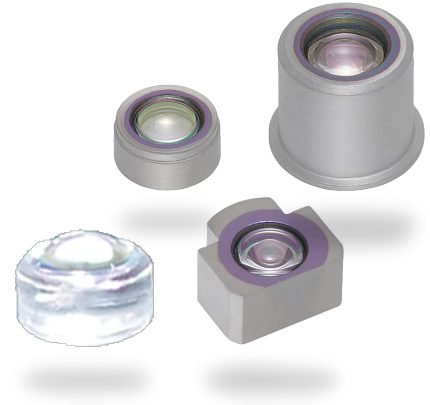


Aspherical Glass Lenses

For optical communications

EYLG□F□□□□□ type



These products are aspherical glass lenses by using a press molding, and key devices of optical electronics not only provide compact and light weight but also high-performance by utilizing characteristics of aspherical design.

Features

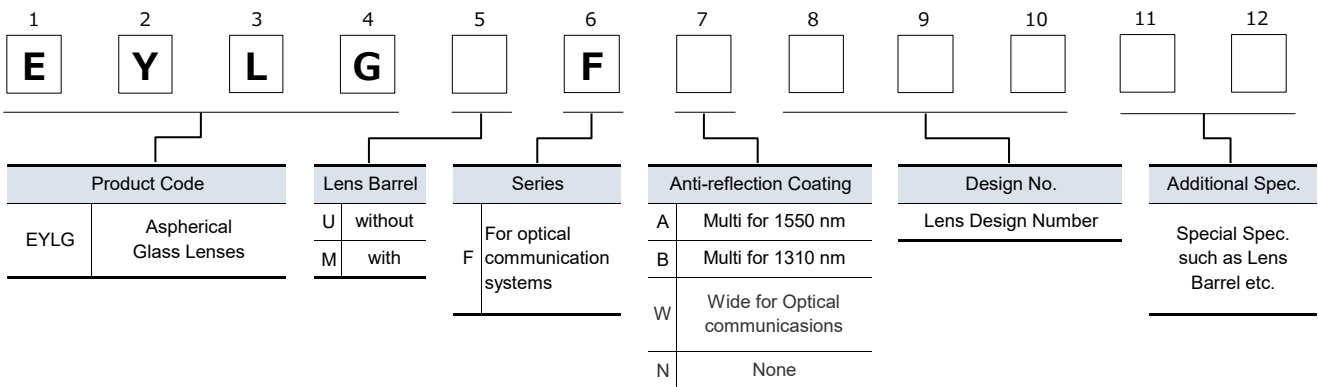
- High numerical aperture achieved via aspherical design
- Short focal length for compact size
- Appropriate lenses and lens material available for many different applications
- Wide temperature and humidity range for increased reliability and stability
- High-quality processing, measurement techniques and precision manufacturing process give less variation in optical properties
- RoHS compliant

■ We can offer custom design, sampling and mass production as requested

Recommended Applications

- Coupling lens for optical communication systems
- Collimator lens for optical communication systems

Explanation of Part Numbers



Ratings

| Item | Ratings |
|-----------------------------|----------------|
| Operating Temperature Range | -30 to +85 °C |
| Storage Temperature Range | -40 to +100 °C |

■ Please contact the factory for packaging methods.

