

Capacitor Charging Power Supplies

Advantages

- *Ideal for OEM applications
- *Power Factor Correction
- *Compact size
- *Low EMI
- *Low leakage for medical apps

The CCPF family of capacitor charging power supplies utilizes the latest innovations in power electronics to deliver clean and efficient power for pulsed laser applications. A high power resonant inverter insures reliability during all modes of operating conditions. A soft switching power factor circuit ensures near unity power factor with low EMI. CCPF models drive both PFN loads or reservoir charging circuits.

Leakage current is less than 250uA, power factor is greater than 0.99 and conducted emissions meet stringent European regulations. No additional line filter is required to meet EN IEC 601-1-2 emission requirements.

The CCPF family has been designed with the knowledge that a high power pulsed laser is a rugged high voltage environment.

Available power outputs are:

- 500J/sec
- 1500J/sec
- 2000J/sec
- 3500J/sec
- 4000J/sec
- 6000J/sec

Output voltage up to 15kV



Shoebox Style	Pout _{max}	Vout _{max}	Input Voltage	Input Current	Size (L x W x H)	Wt
CCPF-500-XX	500J/sec	500V to 4kV	90-264VAC	5.5A @115VAC	9.13" x 6" x 3.7"	4.5 lbs
CCPF-1500-XX	1500J/sec		90-264VAC	15A @115VAC	12.7" x 5.75" x 4.1"	8lbs
CCPF-2000-XX	2000J/sec		180-264VAC	11A @220VAC	12.7" x 5.75" x 4.1"	8lbs
CCPF-3500-XX	3500J/sec		180-264VAC	20A @220VAC	14" x 5.5" x 6"	15 lbs
CCPF-1500-XX-SYS*	2700J/sec		180-264VAC	15A @220VAC	14" x 5.5" x 6"	15 lbs

* Includes internal simmer supply and +24 auxiliary output

Chassis Style	Pout _{max}	Vout _{max}	Input Voltage	Input Current	Size	Wt
CCPF-2000-XX	2000J/sec	500V to 15kV	180-264VAC	11A @220VAC	16.5" x 17.5" x 3.5"	20 lbs
CCPF-4000-XX	4000J/sec	500V to 4kV		23A @220VAC	16.5" x 17.5" x 3.5"	20 lbs
CCPF-6000-XX	6000J/sec			36A @220VAC	16.5" x 17.5" x 3.5"	25 lbs

Input

Voltage: See table above
Current: See table above
Power Factor: >.98 (except the CC-500 – power factor >.7)

Output

Power: See table above
Output Voltage: Configurable from 500V to 15kV. See table above
Output Current: $2 * Pout_{max} / Vout_{max}$
Polarity: Positive or Negative
Efficiency: >80% at full output
Regulation: 0.5% @100Hz

Interface

Connector: 15 Pin "D" Sub Female
Voltage Program: 0-10V for 0-Max Voltage
Voltage Monitor: 0-10V for 0-Max Voltage
Inhibit/Reset
End of Charge Indication
Overvoltage Indication
+15V Aux Power

Environment

Operating Temp: 0 to 40 °C
Storage: -20 to 85 °C
Humidity: 0 to 90% non-condensing
Cooling: Forced air

Regulatory

Leakage Current: <350uA
Isolation: 4000VAC/5700VDC
EMI: Compliant IEC 601-1-2

STANDARD CAPACITOR CHARGING INTERFACE
15 Pin “D” Sub Connector Female
(Refer to Figure 2, CCPF Interface Diagram)

<u>PIN #</u>	<u>TITLE/DESCRIPTION</u>
1	INHIBIT/FAULT RESET- (Input) This pin is the basic ON/OFF control pin for the power supply. Applying +15V to pin 1 enables power supply operation if all faults are clear. Grounding pin 1 prevents the inverter from operating. <i>(opposite option available)</i>
3*	OVERTEMP WARNING - (Output) Indicates internal high temperature on main heat sink. +15V at Pin 3 indicates safe operating temperatures. When thermal switch closes due to excessive internal heat sink temperature, Pin 6 is shorted to GND through the thermal switch. This signal is an advisory indication only and will not turn off power supply. Unit will continue to operate until independent temperature switch measures a critical temperature on internal heat sinks. At this point, unit will shut down.
5	VOLTAGE PROGRAM- (Input) Output is programmed externally with a 0 to +10V signal for 0 to 100% rated output.
6*	OVERVOLTAGE STATUS INDICATOR- (Output) Open collector output rated 30V, 100mA. Collector is tied internally to 4.02kohm pull-up resistor. If the load becomes open circuited, the power supply will detect the fault and shut down instantaneously, protecting itself and other equipment from overvoltages. If this occurs, pin 6 is pulled low. To restart, the AC power must be turned OFF and ON again.
7	V_{out} PEAK HOLD- (Output) Monitors output voltage with a peak hold circuit. The time constant of the peak hold circuit is approximately 5 seconds. 0 to +10V for 0 to 100% rated output voltage.

