ELECTRO-OPTIC DEVICES, INC.

ETX-4X

MOSFET-based Pulsed Laser Diode Driver w/ filtering

FEATURES:

- Compatible with ERC-2A Laser ranging controller.
- Wide bandwidth filtering for reduced firing EMI.
- Full ground plane with perimeter for metal shield attachment.
- Pulse width 18 nanoseconds (typical).
- PRF up to 500 Hz (standard).
- Discharge current up to 35A (typical).
- Accommodates 5.6mm (3 lead) or TO-18 (2 lead) packaged laser diode (not included) for minimum inductance.
- PCB size just 2.000 x 1.125 inch, weight < 0.5 oz.

DESCRIPTION:

The ETX-4X is a MOSFET-based pulsed laser diode driver with filtering designed into its circuit. The ETX-4X has the capability of achieving PRF of 500Hz with a typical pulse width of 18 nanoseconds. Up to 35A of discharge current for high current requirements. Wide-bandwidth filtering for reduced firing EMI. Full ground plane with perimeter for metal shield attachment to reduce external noise.

The ETX-4X is compatible with the ERC-2 laser ranging controller. Flexible layout accommodates 5.6mm (3 lead) or TO-18 (2 lead) packaged laser diode (not included) for minimum inductance. PCB size is just 2.000 x 1.125 inches and weighs less than 0.5 ounces.

Interface Connection:

JP1 connection can accommodate header connector, ribbon, etc., on 0.1" centers.

Pin	Signal	Description
1	**DM**	Discharge Monitor Output
2	**GND**	Ground
3	**HV_LAS**	+HV LASER (0 – 400 Vdc)
4	**HV_BIAS**	+HV BIAS (320 Vdc)
5	**GND**	Ground
6	**TRIG**	Trigger Input

Laser Diode Connection:

A - Anode
K – Cathode

Signal Details:

TRIG, Trigger Input – Trigger pulse must be positive going, 7V max voltage into 50 Ω, 30ns -100ns pulse width.

DM, Discharge Monitor Output – Discharge monitor output for t_0 timing pick-off that requires external high-speed comparator.

Requirements:

Pulse-width and energy controllable via voltage and capacitance (see App. Note 1).

Laser Diode solders directly into the PCB for minimum lead length. Directly compatible with 5.6 mm (3 lead) laser diode packages such as EG&G PGAU-series devices.

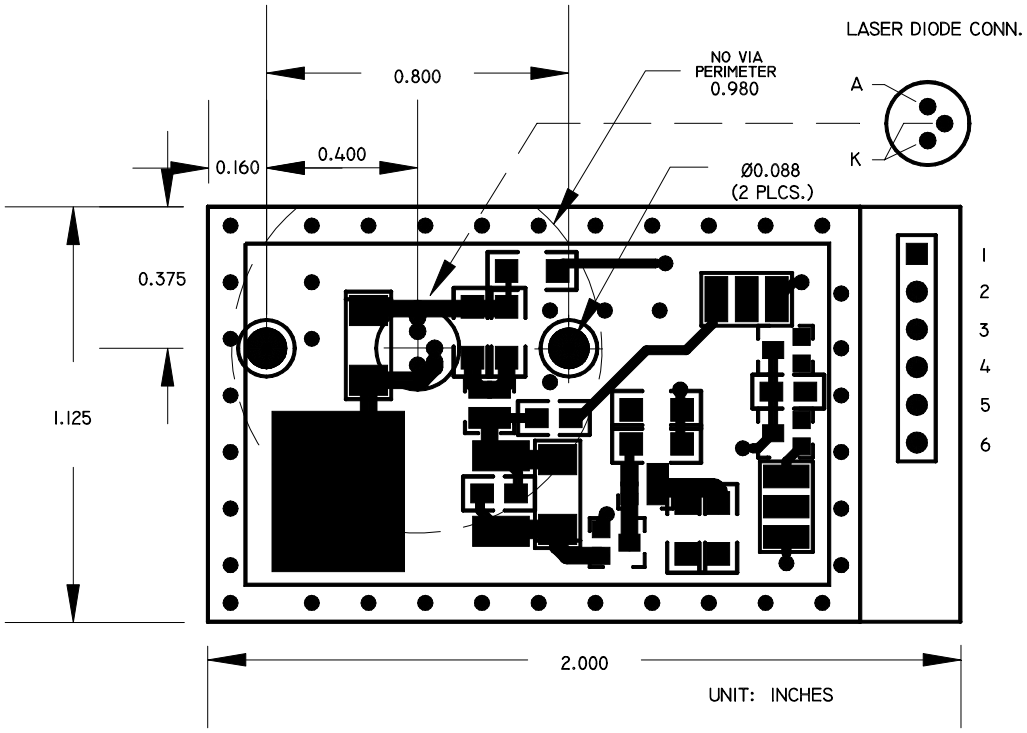
Trigger and discharge monitor (pin 1 and 6) should connect via 50 Ω coax for lengths greater than 4 inches.

No Via perimeter (0.98 inch diameter) for flush mount to metal assemblies. No contact should be made to bottom side of PCB outside this perimeter.

OPERATING SPECIFICATIONS:

PARAMETER	MIN.	TYP.	MAX.	UNIT
Laser Discharge Voltage	40		400	V dc
Laser Discharge Current[1]	0.1		1.0	mA dc
Bias Voltage	300	315	325	V dc
Bias Current[1]	0.1		1.0	mA dc
Pulse Repetition Rate			500	Hz
Current Pulse Amplitude (peak)[2]			35	A(pk)
Current Pulse Width (at 50% amplitude)[2]		18		ns

NOTES:
1. Dependent upon repetition rate and voltage. Min and max correspond to 10 Hz and 500 Hz at 300V.
2. Dependent upon laser package inductance, discharge capacitance and voltage. Typical values shown.



(specifications are subject to change)