

# **DIGITALLY TUNED**

## **OSCILLATORS**

### **7400 SERIES**

#### **DESCRIPTION**

These DTOs feature unique design techniques to optimize frequency stability over temperature, post-tuning drift, FM modulation bandwidth, FM noise and output power flatness.

The units consist of a broadband, low noise, MIC VCO that is compensated for low frequency drift and fast tuning speeds. A state-of-the-art, high speed digital interface, consisting of linearizing PROMs, DAC and Op-Amps, provides frequency selection through a multi-bit digital word.

Internal voltage regulation and conditioning is also provided in a compact mechanical configuration designed for the military and industrial environment.

#### **APPLICATIONS**

Designed for application as an exciter for EW jammers, a local oscillator for RWRs, radars and ECM receivers, as well as a modulation source for EW simulators.

#### **FEATURES**

- ☐ ***High resolution***
- ☐ ***High absolute frequency accuracy***
- ☐ ***Low post tuning drift***
- ☐ ***Linear wideband FM modulation capability***
- ☐ ***Internal heater for frequency stability***
- ☐ ***Compact size***

#### **TECHNICAL SPECIFICATIONS**

|                                  |  |                             |                      |             |              |              |                                 |
|----------------------------------|--|-----------------------------|----------------------|-------------|--------------|--------------|---------------------------------|
| Frequency Coverage               | 2.0 to 3.5   | 3.5 to 6.0                  | 6.0 to 9.0           | 9.0 to 12.0 | 12.0 to 15.0 | 15.0 to 18.0 | GHz                             |
| Post Tuning Drift                | +/-2   | +/-2                        | +/-2                 | +/-2        | +/-3         | +/-3         | MHz (max.);<br>2 μsec to 10 sec |
| RF Output Power                  | +11 (min.), +17 (max.)   |                             |                      |             |              |              | dBm                             |
| Digital Tuning                   | 12 bits,<br>0.5<br>MHz/bit   | 12 bits,<br>0.75<br>MHz/bit | 12 bits, 1.0 MHz/bit |             |              |              | Nominal                         |
| Spurious Level                   | -55  | -55                         | -55                  | -55         | -55          | -55          | dBc (max.)                      |
| Harmonic Level                   | -20  | -20                         | -20                  | -20         | -20          | -20          | dBc (max.)                      |
| Pushing                          | +/-1.0   | +/-2.5                      | +/-2.5               | +/-2.5      | +/-2.5       | +/-2.5       | MHz/Volt (max.)                 |
| Residual FM<br>(-3 dB points)    | 50   | 100                         | 200                  | 300         | 400          | 400          | kHz P-P (max.)                  |
| Load Pulling into 2.0:1<br>VSWR  | 2.0  | 5.0                         | 5.0                  | 5.0         | 5.0          | 5.0          | MHz (max.)                      |
| Absolute Accuracy                | +/-25  | +/-25                       | +/-30                | +/-50       | +/-50        | +/-50        | MHz/Volt (max.)                 |
| DC Current @<br>+15/-15/+5 Vdc   | 400/250/<br>300  | 300/300/<br>250             | 400/250/300          |             |              |              | mA (max.)                       |
| Heater Supply                    | +28 Vdc @ 1.0 A (max.)   |                             |                      |             |              |              | -                               |
| Analog Tuning<br>(FM Modulation) | 500 MHz P-P Deviation (nominal) DC -15 MHz, 100 MHz/Volt (nominal) |                             |                      |             |              |              | -                               |
| Operating<br>Temperature Range   | -54 to +85   |                             |                      |             |              |              | °C                              |
| Mechanical<br>Dimensions         | 3.00 x 6.00 x 1.20   |                             |                      |             |              |              | Inches                          |

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