Specifications

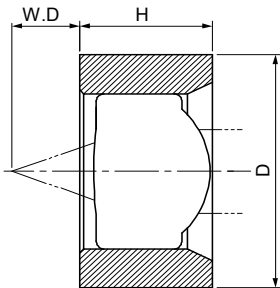
● Lenses for optical communications

| Part No. | Design wavelength (nm) | Suitable wavelength (T>97 %) (nm) | Cover glass thickness (mm) | Focal length (mm) | Working distance WD (*L1) (mm) | Conjugate distance CD (*L2) (mm) | Magnification | N.A | | Effective diameter (mm) | | Beam diameter (mm) | Dimensions (mm) | | | Glass material | Lens shape type | Mass production | MOQ |
|-------------|------------------------|-----------------------------------|----------------------------|-------------------|--------------------------------|----------------------------------|---------------|------|------|-------------------------|------|--------------------|-----------------|------------|---------------|----------------|-----------------|-----------------|------|
| | | | | | | | | S1 | S2 | S1 | S2 | | Diameter (D) | Height (H) | Thickness (T) | | | | |
| EYLGMF135DR | 1550 | 1260 to 1625 | - | 2.51 | 1.68 | - | - | - | 0.20 | 1.04 | 0.80 | 0.50 | 2.50 | 1.40 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMF169ER | 1550 | 1260 to 1625 | - | 4.02 | 3.26 | - | - | - | 0.17 | 1.10 | 0.96 | 0.80 | 3.00 | 1.60 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMF192KR | 1550 | 1260 to 1625 | - | 1.81 | 1.03 | - | - | - | 0.30 | 1.08 | 0.82 | 0.34 | 2.50 | 1.40 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMF192WR | 1550 | 1260 to 1625 | - | 1.81 | 0.81 | - | - | - | 0.30 | 1.08 | 0.73 | 0.36 | 3.00 | 1.60 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMA265AR | 1550 | 1260 to 1625 | - | 3.02 | 2.26 | - | - | - | 0.22 | 1.33 | 1.14 | 0.60 | 3.00 | 1.60 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMF280BR | 1550 | 1260 to 1625 | - | 1.32 | 0.77 | - | - | - | 0.30 | 0.80 | 0.60 | 0.26 | 2.50 | 1.40 | - | K-PBK40 | A-1 | Yes | 550 |
| EYLGMF479A | 1550 | 1260 to 1625 | - | 1.59 | 0.93 | - | - | - | 0.26 | 0.82 | 0.70 | 0.26 | 1.80 | 1.40 | - | K-PBK40 | A-1 | Yes | 400 |
| EYLGMF491A | 1310 | 1260 to 1625 | - | 2.47 | 1.83 | - | - | - | 0.17 | 0.84 | 0.75 | 0.49 | 1.80 | 1.40 | - | K-PBK40 | A-1 | TDB | 400 |
| EYLGMF493A | 1550 | 1260 to 1625 | - | 1.12 | 0.46 | - | - | - | 0.30 | 0.70 | 0.47 | 0.23 | 1.80 | 1.00 | - | K-PBK40 | A-1 | Yes | 400 |
| EYLGMF518A | 1310 | 1260 to 1625 | - | 0.84 | 0.27 | - | - | - | 0.40 | 0.70 | 0.42 | 0.17 | 2.00 | 1.00 | - | K-PBK40 | A-1 | TDB | 400 |
| EYLGMB195ER | 1310 | 1260 to 1625 | - | 0.70 | 0.31 | - | - | - | 0.60 | 0.84 | 0.52 | - | 2.50 | 1.00 | - | K-VC89 | A-1 | Yes | 550 |
| EYLGMB285R | 1310 | 1260 to 1625 | - | 0.60 | 0.20 | - | - | - | 0.60 | 0.72 | 0.40 | - | 2.2x2.0 | 0.80 | - | K-VC89 | C | Yes | 550 |
| EYLGUFA235A | 1550 | 1500 to 1650 | - | 2.51 | 1.85 | - | - | - | 0.20 | 1.04 | 0.80 | 0.50 | 1.80 | - | 1.10 | K-PBK40 | D-1 | Yes | 550 |
