

# Circular Polarizer

Gary Sharp Innovations Circular Polarizers (CPs) are the highest performing CPs on the market. The filters provide excellent ellipticity over wavelength and angle of incidence. The standard filter is endcapped in Eagle Glass® with a low reflectivity AR coating on both sides. Applications include optical isolation, ambient rejection, virtual reality pancake lenses and geometric phase optical elements.

## Key Features

- Ellipticity > 0.99 in R, G, B  
<math>\lambda/600</math> 430-670nm
- Supports >10,000:1 isolation
- Spatially uniform
- Environmentally stable
- High efficiency
- Broadband visible
- Left and right handedness

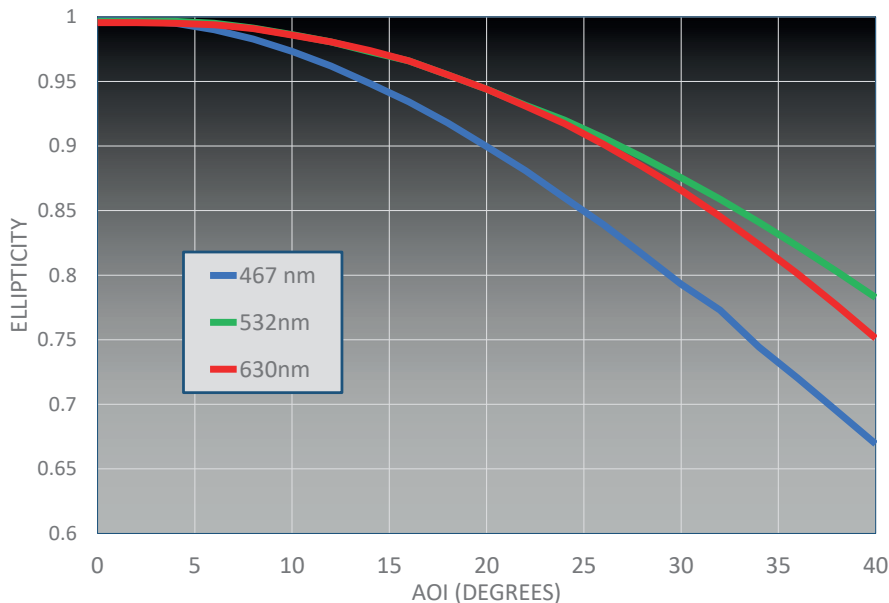
## Applications

- Pancake lens CP sets
- Geometric phase elements
- Cholesteric LCs
- Optical isolation
- Polarimetry
- Ambient rejection (OLED)

## Reliability

- Temperature
- Humidity

ELLIPTICITY Vs ANGLE OF INCIDENCE  
REC2020 RGB @ WORST CASE AZIMUTH



## Circular Polarizer General Performance

Parameter	Description	Units	
Insertion Loss <sup>1</sup>	(Output-Input)/Input at Normal	%	7
Color Neutrality	Hue a	NBS	-1.4±1
	Hue b	NBS	3.5±1
Double Pass Internal Contrast @Normal	Input/Specular Leakage	NA	>10,000
Internal Contrast @15°	Input/Specular Leakage	NA	>1,000
Irregularity	Transmitted wavefront	λ/inch	<1
Cosmetic Quality	Scratch/Dig per MIL PRF 13830B	SS-DD	40-20

## Circular Polarizer REC2020 Color Specific Performance

Normal Incidence	Units	Red	Green	Blue
Ellipticity	NA	>0.99	>0.99	>0.99
Contrast	NA	>10,000	>10,000	>10,000
15° Angle of Incidence				
Ellipticity	NA	>0.95	>0.95	>0.93
Contrast	NA	>1,000	>1,000	>250

## Reliability Performance

Parameter	Test Condition	Δ Rejection Limit
Heat	80°C for 500 hours	<3.0%
Humidity	60°C @ 90% RH for 500 hours	<5.0%
Ultraviolet	400W Mercury lamp @ 30cm	<3.0%
Cold	-30°C for 500 hours	<3.0%
Thermal Shock	-30°C 70°C 100 cycles	<5.0%

## Form Factor and Configuration

Parameter	Description/Units	Value
Filter Dimension (HxWxT)	mm	40X40X1.75
Endcaps	Default, Eagle® Glass (mm)	0.55
AR Coatings (400-700nm)	Default, HEA Coatings (%)	<0.25
Edge Finish	Deburred	
Clear Aperture	From Edge (mm)	1.0

<sup>1</sup>Assuming polarized light at the input



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