

MINIATURE MICROWAVE OSCILLATORS

- LOW PHASE NOISE
- LOW POWER CONSUMPTION
- LESS THAN 3/16 CUBIC INCH



- LIGHT WEIGHT, 0.2 OZ.
- LOW COST
- HIGH PERFORMANCE

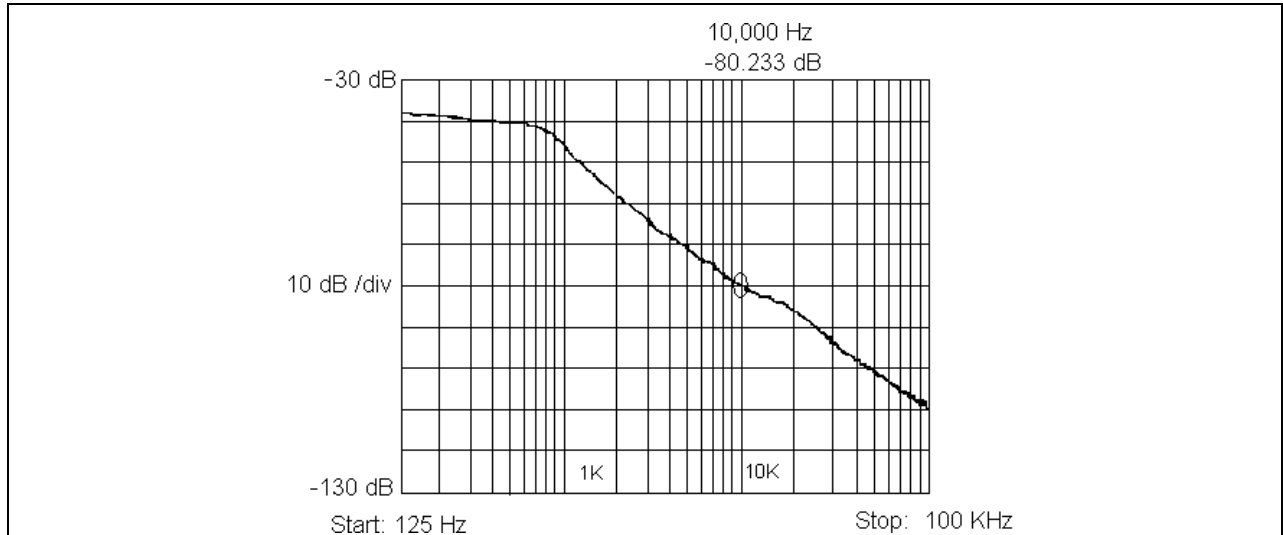
JSB Service Company Ltd.

204 South Bayard Ave, Waynesboro, VA 22980

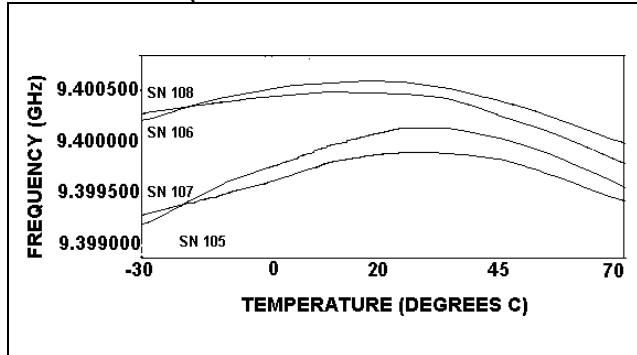
T: 540-949-5899 F: 540-949-5863

<http://www.jsbservice.com> e-mail: jsbcoltd@cfw.com

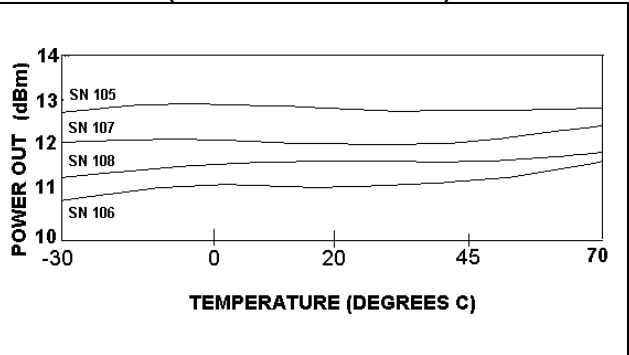
JSB 10.0 GHz DRO PHASE NOISE TEST



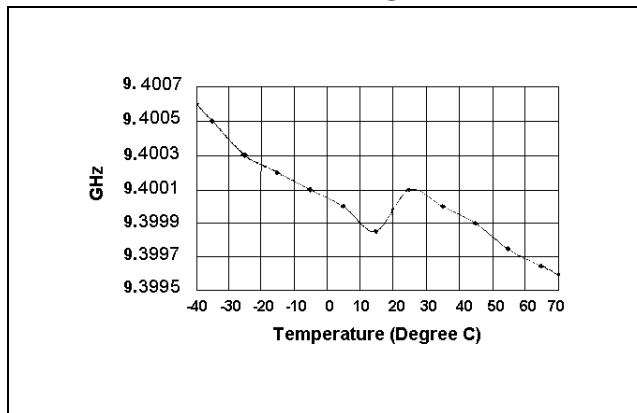
JSB 9.4 GHz DRO FREQUENCY DRIFT OVER TEMPERATURE (A Test of Four DRO's)