| EYLGUFW532A | 1550 | 1260 to 1650 | - | 2.01 | 1.40 | - | - | - | 0.20 | 0.80 | 0.60 | 0.40 | 1.80 | - | 1.10 | K-PBK40 | D-1 | Yes | 220 |
| EYLGUFW538A | 1550 | 1260 to 1650 | - | 1.81 | 1.15 | - | - | - | 0.30 | 1.08 | 0.82 | 0.36 | 1.80 | - | 1.15 | K-PBK40 | D-1 | Yes | 220 |
| EYLGMB210BR | 1310 | 1260 to 1625 | BK7 t0.25 | 1.31 | 1.32 | 6.7 | 2.26 | 0.26 | 0.12 | 0.78 | 0.94 | - | 3.00 | 1.50 | - | K-VC89 | A-2 | TDB | 550 |
| EYLGMB240BR | 1310 | 1260 to 1625 | BK7 t0.25 | 1.40 | 1.13 | 10.69 | 5.00 | 0.50 | 0.10 | 1.31 | 1.70 | - | 3.00 | 1.50 | - | K-VC89 | A-2 | Yes | 550 |
| EYLGMB321A | 1310 | 1260 to 1625 | BK7 t0.30 | 1.34 | 1.11 | 9.04 | 4.00 | 0.40 | 0.10 | 1.00 | 1.32 | - | 3.00 | 1.60 | - | K-VC89 | A-2 | TDB | 550 |
| EYLGMB456R | 1310 | 1260 to 1625 | - | 0.54 | 0.25 | 3.85 | 4.55 | 0.50 | 0.11 | 0.34 | 0.64 | - | 1.80 | 1.00 | - | K-VC89 | A-2 | Yes | 400 |
| EYLGMB584A | 1310 | 1260 to 1625 | - | 1.19 | 1.00 | 6.24 | 2.50 | 0.40 | 0.16 | 1.02 | 1.32 | - | 3.00 | 1.60 | - | K-VC89 | A-2 | TDB | 550 |
| EYLGUFB508A | 1310 | 1260 to 1625 | - | 0.55 | 0.25 | 3.98 | 5.10 | 0.58 | 0.11 | 0.40 | 0.70 | - | 1.00 | - | 0.81 | K-VC79 | D-2 | Yes | 2000 |
| EYLGMB245R | 1310 | 1260 to 1625 | BK7 t0.25 | 1.13 | 1.27* | 7.50* | 2.50 | 0.40 | 0.16 | 0.90 | 1.20 | - | 3.75 | 3.97 | - | K-VC89 | B | Yes | 1000 |
| EYLGMB295R | 1310 | 1260 to 1625 | - | 1.35 | 1.27* | 10.18* | 4.00 | 0.40 | 0.10 | 1.02 | 1.33 | - | 3.75 | 3.90 | - | K-VC89 | B | Yes | 1000 |
| EYLGMB415R | 1310 | 1260 to 1625 | - | 0.94 | 1.27* | 7.56* | 4.00 | 0.50 | 0.13 | 0.76 | 1.14 | - | 3.75 | 3.50 | - | K-VC89 | B | Yes | 1000 |
| EYLGMB480A | 1310 | 1260 to 1625 | - | 0.93 | 1.20* | 5.73* | 2.00 | 0.40 | 0.20 | 0.91 | 1.10 | - | 4.70 | 3.23 | - | K-VC89 | B | Yes | 550 |
| EYLGMB486A | 1310 | 1260 to 1625 | - | 0.81 | 1.32* | 6.05* | 3.20 | 0.47 | 0.15 | 0.68 | 0.96 | - | 3.75 | 3.50 | - | K-VC89 | B | TDB | 1000 |
| EYLGMB487A | 1310 | 1260 to 1625 | - | 0.97 | 1.27* | 6.66* | 2.90 | 0.40 | 0.14 | 0.66 | 0.98 | - | 3.75 | 3.60 | - | K-VC89 | B | TDB | 1000 |
| EYLGMB494A | 1577 | 1260 to 1625 | - | 0.60 | 1.20* | 5.80* | 3.00 | 0.45 | 0.15 | 0.64 | 0.94 | - | 4.70 | 2.90 | - | K-VC89 | B | TDB | 550 |
| EYLGMB501B | 1310 | 1260 to 1625 | - | 0.59 | 0.89* | 3.83* | 2.00 | 0.40 | 0.20 | 0.49 | 0.66 | - | 4.70 | 2.20 | - | K-VC89 | B | TDB | 550 |
| EYLGMB503A | 1310 | 1260 to 1625 | - | 0.64 | 1.00* | 4.10* | 2.00 | 0.40 | 0.20 | 0.71 | 0.90 | - | 4.70 | 2.80 | - | K-VC89 | B | TDB | 550 |
| EYLGMB514A | 1310 | 1260 to 1625 | - | 1.04 | 0.87* | 6.00* | 2.00 | 0.40 | 0.20 | 1.02 | 1.22 | - | 4.70 | 3.15 | - | K-VC89 | B | Yes | 550 |
| EYLGMB554A | 1310 | 1260 to 1625 | - | 0.91 | 0.90* | 5.43* | 2.00 | 0.40 | 0.20 | 0.91 | 1.10 | - | 4.70 | 3.23 | - | K-VC89 | B | TDB | 550 |
