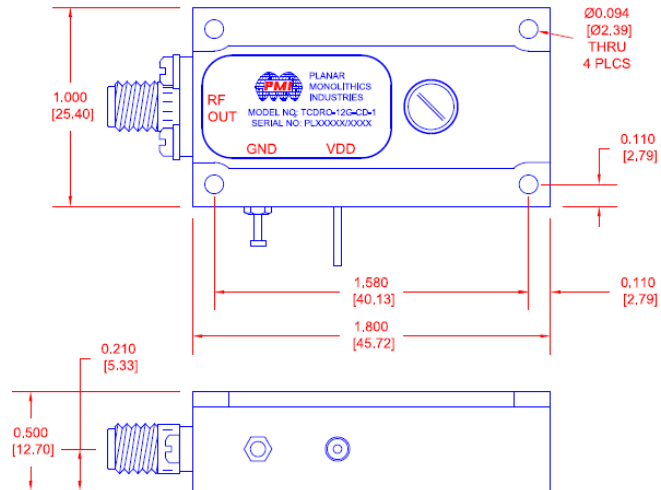
NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE  
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

PMI CONFIDENTIAL AND PROPRIETARY

ALL DIMENSIONS  
ARE IN INCHES (mm)  
TOLERANCES:  
XXX .0020  
XXXX .0010

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	04/10/18	
	A2	ECN # 24-0011	01/18/2024	

### MECHANICAL OUTLINE



### PLANAR MONOLITHICS INDUSTRIES, INC.

7311-F GROVE ROAD  
FREDERICK, MARYLAND 21704 USA  
TEL: (301)-662-5019, FAX: (301)-662-1731  
WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com  
ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE		REV.
DRAWN	M. Berry	04/10/18	PRODUCT FEATURE TCDRO-12G-CD-1		
CHECKED			12 GHz Output Temperature Compensated Dielectric Resonator Oscillator		
ISSUED			REV. FROM NO.	DWG NO.	
			A 05XQ0	27034760	A2
			SCALE: N:S	SHEET	1 OF 1



**TYPICAL CHARACTERISTICS  
ON  
TCDRO-12G-CD-1**

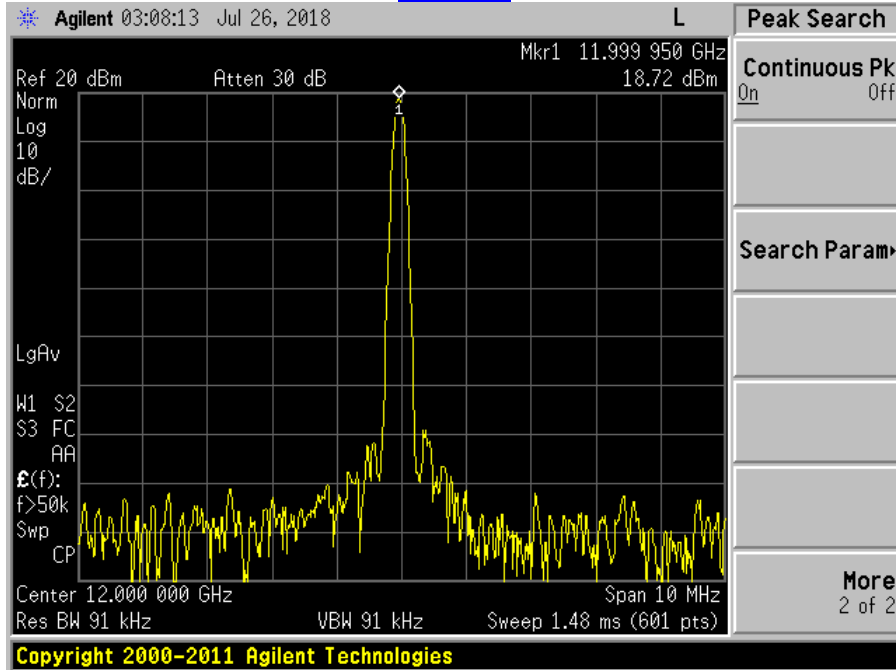
**TEST DATA SUMMARY**

<b>TEST. ITEM NO</b>	<b>PARAMETERS</b>	<b>SPECIFIED VALUE</b>	<b>TEST RESULTS</b>	<b>QA QC</b>
1	Center Frequency:	12 GHz	<b>11.999950 GHz See Plot</b>	
2	Mechanical Tuning Frequency:	±10 MHz	<b>&gt;±10 MHz</b>	
3	Output Power:	18 dBm Min.	<b>+18.72 dBm See Plot</b>	
4	Spurious:	-85 dBc Min.	<b>-91 dBc See Plot</b>	
5	Harmonics:	-25 dBc Min.	<b>-29 dBc See Plot</b>	
6	*Phase Noise:	10 kHz Offset = -90 dBc/Hz 100 kHz Offset = -95 dBc/Hz	<b>10 kHz Offset = -93 dBc/Hz 100 kHz Offset = -116 dBc/Hz</b>	
7	Frequency Drift Temperature Coefficient :	0.8 ppm/°C	<b>0.1 ppm/°C</b>	
9	DC Supply:	+15±0.5 VDC @ 200 mA Max	<b>100 mA @ +15 VDC</b>	

