

**NEW**

# Swift Liquid Crystal Variable Retarders



## Key Benefits

- Sub-millisecond response times
- Computer control capability
- Temperature control options
- Performance from 450 to 1800 nm

The next generation of liquid crystal variable retarders utilizes a new bulk stabilized polymer liquid crystal formulation. With switching speeds of less than a 150 microseconds in both directions the Swift Liquid Crystal Variable Retarder (SLCVR) is perfect for applications where response time is critical. The SLCVRs require a high voltage (< 100 Vrms) 13 kHz square wave of adjustable amplitude that is provided by our D3060HV High Voltage Interface (see page 62). A temperature sensing and control option can be added to our SLCVRs for accurate controlling of the operating temperature. The thermal sensor is attached directly to the SLCVR substrate, outside the clear aperture. Custom SLCVRs are available for a variety of applications.

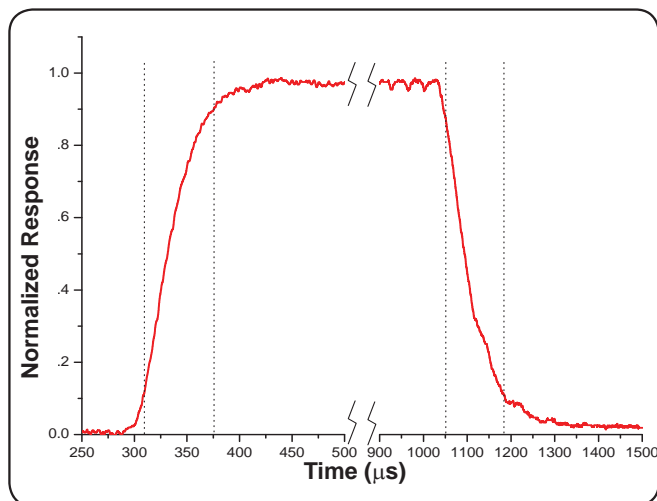


Fig. 4-18 Swift Liquid Crystal Response Time Plot

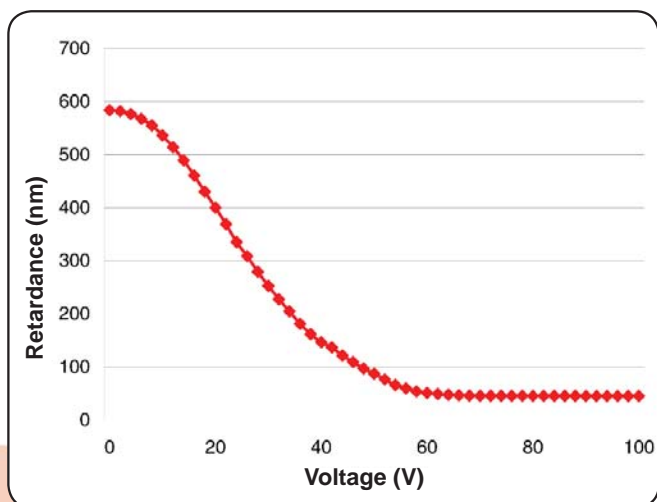


Fig. 4-19 Swift Liquid Crystal Retardance vs Voltage

## SPECIFICATIONS

<b>Retarder Material</b>	Polymer stabilized nematic liquid crystals
<b>Substrate Material</b>	Optical quality synthetic fused silica
<b>Response Time (10-90%)</b>	≤ 175 μs (zero to half-wave) ≤ 175 μs (half-wave to zero)
<b>Contrast Ratio</b>	150:1, minimum
<b>Retardance Range</b>	
Without compensator	~50 nm to λ/2
With compensator	0 to λ/2 custom ranges are available
<b>Transmitted Wavefront Distortion (at 632.8 nm)</b>	≤ λ/2
<b>Surface Quality</b>	40-20 scratch and dig
<b>Beam Deviation:</b>	≤ 2 arc min
<b>Reflectance (per surface):</b>	≤ 0.5% at normal incidence
<b>Diameter Tolerance</b>	± 0.005 in.
<b>Storage Temperature</b>	-20° C to 80° C
<b>Operating Temperature</b>	0° C to 55° C
<b>Wavelength Range</b>	VIS: 450-700 nm IR 1: 650-950 nm IR 2: 900-1250 nm IR 3: 1200-1700 nm

## ORDERING INFORMATION

Diameter, D (in.)	Clear Aperture, CA (in.)	Thickness t (in.)	Part Number
<i>Without Attached Compensator (50 nm to λ/2)</i>			
2.00	0.70	0.75	SVR - 200
<i>With Attached Compensator (0 nm to λ/2)</i>			
2.00	0.70	0.75	SRC - 200

Please specify spectral region when placing your order.

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Retarders

Mounting Hardware

Liquid Crystal Devices

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