



ANALOG MODULES, INC.

Specialists in Analog and Laser Electronics

MODEL 562/564 CCP SERIES APPLICATION/OPERATING NOTES

The 562/564 Series of power supplies are designed to efficiently charge capacitors, and may be used as a fixed voltage power supply with an external capacitor.

INPUT

The input is in a range of 12-18V (-1) or 18-32V (-2). Both models incorporate a circuit which maintains the peak current constant in the power switch and transformer despite variations in input voltage. Decoupling capacitors are fitted across the power lines (220 μ 35V for 562, 1000 μ 40V for 564).

Quiescent current is about 10mA, and charging current increases about 25% towards the end of the charging cycle. Once output voltage regulation is achieved, the input current falls back to the quiescent value, with pulsed increases to maintain regulation as a consequence of load losses.

OUTPUT

****CAUTION**:** A capacitor load must always be fitted to the output lead and return before switch-on. Failure to do so may damage the power device(s). A high-value resistor (5.0/10M Ω) is fitted internally to sample the capacitor voltage. For safety, it is recommended that a bleed resistor or resistor/relay dump circuit be incorporated to discharge the capacitor. The power losses of the bleed resistor may affect the charge time, especially for the 562.

When driving PFN networks, voltage reversal on the capacitor is highly undesirable for both the capacitor and power supply. If this situation occurs ($\text{Alpha} < 0.8$), a heavy duty crowbar diode should be connected across the capacitor terminals. The power supply should be inhibited during discharge for 1-2mS. This prevents any possibility of a flashlamp operating in a CW mode and helps protect the PSU from transients. The INH input turns on a transistor via a 10K base resistor.

READY

This output is normally high during regulation and internally inhibits the PSU. The READY line is 7 volts (via a 10K series resistor when the HV output is greater than the set point). With a load bleeding the output capacitor, this signal will pulse low as the PSU cycles to maintain full charge.

VOLTAGE CONTROL

The voltage control circuits for 562 and 564 are sketched below. In both cases, a 9V reference is divided down to compare with a sample of the output voltage.