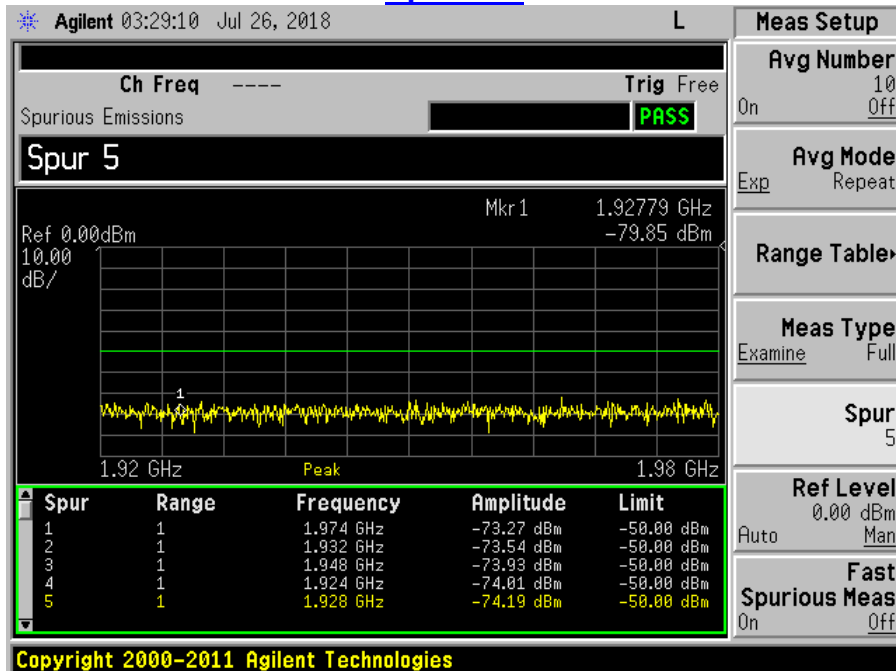


## TYPICAL CHARACTERISTICS ON TCDRO-12G-CD-1

### Carrier



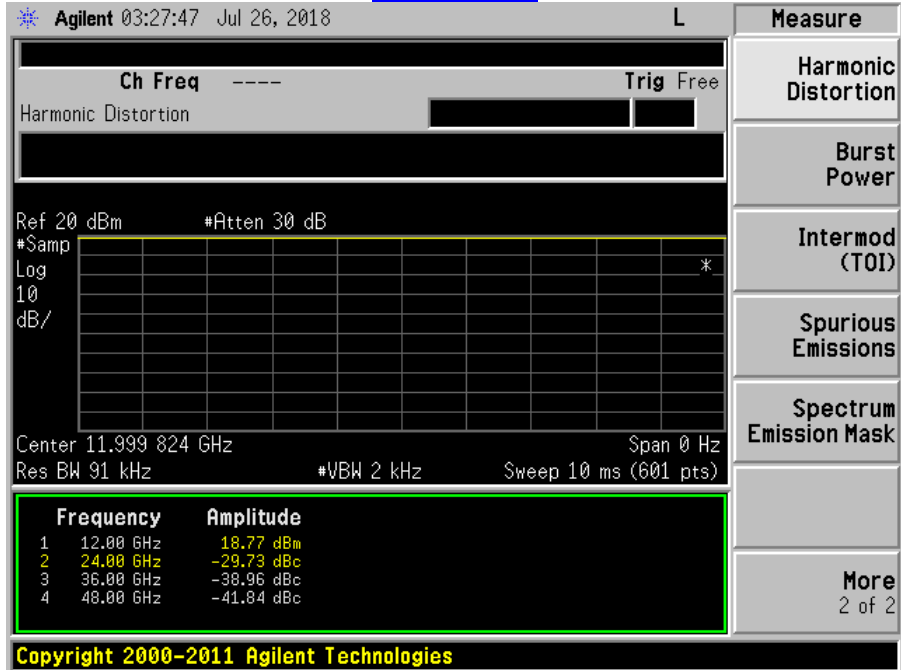
### Spurious





## TYPICAL CHARACTERISTICS ON TCDRO-12G-CD-1

### Harmonics



### Phase Noise

