



FEATURES

Low Reflective Chrome

Photomask (LRC)

126.6mm x 126.6mm x 2.3mm

PRODUCTS AVAILABLE

Photomasks

Reticles & Calibration Plates

Photo Tooling

Large Format

Agfa Film Supplies

CAD-CAM Software

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our products or services please
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5" Chrome Photomask



A photomask is an opaque plate or film with transparent areas that allow light to shine through in a defined pattern. They are commonly used in photolithography processes, but are also used in many other applications by a wide range of industries and technologies. They are made on Soda Lime glass, on Fused Silica (Quartz) and even on polyester film. The mask acts as a template, and is designed to optically transfer patterns to wafers or other substrates in order to fabricate devices of all types

Specifications

- **MATERIAL:** Quartz / Fused Silica
- **DIG / SCRATCH:** 20 / 40
- **SIZE:** 126.6 x 126.6 (+/- 0.2mm)
- **THICKNESS:** 2.3 mm (+/- 0.1mm)
- **FLATNESS:** 2 μ m (+/- 0.5 μ m)
- **COATING:** Chrome Oxide 0.1 μ m
- **REFLECTIVITY:** s/s low reflective 11% @ 450nm
- **DENSITY:** > OD3 @ 436 nm g-line
- **MIN CD:** Dependant on imaging Class chosen
- **RESOLUTION:** Class 1 - 4
- **POSITIONING:** +/- .5mm centrality
- **ACCURACY:** = Dependant on imaging Class chosen
- **PACKAGING:** Individual Plastic Case
- **DEFECT SPEC:** Standard in house or supplied by customer

Brown Oxide 200A (11% R)

Chrome 100A

No Oxide (45% R)

