NEWS RELEASE

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ALPS Offers Lead-Free Aspherical Glass Lens for Optical Communication Using Wide-Angle Laser Diodes

FLGS3 Series: High Coupling Efficiency Achieved Despite Industry's Smallest Size

Duesseldorf, Germany, August 04, 2011 – ALPS ELECTRIC has developed the FLGS3 Series aspherical glass lens for optical communication. The FLGS3 Series lens has high optical coupling efficiency and is compatible with wide-angle laser diodes. Mass production and shipments commence in July 2011.

The rising popularity of smartphones in markets worldwide and increasing use of the Internet for activities like video distribution have boosted demand for fast, high-capacity communication networks. High-speed, low-loss optical technology enables broad application of fast, high-capacity communication, in submarine cable networks linking the countries of the world through to short-distance subscriber networks (FTTH) for offices and households. Optical communication is the transmission of data which has been converted into light signals. The medium is usually via optical fiber, which is exceptionally light and robust and has the advantage of low susceptibility to the effects of electromagnetic waves.

Transceiver modules employing glass lenses are used for optical communication, in submarine cables and base stations. Aspherical glass lenses, in particular, are ideal for transmitting light signals to optical fiber with low loss and have recently been incorporated into palm-size projectors. Consumer appliance applications are growing.

The FLGS3 Series is a highly efficient 1 × 1mm square aspherical glass lens—the industry's smallest.

ALPS harnessed technologies accumulated through more than 20 years serving the optical communication market—in the areas of optical design, mechanical design, mold and die manufacturing, molding, and simulation—to expand the effective numerical aperture (NA) to 0.65 × 0.13 (from 0.5 × 0.1) while retaining the industry's smallest size, and as a result raise optical coupling efficiency, which is a measure of light transmission efficiency, to 73% from 68%. With low loss, the light input required for a given output is smaller. This contributes to low power consumption, and also restricts heat generation, thereby enabling application in low-price modules that do not require Peltier devices[*1] or other cooling components. The lens is also ideal for high-brightness projector applications.

Furthermore, the FLGS3 Series lens is made from lead-free glass, achieving compliance with both RoHS 6[*2] and REACH regulations. This is one product which, as well as contributing to reduced power consumption by optical communication modules, helps to lower environmental impact.

*1 A Peltier device uses the Peltier effect to move heat from one metal to another when electricity is passed through a junction between the two metals. Such devices facilitate size reductions and are often used as cooling components in compact equipment, contrasting with heat pumps used in appliances like air conditioners.
*2 The European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive) took effect on July 1, 2006. The directive prohibits the sale within the EU of electrical and electronic products containing more than the specified level of six hazardous materials—lead, cadmium, hexavalent chromium, mercury, polybrominated biphenyls, and polybrominated diphenyl ether. Optical glass normally contains lead, but lead content in optical glass was excluded from the normal RoHS Directive. Under RoHS 6, this lead content is also restricted.

Features

Lead-free aspherical glass lens achieving high optical coupling efficiency while retaining the industry's smallest size

1. Optical coupling efficiency improved to 73%.
2. Lead-free glass material complies with RoHS 6 and REACH.

3. Compatible with standard optical communication wavelengths (1260nm – 1625nm) and visible light option also available.

Principal Applications

- Submarine cables; optical communication modules for base stations
- Small projectors

Specifications

Product name	FLGS3 Series
Dimensions (W × D × H)	1.0mm × 1.0mm × 0.8mm
Wavelength	1,310nm, 1,550nm
Effective NA	0.65 × 0.13
Magnification	5x
Focal length	0.528mm
Object-to-image distance	3.97mm
Wave aberration (RMS: root mean square)	0.047λ
Transmittance	98% (1,310nm, 1,550nm)
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +100°C

For more information on the new product please visit
http://www.alps.com/products/e/npv_product/110729_FLGS3/FLGS3_E.PDF

ALPS Electric Co., Ltd.
ALPS Electric (Tokyo: 6770) is a leading global manufacturer of high-quality electronic components for mobile devices, home electronics, vehicles and industrial equipment. With the philosophy of “Perfecting the Art of Electronics” ALPS Electric supplies over 40,000 different components to about 2,000 companies all over the world. For more information, visit www.alps.com.

ALPS ELECTRIC EUROPE GmbH, a subsidiary of ALPS Electric Co., Ltd., was established in 1979. Since 1989 the European Head Office has been located in Düsseldorf, where a team of specialists works in Sales, Marketing, and Product Engineering. The activities of our branch offices in Munich, Paris, Milton Keynes, Stockholm, Gothenburg, and our sales office in Milan are coordinated from Düsseldorf.

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