

Model SPPS-M1504-D-FO  
 4 kV Thyristor Switch Module  
 With Self-Powered, Fiber-Optic Triggering



Designed for pulsed power applications using a high peak-current thyristor and anti-parallel diode. Self-powered, type ST fiber-optic trigger input allows controls to be isolated from switch. Optimized for fast turn-on, low jitter and low on-state resistance for high peak current applications.

Operational Parameters

Parameter		Test Condition	Rating	Unit
Peak Blocking Voltage	$V_{RRM}$	25 °C, Transient	4.8	kV
Forward Blocking Voltage	$V_R$	25 °C, Continuous	4	kV
Peak Leakage Current	$I_R$	25 °C, $V_{AK}=4$ kV	1	mA
Peak Forward Current	$I_{FSM}$	25 °C, 1 $\mu$ s	15	kA
		25 °C, 10 $\mu$ s	6	kA
Peak Reverse Current	$I_{RSM}$	25 °C, 1 $\mu$ s	6	kA
		25 °C, 10 $\mu$ s	4	kA
Peak Rate of Current Rise	$di/dt_c$	25 °C	20	kA/ $\mu$ s
Forward slope resistance	$r_T$	25 °C	10	m $\Omega$
Reverse slope resistance	$r_T$	25 °C	40	m $\Omega$
Holding Current	$I_H$	25 °C	200	A
Thyristor Recovery Time	$T_{RR}$	25 °C	50	$\mu$ s
Diode Recovery Time	$T_{RR}$	25 °C	100	ns
Capacitance	$C_{AK}$	25 °C, $V_{AK}=4$ kV	2.6	nF
Pulse Frequency	PRR	10 kA, 1 $\mu$ s $T_c = 40$ °C	0-4	Hz
Storage Temperature Range	$T_{Sig}$	$V_{AK}=0$ kV	0-60	°C
Trigger Delay	$t_d$	25 °C, $V_{AK}=2$ kV	150	ns
Jitter	$t_j$	25 °C, $V_{AK}=2$ kV	<1.5	ns
Recommended Trigger Power	$P_T$	850 nm	1	mW
Recommended Trigger Pulse	$t_{PW}$	25 °C	1	$\mu$ s

Features

- High Peak Current Rating
- Fast Recovery
- Easy Triggering
- Low Inductance

Applications

- Pulsed Capacitor Discharge
- Solid-State Crowbar
- Pulsed Electromagnetic Field Therapy (PEMF)
- Extra-corporeal Shock Wave Therapy (ESWT)

PRELIMINARY DATA

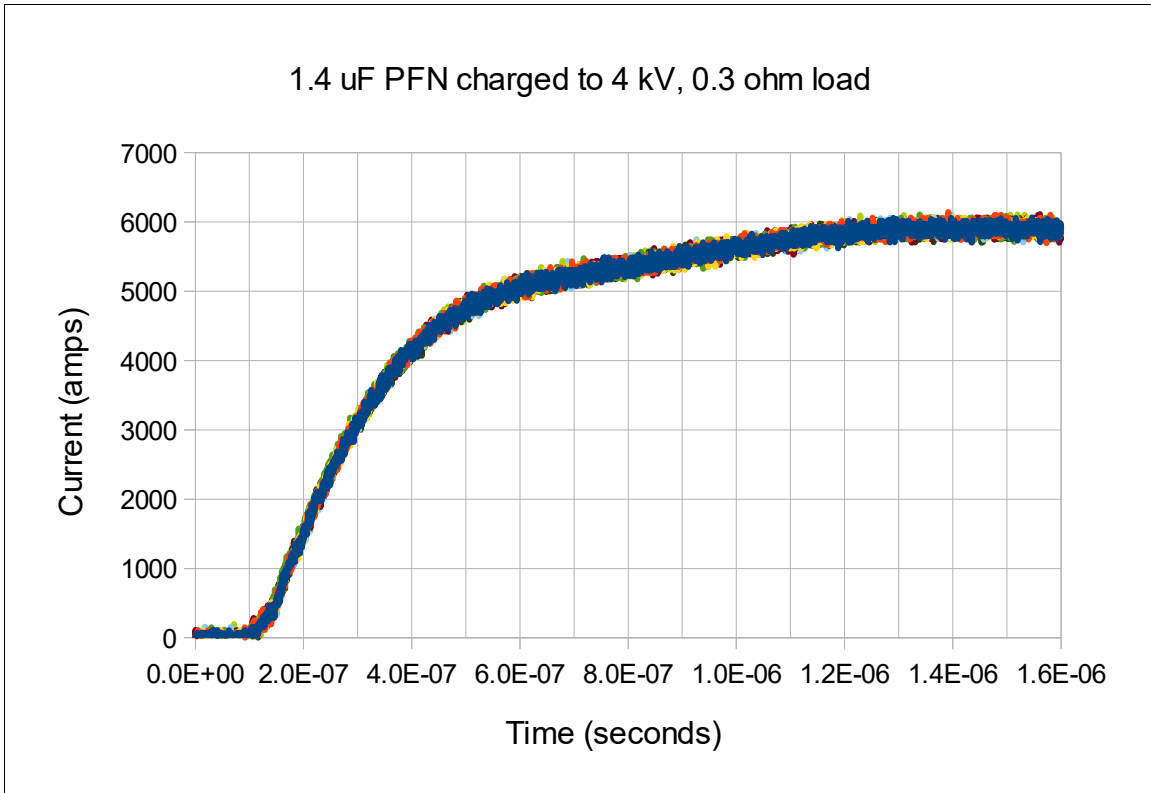


Figure 1: SPPS-M1504-D-FC Output with Overlaid Multiple Pulses

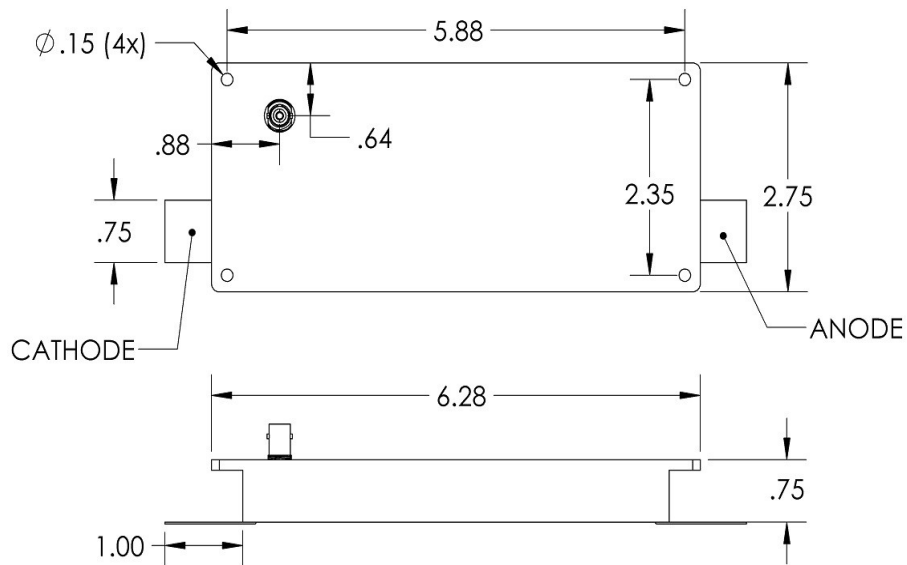


Figure 2: SPPS-M1504-D-FO Dimensions (Inches)