8	V_{out} MONITOR- (Output) Monitors output voltage. 0 to +10V for 0 to 100% rated output voltage.
9	+15V (Output) Maximum output current is 100mA. This pin is internally tied to pins 11.
11	+15V (Output) Maximum output current is 100mA. This pin is internally tied to pins 9.
13	END OF CHARGE STATUS INDICATOR- (Output) Open collector output rated 30V, 100mA. Collector is tied internally to 4.02kohm pull-up resistor. When the load capacitor reaches the programmed voltage, pin 13 is pulled low. Pin 13 will oscillate from high to low as the power supply replaces charge that is bled through the feedback network.
14	GND
15	GND
2,4,10,12	No connection

* These functions not available on CCPF-500 Interface

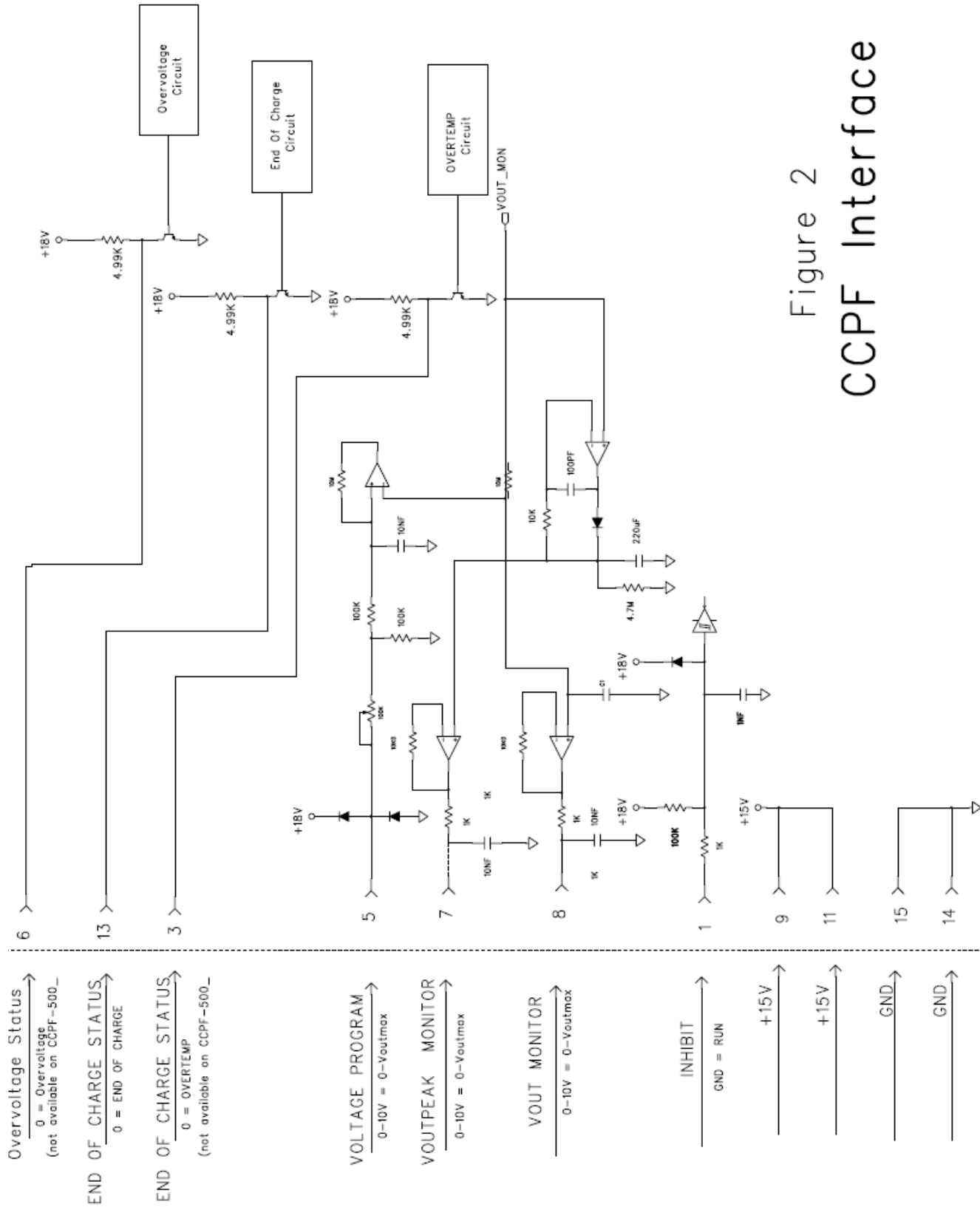


Figure 2
CCPF Interface