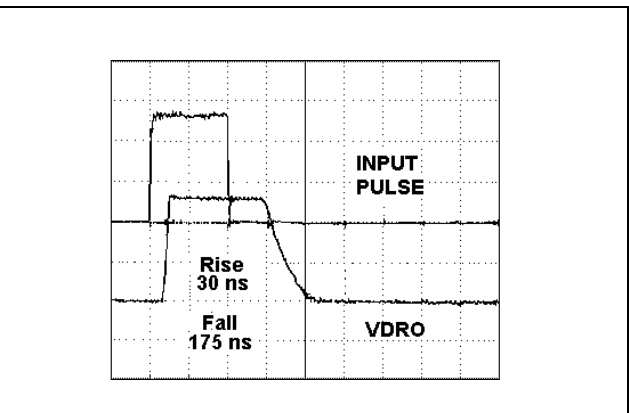
JSB 9.4 GHz POWER OUT OVER TEMPERATURE (A Test of Four DRO's)



JSB 9.4 GHz MECHANICALLY TUNABLE DRO FREQUENCY DRIFT OVER TEMPERATURE



JSB 9.4 GHz MECHANICALLY TUNABLE DRO PULSE TEST RESULTS



The graphs above are for typical units. These results do not necessarily show conditions resulting from variations in voltage, temperature or loading or any combination thereof.

MODELS & OPTIONS :

- ◆ 14 PIN DIP DRO--WELDED, HERMETICALLY SEALED
 - ◆ SURFACE MOUNT DRO--MOISTURE RESISTANT,
 - ◆ 14 PIN DIP DRO w/SMA CONNECTOR
 - ◆ VCO DRO

DRO Specifications

Part Number	Oscillator Frequency	Supply Voltage	Maxium Input Current	Minimum Power Output	Minimum Pulling Figure Power Level (VSWR 1.5)
QDL-01600-03D*	1.600 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
QDL-01652-03D*	1.652 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
QDL-01842-03D*	1.842 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
QDL-02660-03D*	2.660 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
DRO-02850-05E	2.850 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
DRO-03005-05E	3.005 GHz	+5V	50 mA	+7 dBm	+6.5 dBm
DRO-03350-05E	3.335 GHz	+5V	50 mA	+5 dBm	+6.5 dBm
DRO-03417-05E	3.417 GHz	+5V	50 mA	+5 dBm	+6.5 dBm
DRO-03485-05E	3.485 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-08140-05E	8.140 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-08400-05E	8.400 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-09125-05E	9.125 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-09200-05E	9.200 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-09400-05E	9.400 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-10000-05E	10.000 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-10678-06E	10.678 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-12000-08E	12.000 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-12600-08E	12.600 GHz	+5V	50 mA	+5 dBm	+4.5 dBm
DRO-12800-08E*	12.800 GHz	+3V	30 mA	+5 dBm	+4.5 dBm
DRO-13200-08E*	13.200 GHz	+3V	30 mA	+5 dBm	+4.5 dBm
DRO-16000-08E	16.000 GHz	+3V	30 mA	+5 dBm	+4.5 dBm
DRO-18000-08E	18.000 GHz	+3V	30 mA	+5 dBm	+4.5 dBm
VCO/DRO-XXX	Custom	+3V If>12.6 GHz	30 mA If>12.6 GHz	+5 dBm If>12.6 GHz	+4.5 dBm If>12.6 GHz

* Use Coaxial Resonators

Frequency Stability ± 1.0 MHz over a Temperature Range of -30 to +60 °C

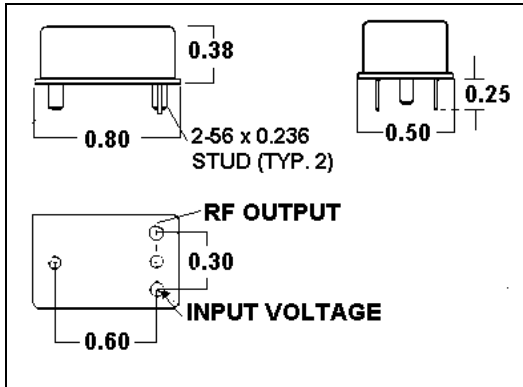
Frequency Pushing Figure ± 0.50 MHz (V ± 0.2 V)