| EYLGMB305R | 1310 | 1260 to 1625 | - | 0.46 | 1.40* | 3.90* | 3.13 | 0.50 | 0.16 | 0.34 | 0.52 | - | 3.20 | 2.45 | - | K-VC89 | B | Yes | 550 |
| EYLGMB502C | 1310 | 1260 to 1625 | - | 0.46 | 1.00* | 3.50* | 3.13 | 0.50 | 0.16 | 0.34 | 0.52 | - | 3.20 | 2.10 | - | K-VC89 | B | Yes | 550 |
| EYLGMB534A | 1310 | 1260 to 1625 | - | 0.70 | 1.10* | 5.70* | 4.00 | 0.36 | 0.09 | 0.37 | 0.60 | - | 3.20 | 2.80 | - | K-VC89 | B | TDB | 550 |
| EYLGMB566A | 1310 | 1260 to 1625 | - | 0.51 | 1.29* | 4.39* | 3.50 | 0.50 | 0.14 | 0.44 | 0.66 | - | 3.20 | 2.47 | - | K-VC89 | B | TDB | 550 |
| EYLGMB567A | 1310 | 1260 to 1625 | - | 0.61 | 1.4* | 4.93* | 3.20 | 0.50 | 0.16 | 0.54 | 0.78 | - | 2.85 | 2.80 | - | K-VC89 | B | Yes | 550 |
| EYLGMB490A | 1550 | 1260 to 1625 | - | 0.70 | 1.27* | - | - | 0.60 | - | 0.34 | 0.84 | - | 3.75 | 3.50 | - | K-VC89 | B | Yes | 1000 |
| EYLGMB551A | 1310 | 1260 to 1625 | - | 1.11 | 0.9* | - | - | 0.42 | - | 0.53 | 0.94 | - | 4.70 | 2.51 | - | K-VC89 | B | Yes | 550 |
| EYLGMB463R | 1570 | 1260 to 1625 | - | 1.48 | 2.15* | 12.10* | 4.10 | 0.59 | 0.14 | 1.60 | 2.12 | - | 5.00 | 4.93 | - | K-VC89 | B | Yes | 550 |
| EYLGMB474R | 1310 | 1260 to 1625 | - | 0.94 | 2.15* | 8.44* | 4.00 | 0.50 | 0.13 | 0.76 | 1.14 | - | 5.00 | 4.38 | - | K-VC89 | B | Yes | 550 |
| EYLGMB478B | 1550 | 1260 to 1625 | - | 1.36 | 2.625* | 12.25* | 4.50 | 0.50 | 0.11 | 1.24 | 1.68 | - | 4.90 | 5.35 | - | K-VC89 | B | Yes | 550 |
| EYLGMB485A | 1577 | 1260 to 1625 | - | 0.95 | 2.8* | 8.2* | 3.00 | 0.53 | 0.17 | 1.00 | 1.30 | - | 4.90 | 5.00 | - | K-VC89 | B | Yes | 550 |
| EYLGMB488A | 1577 | 1260 to 1625 | - | 1.44 | 2.62* | 12.02* | 3.90 | 0.60 | 0.16 | 1.40 | 2.20 | - | 5.00 | 5.90 | - | K-VC89 | B | Yes | 550 |
| EYLGMB498A | 1310 | 1260 to 1625 | - | 0.82 | 2.62* | 7.79* | 3.70 | 0.55 | 0.15 | 0.70 | 1.10 | - | 5.00 | 4.90 | - | K-VC89 | B | Yes | 550 |
| EYLGMB507A | 1550 | 1260 to 1625 | - | 0.95 | 2.00* | 7.40* | 3.00 | 0.53 | 0.17 | 1.00 | 1.30 | - | 4.90 | 4.20 | - | K-VC89 | B | Yes | 550 |
| EYLGMB523B | 1550 | 1260 to 1625 | - | 0.84 | 2.50* | 7.25* | 3.00 | 0.54 | 0.18 | 0.75 | 1.15 | - | 5.00 | 5.06 | - | K-VC89 | B | Yes | 550 |
| EYLGMB524B | 1577 | 1260 to 1625 | - | 1.15 | 2.50* | 10.18* | 4.00 | 0.60 | 0.15 | 1.25 | 1.79 | - | 5.00 | 5.35 | - | K-VC89 | B | No(TDB) | 550 |
| EYLGMB552A | 1577 | 1260 to 1625 | - | 1.30 | 1.03* | 10.37* | 4.50 | 0.58 | 0.13 | 1.30 | 1.89 | - | 5.00 | 3.97 | - | K-VC89 | B | No(TDB) | 550 |
| EYLGMB555A | 1550 | 1260 to 1625 | - | 1.23 | 1.04* | 7.98* | 2.90 | 0.50 | 0.17 | 1.30 | 1.67 | - | 5.00 | 3.97 | - | K-VC89 | B | Yes | 550 |
| EYLGMB568A | 1577 | 1260 to 1625 | - | 1.44 | 2.37* | 11.77* | 3.90 | 0.60 | 0.16 | 1.40 | 2.20 | - | 5.00 | 5.60 | - | K-VC89 | B | Yes | 550 |

