**Customer / Project:**

Did you yet find on our website [www.schulz-electronic.de](http://www.schulz-electronic.de) a possibly fitting driver for your requirements?

In any case the green highlighted values need to be filled in in order to provide you a qualified quote!

(Use the TAB key to jump from blank to blank)

**1. PFN SYSTEMS** (if not a PFN system please resume at 2. –> refer to appendix)

Output voltage requirement: Umax =        V Umin =        V

PFN Capacitor: C =        F Max. repetition rate: fmax =        Hz

Maximum average output power [P= ½ C Umax2f ]: Pmax =        J/s

Voltage Accuracy Required:        %

**2. RESERVOIR CHARGING SYSTEMS** (only to be filled out, if not a PFN system as under 1. –> refer to appendix)

Max. end-of-charge voltage: UEOC =        V

Voltage drop during pulse: Udrop =        V

Min. voltage after discharge: Ures =        V

Capacitance of reservoir bank: C =        F

Max. pulse width: PWmax =        µs Min. pulse width: PWmin =        µs

Maximum repetition rate: fmax =        Hz

Required charging time: tcharge\_max =        ms

Maximum average output power [P= ½ C (UEOC 2 – Ures 2)fmax ]: Pmax =        J/s

Voltage Accuracy Required:        %

**3. APPLICATION DESCRIPTION**

**May reverse voltages occur?**  Yes  No Urev, max =         V

**4. INPUT POWER**

Input AC Voltage Range:        VAC to        VAC

Universal Input Required?  Yes  No

Power Factor Required?  Yes  No

**5. AGENCY APPROVAL REQUIREMENTS**

None  CE  UL  MED  other  :

**6. SIGNAL LOGIC**

Enable signal polarity  active high  active low / default  high or  low

End-of-charge signal polarity  active high  active low / default  high or  low

Logic signal level  HIGH +5 V or  HIGH +15 V

**7. ENVIRONMENTAL**

Ambient temp. range: Tmin =        C Tmax =        C

## 8. OTHER OUTPUTS REQUIRED:

Simmer current: Isimmer =        mA

Aux. output 1: Uaux1 =        V @        A

Aux. output 2: Uaux2 =        V @        A

**Appendix :**

**PFN SYSTEMS:** A high voltage capacitor is discharged into a pulse forming network which includes a flashlamp. The current into the flashlamp is sinusoidal/gaussian as a result of the resonance of the capacitor and the PFN inductor.

**Output Voltage Requirement:** Customers typically run their pulsed lasers at a fixed voltage, although some may want to vary the output over a range of voltages.

**PFN Capacitor:** Need to know this value since the voltage, capacitance and rep rate are needed to calculate the power required, and sometimes the customers have calculated wrong.

**Maximum Rep Rate** Typically, customers run 10 Hz to 100 Hz, but sometimes, they run up to 1,000 Hz and we need to know this as it is harder to maintain accuracy of the output voltage at high rep rates.

**Maximum Output Power** [P = ½ C Umax2 f ]: Once we have C, U and f, we can calculate output power.

**Voltage Accuracy Required:** Customers tell us how accurate the output voltage has to be.

**RESERVOIR CHARGING SYSTEMS**: Instead of a PFN capacitor, energy is stored in a large bank of electrolytic capacitors and discharged into the flashlamp through a high power transistor. The current into the flashlamp in this case is more like a square-wave. Customers have more flexibility with this system as the can vary the width of the pulse.

**Max Output Voltage:** Once again, we need to know the maximum required voltage

**Output Voltage Droop During Pulse**: During the pulse, the voltage in the bank of capacitors will drop, but typically less than 20% of the max. value. We need to know the value of the drop and the amount of capacitance in the bank.

**Capacitance of reservoir bank**: Customer should know this.

**Maximum pulse width/minimum pulse width:** These are important parameters for us. The flexibility of Reservoir Charging systems is that they permit the user to vary the pulse width. This is typically not possible in PFN systems.

**Max. repetition rate** (f): This is information we need to make sure all are in agreement over the power required.

**Max. output power** [P= ½ C(Uf2 - Ua2)f]: Once you have the Maximum voltage, the droop, the value of the capacitor bank and the rep rate, one can calculate the power required from the power supply.

**Voltage accuracy required:** How accurate does the voltage on the capacitor bank have to be?