

SYNCHRO/RESOLVER/INDUCTOSYN[®] REFERENCE OSCILLATOR

DESCRIPTION

The OSC-15802 is a power oscillator with two outputs that are 90° out of phase. These outputs provide both the reference and quadrature signals, simultaneously, making the OSC-15802 ideally suited for synchro, resolver, Linear Variable Differential Transformer (LVDT), Rotary Variable Differential Transformer (RVDT) and Inductosyn applications.

The oscillator's outputs are pin-programmable for both frequency and amplitude. The output frequency can be programmed from 400 Hz to 10 kHz by simply connecting two exter-

nal capacitors. The Reference output voltage, 7 V_{rms}, can be scaled down by connecting a single resistor.

APPLICATIONS

Packaged in an 18-pin hermetic DDIP, the OSC-15802 operates over a temperature range of -55°C to +125°C. This, combined with its small size and programmable output voltage and frequency capabilities, makes it an excellent choice for synchro, resolver, LVDT, RVDT and Inductosyn applications.

FEATURES

- **ADI Alternate Source**
- **Quadrature Reference Output Voltages for Inductosyn Applications**
- **Programmable Output Frequency to 10 kHz**
- **Small 18-Pin DDIP**
- **Scalable Reference Output**
- **-55°C to +125°C Operating Temperature Range**

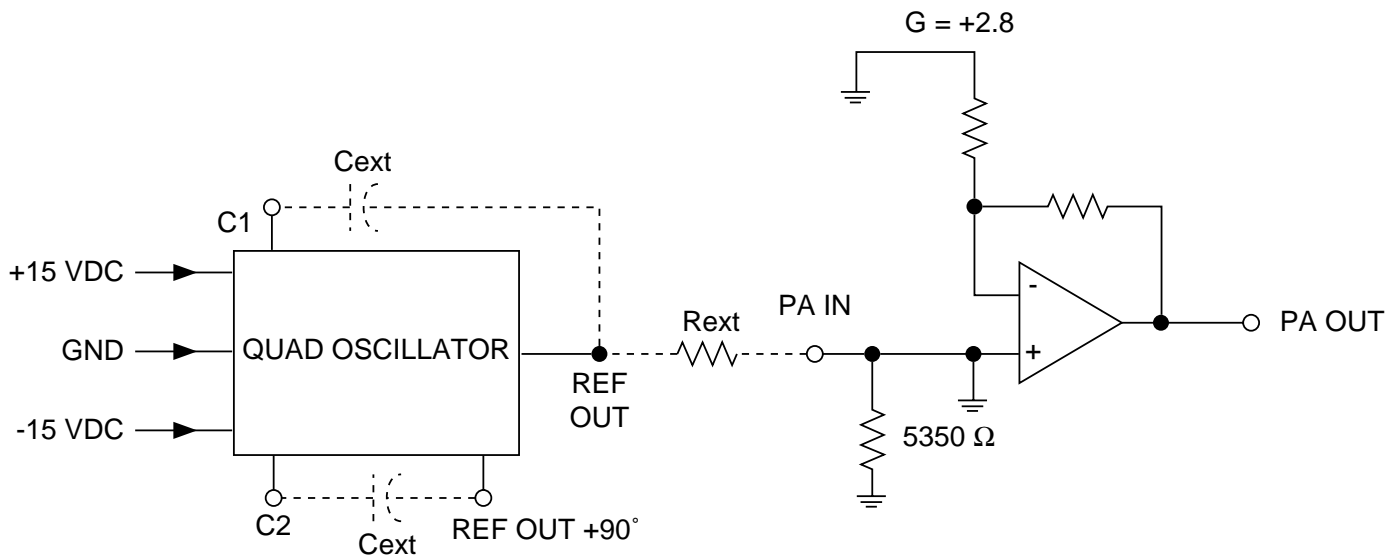


FIGURE 1. OSC-15802 BLOCK DIAGRAM

TABLE 1. OSC-15802 SPECIFICATIONS		
Specifications apply over temperature range and power supply range.		
PARAMETER	UNITS	VALUE
FREQUENCY	Hz	Programmable from 400 to 10k
OUTPUTS		
PA OUT		
Voltage	V rms	7 ±1% for 2.5 V input
Current	mA rms	190 min
REF		
Voltage	V rms	2.5 ±10%
Current	mA rms	3 min
REF +90°		
Voltage	V rms	2.5 ±10%
Current	mA rms	3 min
Protection		Momentary short circuit and transient proof (1 sec. max.)
POWER SUPPLIES		
Voltage	Vdc	±15 ±5%
Current	mA	20 max plus current load
Max Voltage without damage	Vdc	±18
TEMPERATURE RANGE		
Operating		
-10X	°C	-55 to +125
-30X	°C	0 to +70
Storage	°C	-65 to +150
PHYSICAL CHARACTERISTICS		
Size	in (mm)	1.0 x 0.8 x 0.2 (25.45 x 20.32 x 4.83) 18 pin DDIP
Weight	oz (gm)	0.4 (1)

PROGRAMMABLE FREQUENCY OUTPUT

The output frequency of the OSC-15802 is programmable to 10 kHz. The frequency is programmed using two external equal value capacitors (see FIGURE 2). The value of the capacitors (C_{ext}) is calculated as follows:

$$C_{ext} = \frac{10^7}{f}$$

where: C_{ext} is capacitance in picofarads (use NPO ceramic),
f is frequency in Hertz.