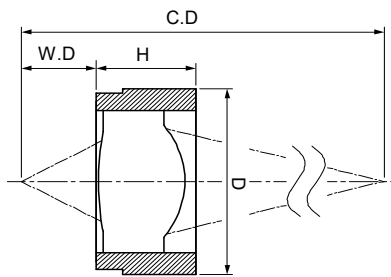
Part number Bold : Non-mass production, samples available

Dimensions in mm (not to scale)

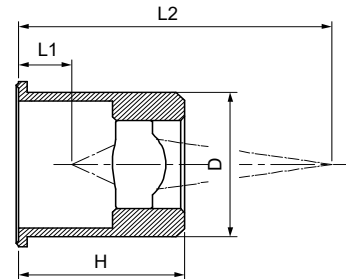
A-1
With Holder type



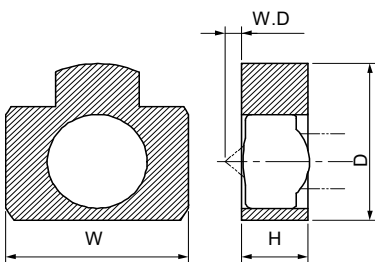
A-2
With Holder type



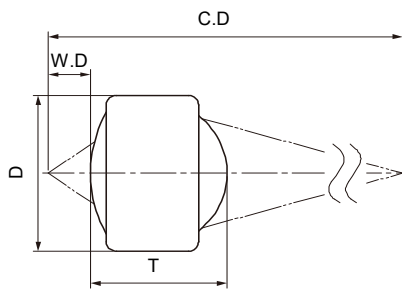
B
CAN type



C
With Holder type



D
Bare type



W.D : Working Distance
C.D : Coujugate Distance

unit:mm

NOTES

1) Formation of the lens barrel

Since the lenses with barrels for optical communications are integral-molded with the barrels, no further processing is possible after the assembly. Please note that if the thickness of a lens barrel is 0.25 mm or less, the barrel tends to expand during assembly. The lenses are designed on the assumption that the barrel is in a simple or a two-step cylindrical shape.

