

## RPC Photonics Polymer-on-Glass Power Handling

RPC Photonics, Inc. provides our optical products in a variety of material systems. These include plastic films and sheets, polymer-on-glass, injection molded plastics, and etched fused silica, silicon, germanium, and other materials.

The catalog Engineered Diffusers™, Microlens Arrays, and Vortex Phase Plates offered on-line, are all made with a proprietary polymer-on-glass material system. Compared with products made on plastic films and sheets, the RPC Photonics polymer-on-glass products have an enhanced stability over a wider temperature range, and may be used at elevated optical power densities.

Typical specifications for the RPC Photonics Engineered Diffuser™, Vortex Phase Plates, and Microlens Array products, made using polymer-on-glass construction, are listed below.

Substrate material	Borofloat glass
Diffuser material	UV-cure polymer
Damage threshold	At least 20J/cm <sup>2</sup> , 1ns pulses, 1053nm

The “Damage Threshold” noted in this table provides a guideline for structural robustness of the polymer-on-glass products under pulsed operation.

Products used under CW (Continuous Wave) operation have been tested up to 20W/cm<sup>2</sup> peak power, at wavelength = 532nm. Qualification of operation at this power density is noted in the Laser Damage Resistance Certification on the next page.

Customers requiring operation at higher pulse energies or power densities are invited to contact RPC Photonics, Inc. directly for information about qualification of our polymer-on-glass products, and alternative material systems.

# LASER DAMAGE RESISTANCE CERTIFICATION

## PASS

Supplier: RPC Photonics  
Purchase Order #: 11-488  
Part ID: Sample #2  
Run Number: n/a  
Requirements: 20 W/cm<sup>2</sup>, peak irradiance.

Cert. Number: 39686  
Date: December 14, 2011

### TEST PARAMETERS

Coating Type: Polymer  
Test Wavelength: 532 nm  
Polarization: Linear  
Pulsewidth (FWHM): n/a  
Spot Diameter (1/e<sup>2</sup>): 580 μm  
Test Prep: N<sub>2</sub> gas blow  
Quantity: 1

Substrate Material: Borofloat  
Incidence Angle: 0°  
PRF: CW  
Transverse Mode: TEM<sub>00</sub>  
Axial Modes: Multiple  
Number of Sites: 1  
Exposure Duration: 1 hour

TEST RESULTS: No damage observed using 150x Nomarski brightfield microscope.

COMMENTS: None.

Spica Technologies certifies that this sample has been exposed to the parameters described above. All test and calibration data are maintained on file. All instrument calibration is traceable to NIST.

Test conducted by



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