To scale down the PA OUT voltage, an external resistor (R_{ext}) is connected between pins 3 and 7. The value of R_{ext} is calculated as follows:

$$R_{ext} = \frac{37.5}{V_{out}} - 5.35$$

where: R_{ext} is in kOhms,

V_{out} is the desired voltage in Vrms.

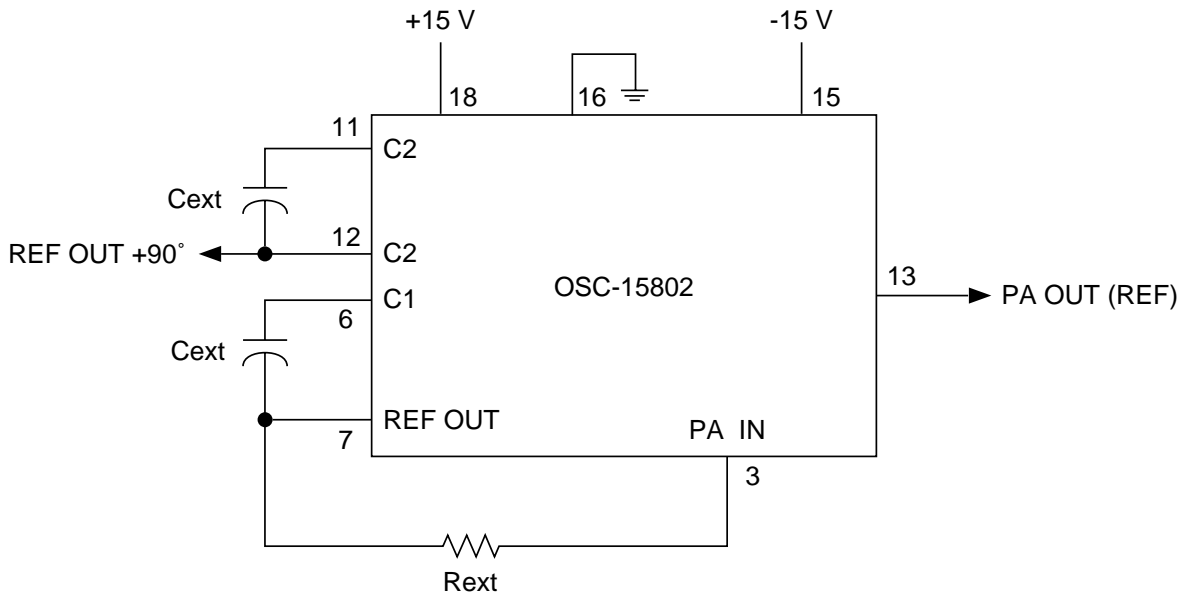


FIGURE 2. PROGRAMMING RESISTOR AND CAPACITOR CONNECTIONS

TABLE 2. OSC-15802 PIN FUNCTIONS		
PIN	NAME	FUNCTION
1	NC	No connection
2	NC	No connection
3	PA IN	Power amplifier input
4	NC	No connection
5	NC	No connection
6	C1	Capacitor connection (pin-programmable freq)
7	REF OUT	Reference Output
8	NC	No connection
9	NC	No connection
10	NC	No connection
11	C2	Capacitor connection (pin-programmable freq)
12	REF OUT +90°	+90° reference output signal
13	PA OUT	Power amplifier output
14	NC	No connection
15	-15 V	-15 Vdc power supply voltage
16	GND	Ground
17	NC	No connection
18	+15 V	+15 Vdc power supply voltage