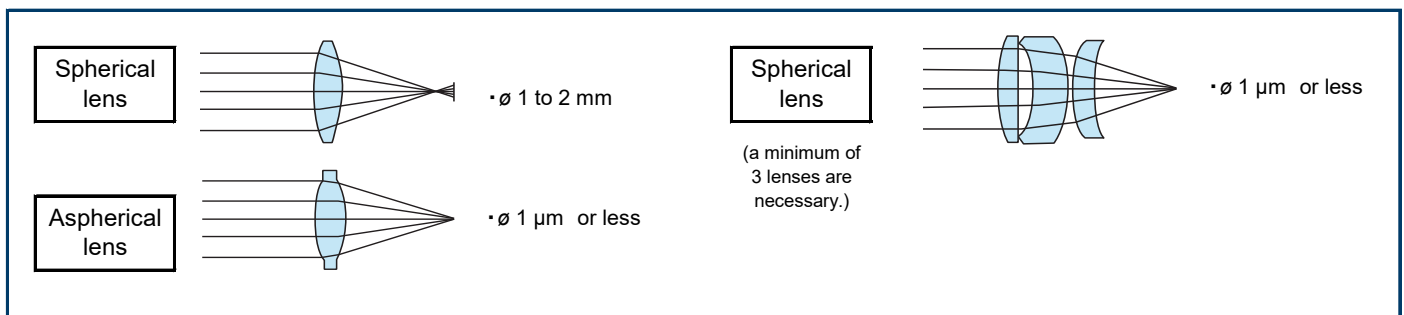
2) Anti-reflective coating

- Panasonic uses only the best glass materials and applies an anti-reflective coating to achieve the highest possible performance.
- Average center wavelength of a lens' transmittance band is either 1310 or 1550 nm for optical communications. Wide wavelength (1310 to 1550 nm) and dual wavelength (980/1550) designs are available as well. Custom anti-reflective coatings are available upon request. Wide wavelength designs become increasingly prohibitive as the length of lens barrel increases.