Glass

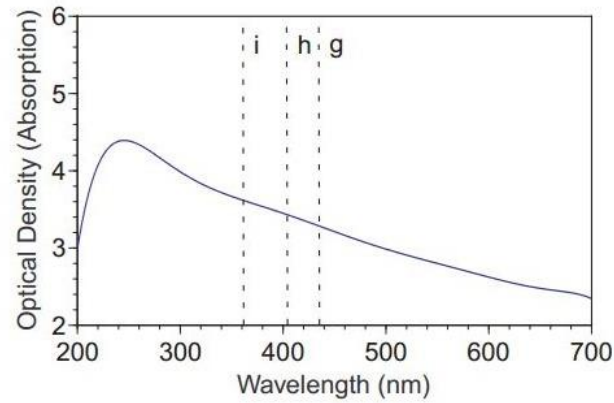
Low Reflective Plate OD3

PRODUCTS OPTIONS

White Backing
Reflective Backing

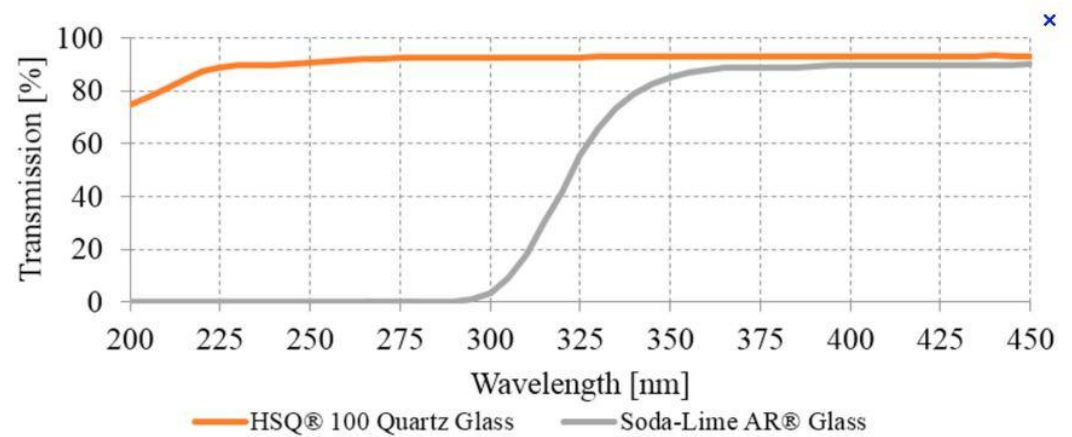


TRANSMISSION OF LIGHT THROUGH CHROME

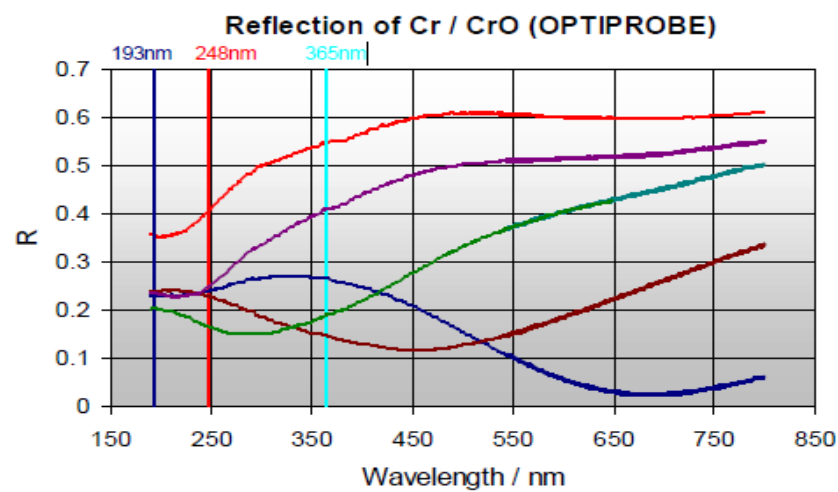


Optical Density 5 = 0.001% transmission
Optical Density 4 = 0.01 % transmission
Optical Density 3 = 0.1% transmission

TRANSMISSION OF LIGHT THROUGH BASE MATERIAL



REFLECTIVITY





RESOLUTIONS

Class 1 : This represents a resolution that is equivalent to approximately 64k dpi .Although this resolution may resolve smaller features, we recommend keeping feature sizes above 10um as corner rounding is considerable. Edge sharpness and definition is acceptable for non critical design types, although designs with arcs/circles and lines running off 90 degree grid may show pixilation. NO features such as lines / circles / spots / squares below 10 um unless on a 'best effort' basis previously agreed with our technicians.

Class 2 : This represents a resolution that is equivalent to 128k. This resolution will resolve down to 4 micron lines and has good line edge qualities with only a small pixilation along edges. Corner rounding is below 3um but still visible. NO features such as lines / circles / spots / squares below 4um unless on a 'best effort' basis previously agreed with our technicians.

Class 3 : This represents our most common resolution for demanding, high precision photomasks. It is equivalent to 256k dpi and offers an excellent price / quality balance. This resolution will resolve down to 2 micron lines and has very good line edge qualities with no pixilation along edges, and corner rounding is kept to a minimum. CD Tolerance is +/- 0.2um

Class 4 : Our highest resolution, which is equivalent to 512k dpi , and is the best quality that we can offer. This resolution will resolve down to 0.5 micron lines and has excellent line edge qualities with no pixilation along edges, and corner rounding is barely visible. CD tolerance is +/- 0.1um.

INSPECTION

Standard : We firstly inspect the piece by eye for flaws, design inaccuracies and contaminations. We also inspect a test coupon (placed in the bottom corner of the mask) for line width accuracy and edge definition. Next, we measure the overall dimension of the mask, and record both of these measurements on our internal inspection records. Finally, we find the CD of the mask, measure that, record it, and also take a digital photo that is saved with the inspection log. We use Nikon MM40 at 900x magnification and an OGP ZIP 300 at 400 x magnifications for this.

Option: Enhanced : In addition to the standard inspection process described above, we will then document them via a Certificate of Conformance which we supply with the mask. Tolerances are per our standard tolerances.

WRITE AREA

The way that the masks are manufactured means that we have a "keep out" area that we cannot write critical features to - this equates to a 10mm border around the edge of the plate. This is because the resist is slightly thicker in the corners and edges, where it builds up during the spinning process. We use 'fringeless' blanks wherever possible, so can image outside of this area if necessary, but recommend only text and references marks in this outer area.

DEFECT SPECIFICATIONS

The Customer Defect Specification Form is to be used by customers to inform us of their defect specifications. It may be supplied to cover every order within a given time frame, or on a per order basis. If the form is not submitted, our own internal specifications take over. These specifications will be used by our front-end engineers to asses if masks can be written before going into the write phase, and customers will be informed where specifications are deemed to be unachievable.