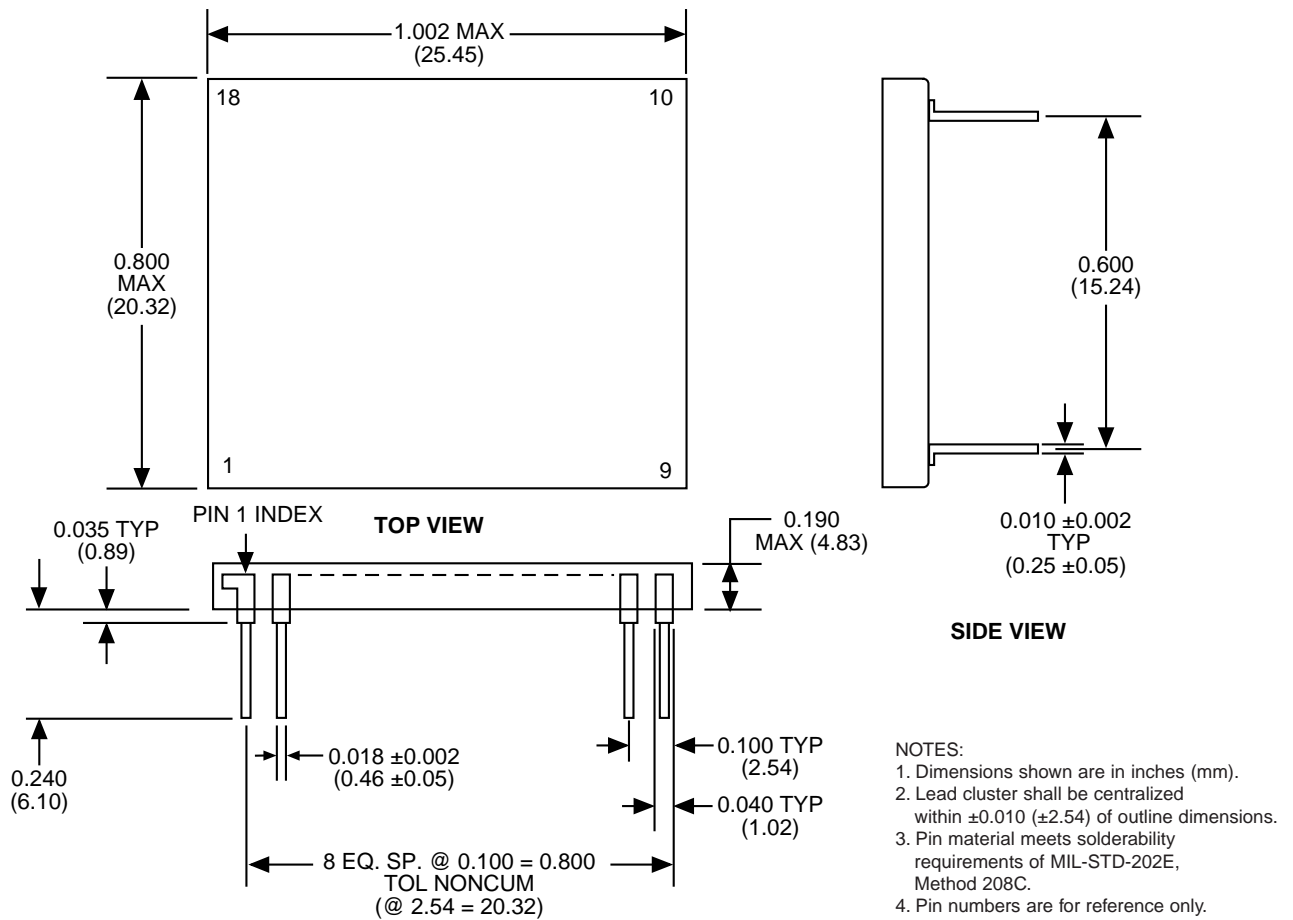


FIGURE 3. OSC-15802 MECHANICAL OUTLINE

ORDERING INFORMATION

OSC-15802- X X 0 X

Supplemental Process Requirements:

- S = Pre-Cap Source Inspection
- L = Pull Test
- Q = Pull Test and Pre-Cap Inspection
- Blank = None of the Above

Process Requirements:

- 0 = Standard DDC Processing, no Burn-In
- 1 = MIL-PRF-38534 Compliant
- 2 = B*
- 3 = MIL-PRF-38534 Compliant with PIND Testing
- 4 = MIL-PRF-38534 Compliant with Solder Dip
- 5 = MIL-PRF-38534 Compliant with PIND Testing and Solder Dip
- 6 = B* with PIND Testing
- 7 = B* with Solder Dip
- 8 = B* with PIND Testing and Solder Dip
- 9 = Standard DDC Processing with Solder Dip, no Burn-In

Temperature Grade/Data Requirements:

- 1 = -55°C to +125°C
- 2 = -40°C to +85°C
- 3 = 0°C to +70°C
- 4 = -55°C to +125°C with Variables Test Data
- 5 = -40°C to +85°C with Variables Test Data
- 8 = 0°C to +70°C with Variables Test Data

*Standard DDC Processing with burn-in and full temperature test - see table below

STANDARD DDC PROCESSING		
TEST	MIL-STD-883	
	METHOD(S)	CONDITION(S)
INSPECTION	2009, 2010, 2017, and 2032	—
SEAL	1014	A and C
TEMPERATURE CYCLE	1010	C
CONSTANT ACCELERATION	2001	A
BURN-IN	1015, Table 1	—

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