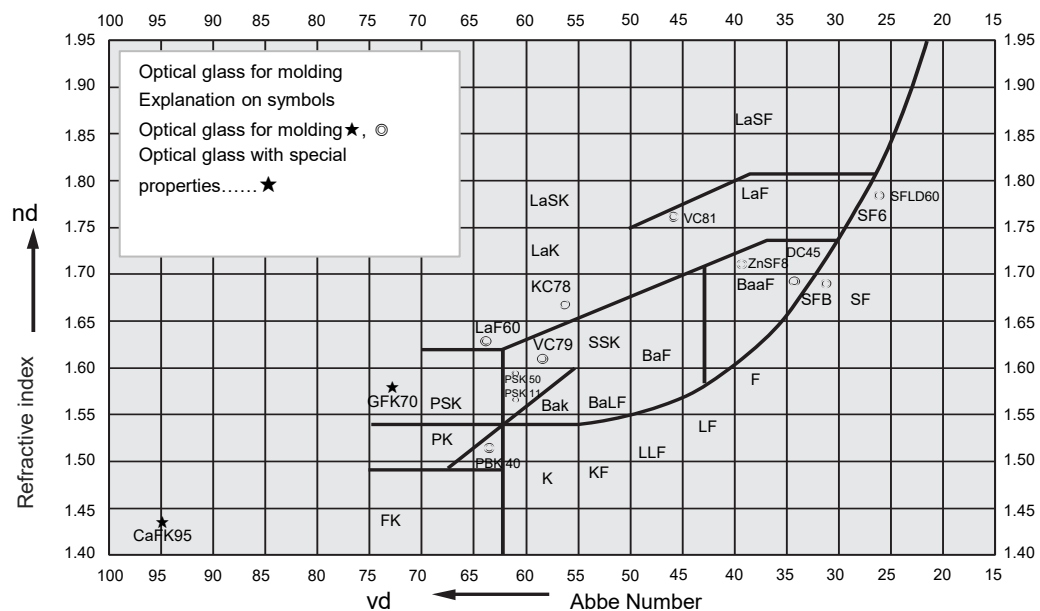
3) Custom Specification lenses

Lenses of various shapes and dimensions can be designed to meet the individual needs of customers. Please consult with Panasonic for details.

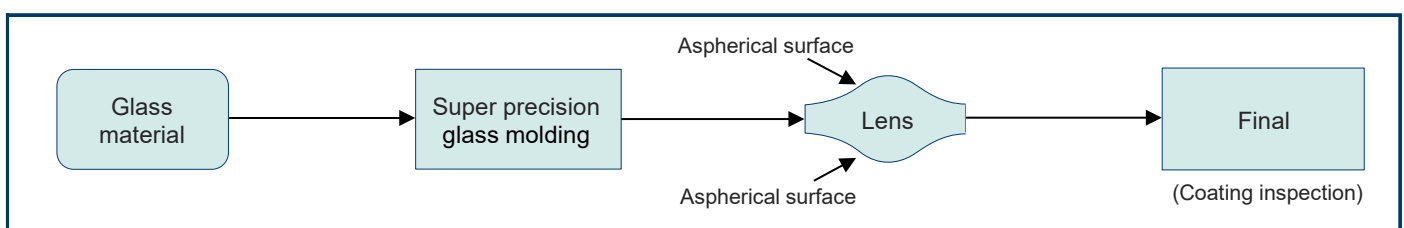
Performance of aspherical glass lens



Optical Glass Diagram



Production process of aspherical glass molded lens



Safety and Legal Matters to Be Observed

Product specifications and applications

- Please be advised that this product and product specifications are subject to change without notice for improvement purposes. Therefore, please request and confirm the latest delivery specifications that explain the specifications in detail before the final design, or purchase or use of the product, regardless of the application. In addition, do not use this product in any way that deviates from the contents of the company's delivery specifications.
- Unless otherwise specified in this catalog or the product specifications, this product is intended for use in general electronic equipment (AV products, home appliances, commercial equipment, office equipment, information and communication equipment, etc.).
When this product is used for the following special cases, the specification document suited to each application shall be signed/sealed (with Panasonic and the user) in advance..These include applications requiring special quality and reliability, wherein their failures or malfunctions may directly threaten human life or cause harm to the human body (e.g.: space/aircraft equipment, transportation/traffic equipment, combustion equipment, medical equipment, disaster prevention/crime prevention equipment, safety equipment, etc.).

Safety design and product evaluation

- Please ensure safety through protection circuits, redundant circuits, etc., in the customer's system design so that a defect in our company's product will not endanger human life or cause other serious damage.
- This catalog shows the quality and performance of individual parts. The durability of parts varies depending on the usage environment and conditions. Therefore, please ensure to evaluate and confirm the state of each part after it has been mounted in your product in the actual operating environment before use.
If you have any doubts about the safety of this product, then please notify us immediately, and be sure to conduct a technical review including the above protection circuits and redundant circuits at your company.

