

**NEW!**  
micro-module  
series



actual size

#### FEATURES

- 2" X 2" module outline
- 400 Hz-10 kHz frequency range
- In-phase and quadrature output
- Full 5-watt output
- Short circuit and overload protection
- Thermal cutoff protection
- Integral heat sinking

#### APPLICATIONS

Synchro Resolver, and Inductosyn™  
Excitation — LVDT Drive

#### GENERAL DATA

The Series 210A100 is a sine/cosine power oscillator packaged in a 2.0" X 2.0" X 0.395" module, weighing only 2.0 ounces. An aluminum top surface provides all the necessary heat sinking.

The device is made up of two parts — a quadrature oscillator and a power amplifier. The oscillator stage has two signal outputs, one 90° phase advanced with respect to the other, and both outputs have an amplitude of 2.5 Vrms. Four standard frequencies are offered — 400 Hz, 2.6 kHz, 5 kHz and 10 kHz. Other frequencies are available on special order.

The power amplifier stage is externally short circuit protected and the amplitude is selectable anywhere between 2.5 Vrms and 7.0 Vrms by means of an external resistor. The maximum output power this stage can deliver is 5 watts.

#### CONNECTING AND USING THE 210A100

When connecting the Power Oscillator care should be taken not to reverse the power supply connections, if this is done catastrophic failure will result. The device contains power supply decoupling, no external decoupling should be necessary.

The Power Output voltage amplitude is selectable anywhere between 2.5 Vrms and 7.0 Vrms by means of an external resistor connected between the GAIN pin and the PWR O/P pin. With no resistor connection the output amplitude will be 7.0 Vrms ±5%.

The value of this resistor can be calculated as follows:

$$R = \frac{8.45V - 21.125}{7 - V}$$

Where: R = resistor in Kohms

V = desired output voltage

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## ELECTRICAL SPECIFICATIONS

Parameter	Value
<b>Frequency Range</b>	400 Hz - 10 kHz
<b>Frequency Stability<sup>(1)</sup></b>	±5%
<b>Reference 1 Output<sup>(1)</sup></b>	2.5 Vrms ±5% @ 3 mA rms In-phase with Power Output
<b>Reference 2 Output<sup>(1)</sup></b>	2.5 Vrms ±5% @ 3 mA rms 90° phase advanced with respect to Power Output
<b>Power Output<sup>(2)</sup></b>	2.5 Vrms to 7.0 Vrms
<b>Maximum Load</b>	5 watts 10 nF
<b>Power Supplies</b>	
Voltage <sup>(3)</sup>	±15V
Current	40 mA + load
<b>Temperature Range</b>	
Operating	0° to 70°C
Storage	-65° to 125°C
<b>Size</b>	2.0" X 2.0" X 0.395"
<b>Weight</b>	2.0 ounces

### NOTES:

- Over full operating temperature range
- Adjustable by means of external resistor
- Will operate between ±12V to ±18V

To maintain output amplitude stability this resistor should have a temperature coefficient of 100 PPM.

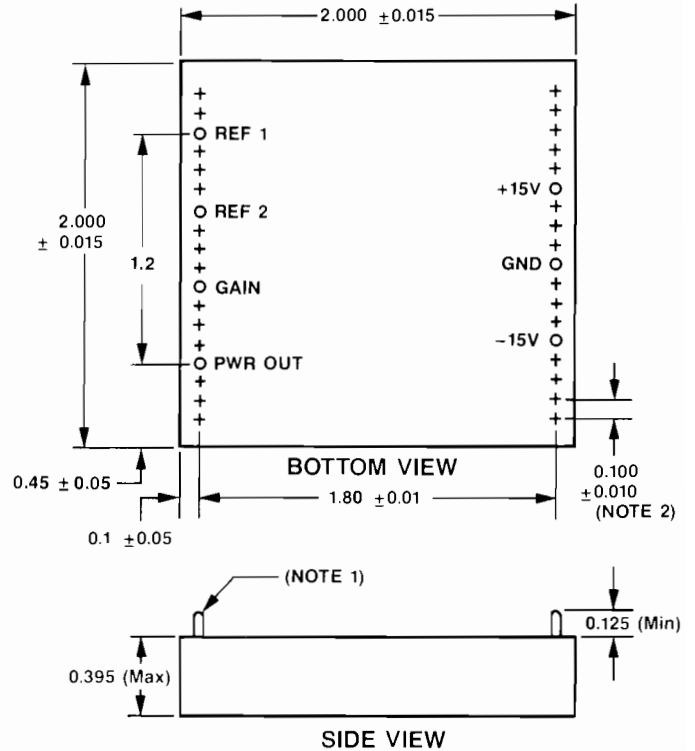
The top of the 210A100 consists of an aluminum plate and provides all the required heat sinking. Thermal resistance top plate to free air is 12°C/watt. A thermal cutout is incorporated that disables the output power amplifier when the top plate reaches 150°C to 170°C, dependent on load. It starts operating again when the heat sink drops to about 125°C, but if the temperature again begins to rise, shutdown will occur at only 130°C. Therefore, the power amplifier is allowed to heat up to a relative high temperature if a fault condition is temporary, but if a sustained fault occurs the maximum temperature is limited to a lower value. This method of thermal cutout greatly reduces stress on the power amplifier, which in turn improves reliability.

This metal top provides convection cooling only and should be provided with sufficient air circulation. The thermal resistance of the top plate may be improved by a factor of three or greater by simply blowing air of sufficient velocity over the plate.

## ORDERING INFORMATION

210A Suffix	Frequency
100	400 Hz
101	2.6 kHz
102	5.0 kHz
103	10 kHz

## MECHANICAL OUTLINE



### NOTES

- Rigid .025 diameter pins suitable for solder-in or plug-in applications.
- Non-cumulative.
- Dimensions are in inches.

## WARRANTY

All units warranted against defects in materials and workmanship for 1 year from date of shipment. Liability is limited to servicing, adjusting, or replacing any CSI product returned to our factory with delivery charges prepaid. In no case shall our liability exceed the original purchase price.

## POWER OSCILLATOR BLOCK DIAGRAM