Frequency Puling Figure ± 1.0 MHz (VSWR1.5)

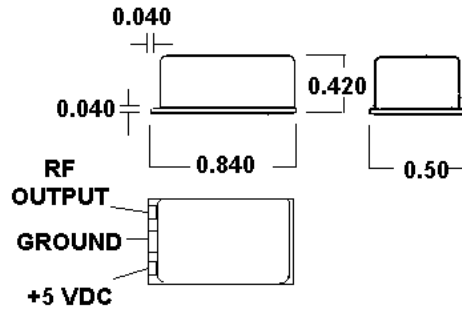
The specifications above are final for definition of circuit performance.

OUTLINE DRAWINGS (ALL DIMENSIONS IN INCHES)

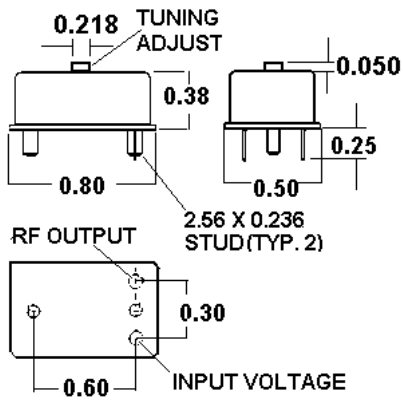
14 PIN DIP DRO



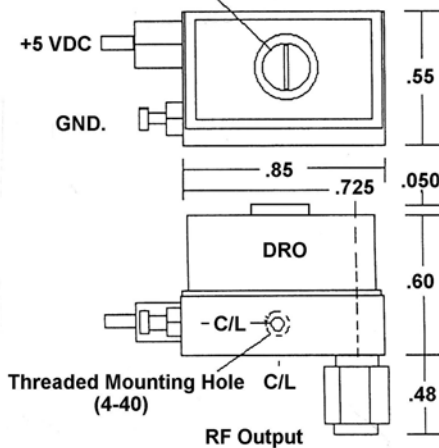
SURFACE MOUNT DRO



Mechanically Tuned DRO



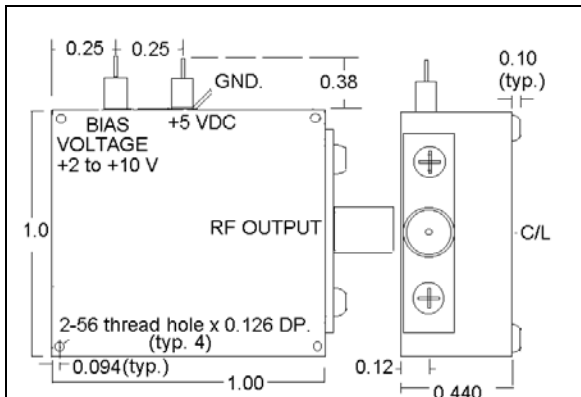
DRO with SMA Connector TUNING



VOLUME:

- 14 PIN DIP 0.15 in.³
- SURFACE MT 0.17 in.³
- TUNABLE DRO 0.15 in.³
- DRO w/SMA 0.33 in.³
- VCO/DRO 0.44 in.³

(Plus screw heads, mounting studs, connectors & terminals)



VCO/DRO

HOW TO INSTALL YOUR JSB DRO

At JSB, the 14 pin dip DRO is tested in a coaxial fixture that holds the entire output lead and allows the RF output to be tested without cutting the lead length.

The surface mount DRO mounts on a microstrip circuit board.

For best performance, it is necessary to **match the DRO to your circuitry**.

14 PIN DIP DRO: Cut off the excess RF lead length, unless it helps tune the output. The printed circuit connected to the DRO should be adjusted via stubs to ensure a good match. For best operation, the DRO output should be adjusted via the stubs to give maximum power output or proper mixer current.

The DRO must have a good ground. Use either a thin (0.010") washer at the output terminal or silver epoxy at the ground. A ground near the output lead is vital--be careful not to short-circuit either of the output leads.

Proper tightening is important: at microwave frequencies, if the ground connection is subject to changes with time, shock or temperature, the DRO output will change as well. **To prevent breakage, no more than 1.2 in-lbs. torque should be used to tighten nuts on the studs.**

Be aware that the mounting of the DRO and the passage of the RF Output lead through a chassis or a ground plane and a circuit board present considerable mismatch at X band and similar frequencies.

SURFACE MOUNT DRO: Use silver epoxy to attach the surface mount DRO's to your circuit board. Soldered tabs are used to bridge from your circuit traces to the DRO input, output and ground connections.

VCO/DRO: Mount with 2-56 screws via four threaded holes. Solder DC input and bias voltage leads too feed thru terminals. RF output is via a SMA connector.