



APPLICATION NOTE 3: EXTENDING THE FREQUENCY RANGE OF THE SWR200

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EXTENDING THE FREQUENCY RANGE OF THE SWR200

The SWR200 with two external frequency setting capacitors is fully specified for operation from 400Hz to 10KHz. At lower frequencies, the limitations occurs in the AGC circuit that provides the high amplitude stability of the SWR200. There is also a slight increase in distortion from 1500Hz down to 400Hz, which continues as frequency decreases.

Two external capacitors can increase the time constant of the AGC circuit allowing for use at lower frequencies. This increase in time constant comes with the tradeoff of a longer settling time from power on.

The value for the lower frequency AGC capacitors is given by the following schematic and formula.

To predict AGC settling requirements, use the following formula:

$$300/F=T$$

Where: F is frequency in Hertz
T is time in seconds

Use of the external AGC capacitors can also have an effect on distortion. The SWR200 data sheet shows an increasing distortion with decreasing frequency starting at 1500Hz. This effect is entirely due to time constants within the AGC circuitry which are correctable with the inclusion of C3 and C4.

Among the application possibilities provided by frequency range enhancement of the SWR200, mention should be made of the use of the SWR200 as an ultra-precise 60Hz source. This can have wide application in 60Hz testing and generation.

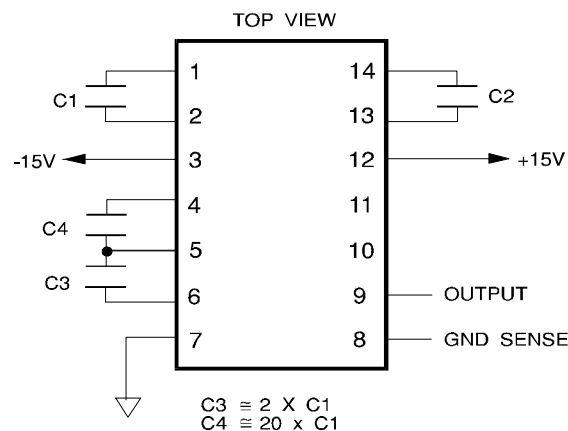


FIGURE 1. EXTERNAL CONNECTION.