QUANTUM TECHNOLOGY, INC.
108 Commerce St., Suite 101, Lake Mary, Florida, 32746-6212, USA
FAX 407-333-9352 PHONE 407-333-9348 TOLL FREE 800-232-4291
EMAIL staff@quantumtech.com INTERNET http://www.quantumtech.com

SERIES LN
LITHIUM NIOBATE
Q-SWITCHES
DATA SHEET 738A

LITHIUM NIOBATE Q-SWITCH

FEATURES

Employs highest quality $LiNbO_3$ Crystal
Hermetically sealed housing
A/R coated fused silica protective windows
Low insersion loss
All-dielectric housing
Minimum capacitance
No cements or encapsulants.
Crystal is easily removable from the housing
Convenient 4-40 screw on brass connectors

The LN series of Lithium Niobate Q-switches have low insertion loss. These Pockels cells are extremely efficient with high damage resistant antireflective coatings. The cell's high damage resistance threshold between 600 nm to 3500 nm allows high energy use, as well as, repetition rates in the KHz region. In or out of the laser cavity, these cells perform a number of electro-optic applications such as: switching, pulse picking, shuttering, and phase modulating to name a few. Also available are electronic drivers for most applications.

These crystals have an absorption at 2.8 micron and careful selection of material is required. These pockels cells are transverse field devices where the electrodes are along the X axis and the beam propogates along the Z axis. Although these crystals are pyroelectric, they do not have the drawback of water solubility as in KD*P. These crystals have good mechanical and chemical stability. The material LN is one of the most versatile and well-developed active optical material. The absorption loss at 1064 nm is less than 0.15% per cm. A typical wavefront distortion is less than lambda /4 at 633 nm and AR coating loss at 1064 nm is 0.3% per surface. Because of coupling with other modes of vibration, the AC quarter wave voltage is about 40 % higher than the DC value. The fluence damage of LN is 2.0 J / cm^2 while the AR coating fluence damage is 5.0 J / cm^2 and that of fuzed quartz is 20.0 J / cm^2 at 10 nsec pulse width. LN damages at CW power densities of 200 W/cm^2.

Quantum also offers resonance free BBO Q switches up to 4 mm aperture for higher average power densities up to 2000 watts/cm^2 and peak power densities up to 4000 MW/cm^2. Quantum also manufactures dry type KD*P crystal Q switches with Polymer coating. Both 99 % and 95 % crystals are grown in Quantum's laboratory.

If you have any questions or would like to discuss your application, please call Quantum Technology for assistance.

SPECIFICATIONS

Model	LN-6	LN-9	LN-16
Aperture	5.5mm	8.6 mm	15.8 mm
1/4 wave voltage @ 1064 nm	1 KV	1.5 KV	2 KV
1/4 wave voltage@ 2900 nm	4.3 KV	6.4 KV	
Capacitance	30 pf	20 pF	10 pF
Extinction Ratio Dynamic @ 1064 nm	>100:1 (crossed polarizers)	> 100:1 (crossed polarizers)	> 100:1 (crossed polarizers)
Crystal Dimensions	6x6x25 mm	9x9x25 mm	16x16x35 mm
Crystal Electrodes	Gold Chromium on X faces	Gold Chromium on X faces	Gold Chromium on Xfaces
Wavefront Distortion	< Lambda/10	< Lambda/10	<Lambda/10
Damage Resistance	250 MW/cm^2 (20 ns pulse)	250 MW/cm^2 (20 ns pulse)	250 MW/cm^2 (20 ns pulse)