Laws / Regulations / Intellectual property

- The transportation of dangerous goods as designated by UN numbers, UN classifications, etc., does not apply to this product. In addition, when exporting products, product specifications, and technical information described in this catalog, please comply with the laws and regulations of the countries to which the products are exported, especially those concerning security export control.
- Each model of this product complies with the RoHS Directive (Restriction of the use of hazardous substances in electrical and electronic equipment) (2011/65/EU and (EU) 2015/863). The date of compliance with the RoHS Directive and REACH Regulation varies depending on the product model.
Further, if you are using product models in stock and are not sure whether or not they comply with the RoHS Directive or REACH Regulation, please contact us by selecting "Sales Inquiry" from the inquiry form.
- During the manufacturing process of this product and any of its components and materials to be used, Panasonic does not intentionally use ozone-depleting substances stipulated in the Montreal Protocol and specific bromine-based flame retardants such as PBBs (Poly-Brominated Biphenyls) / PBDEs (Poly-Brominated Diphenyl Ethers). In addition, the materials used in this product are all listed as existing chemical substances based on the Act on the Regulation of Manufacture and Evaluation of Chemical Substances.
- With regard to the disposal of this product, please confirm the disposal method in each country and region where it is incorporated into your company's product and used.
- The technical information contained in this catalog is intended to show only typical operation and application circuit examples of this product. This catalog does not guarantee that such information does not infringe upon the intellectual property rights of Panasonic or any third party, nor imply that the license of such rights has been granted.

Panasonic Industry will assume no liability whatsoever if the use of our company's products deviates from the contents of this catalog or does not comply with the precautions. Please be advised of these restrictions.

Matters to Be Observed When Using This Product

(Aspherical glass lens)

Product specifications and applications

- When using this product (lens), make sure you receive a delivery specification sheet for the product in advance, regardless of the way the product is used.
- Do not use the product in a manner different from instructions/notes described in this catalog.

Safety design and product evaluation

When a problem with a lens incorporated in transport equipment (trains, automobiles, ships, etc.), signal equipment, medical instruments, aerospace equipment, electric heating appliances, burning/gas appliances, rotating machines, disaster-preventing/security equipment, etc., is expected to cause a serious accident or damage including a fatal one, construct fail-safe systems shown below to ensure safety.

- * A system including a protective circuit and a protective device
- * A system that is not brought into an unsafe condition due to a single failure by having a redundant circuit, etc., incorporated in the system
- * A system in which a malfunctioning preventing mechanism and a fire-spread preventing mechanism are incorporated

Use environments and cleaning conditions

- This product is intended for standard general-purpose use in electronic equipment, and is not designed for use in specific environments described below. Using the product in such specific environments or service conditions, therefore, may affect the performance of the product. Please check the performance and reliability of the product first before using the product.
 - (1) Used in liquid, such as water, oil, chemicals, and organic solvents.
 - (2) Used in a place exposed to direct sunlight, an outdoor place with no shielding, or a dusty place.
 - (3) Used in a place where the product is heavily exposed to sea breeze or a corrosive gas, such as Cl₂, H₂S, NH₃, SO₂, or NO_x.
 - (4) Used in an environment where dew concentrates on the lens.
- Attach the lens at a position where the temperature of the lens does not exceed its working temperature range due to the influence of heat from a heat-generating component nearby.
- When you find dust deposited on the lens, remove the dust with an air blast. If the air blast does not work, gently wipe the dust away with a cotton swab, etc., soaked with ethanol. Be careful not to wipe the lens with a strong force as it may leave a scratch on the lens surface, damaging the appearance and performance of the lens. Avoid washing the lens with water. It may cloud the lens surface or impair the optical characteristics of the lens.

Handling and storage conditions

- When taking the lens out of its case, hold the side of the lens (flange or lens barrel) so as not to touch the lens surface. When using tweezers, avoid metal tweezers and instead use plastic tweezers.
- Keep the lens in a dry condition by using a desiccator. Do not keep it in a high-temperature/high-humidity conditions.

Reference information

Labeling on package

On the lens package, a product number, the number of components, and the place of origin are indicated. Usually, the place of origin is written in English.