

# LENS CAP / FLAT WINDOW CAP for Optoelectronic Device

Lens caps and flat window caps, with lenses or glass windows joined to metal cans of various shapes, are made for optoelectronic packaging. Our cap products are evaluated as high quality products that can be applied to optical communication and the optical sensing field. We propose cap products with optimum design to meet customer requirements specifications. Also, we are focusing on developing new products in line with market trends such as miniaturization and higher output. We are working aggressively throughout the company to meet the increasingly diverse needs of our customers. Please feel free to contact us for both standard and custom-made products.



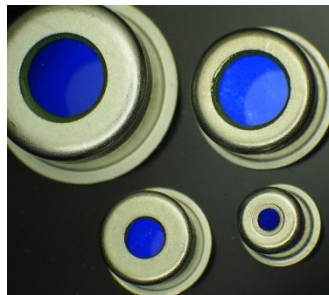
## Ball Lens Cap

The ball lens cap is a type of cap in which a ball lens is joined to a metal can made of such material as Kovar or 50NiFe with sealing glass. This product is used in hermetic packages for light-emitting elements. We mainly offer standard products with lens diameters of  $\phi 1.5$  and  $2.0$  for optical communications.



## Fused Lens Cap

The fused lens cap is a type of cap in which the lens part is directly welded to a metal can. Although the coupling efficiency is inferior to that of the ball lens cap, the outer diameter of the cap can be smaller than that of the ball lens cap because no sealing glass is required.



## Flat Window Cap

The flat window cap is a type of cap in which flat window material is joined to a metal can using sealing glass. In addition to borosilicate glass, various materials can be selected as a window by using appropriate sealing glass. For example, quartz, sapphire, Si, Ge is available.

## ● Features

High reliability  
High hermeticity

Compatibility:  $1 \times 10^{-9}$  Pa·m<sup>3</sup>/s or less  
Pass the TC(-55 $\leftrightarrow$ +125 °C) 2000cycs, HHT(85 °C 85 %) 2000h  
Environmentally friendly, such as lead-free

Various standard products

All types of caps of typical sizes are available as standard products such as TO-56, TO-46(TO-18), TO-52, and TO-38.  
※See the reverse side for details.

Customized Products

Our products are can be customized in size, materials, and optical coatings. We will propose the best optical design in accordance with every customer's requests.

## Contact Information

New Product Development Department  
4207 Ikonobecho, Tsuzukiku, Yokohama, 224-0053 Japan  
URL : <https://www.yama-ph.co.jp/en/contact/> (Inquiry form)

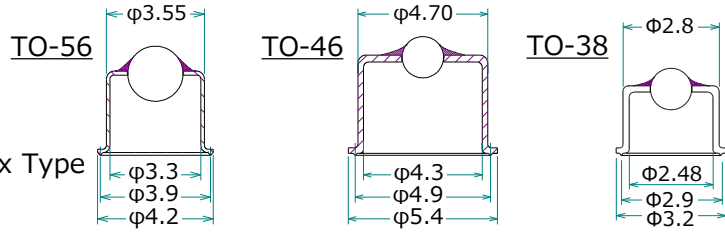
This products information is subject to changed or updated without notice.

# LENS CAP / FLAT WINDOW CAP for Optoelectronic Device

We offer a variety of TO-56 and TO-46, TO-52 sized caps as typical standards. In addition, we also accept custom support in response to customer requests, so please feel free to contact us.

## BALL LENS CAP

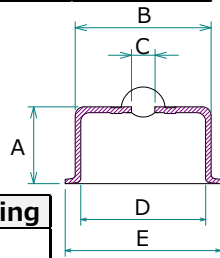
Shell material: 50NiFe  
Lens material: BK7, TAF3, High Index Type



Cap type	Glass type	Typical index			Lens Diameter	AR Coating	Pb Free
		nd	1310nm	1550nm			
TO-56	BK7	1.51680	1.50358	1.50065	φ1.5	○	○
	TAF3	1.80420	1.77961	1.77553	φ2.0		
	High Index	2.00069	1.95038	1.94511	φ1.5		
TO-46	BK7	1.51680	1.50358	1.50065	φ1.5	○	○
TO-38	TAF3	1.80420	1.77961	1.77553	φ1.2		
	High Index	2.00069	1.95038	1.94511	φ1.2		

## FUSED LENS CAP

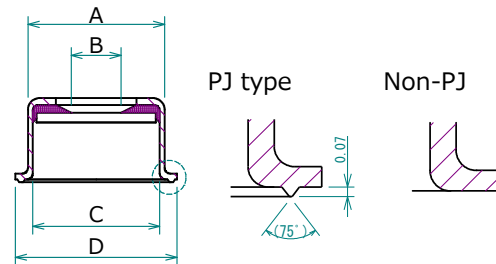
Shell material: Kovar  
Lens material: Borosilicate glass



Cap type	Glass type	A	B	C <sup>※effective diameter</sup>	D	E	AR Coating
TO-52	Borosilicate glass	2.64	φ4.66	φ0.8	φ4.28	φ5.35	○
		3.1					
		3.5					
Mini-Fused		3.16 <sup>※total height</sup>	φ1.96	φ0.8	φ1.72	φ2.41	

## FLAT WINDOW CAP

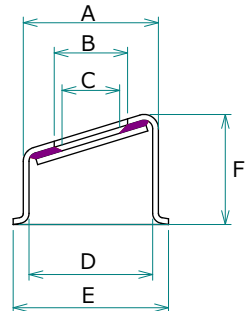
Shell material: Kovar, 50NiFe  
Window material: Borosilicate glass



Cap type	A	B <sup>※effective diameter</sup>	C	D	PJ type	Non-PJ	AR Coating	Pb Free
Mini type	φ2.50	φ0.6min	φ2.20	φ3.08	○	-	○	○
TO-56	φ3.55	φ1.0min	φ3.30	φ4.20	○	-		
TO-46	φ4.72	φ2.0min	φ4.35	φ5.35	○	○		
φ9mm	φ6.64	φ2.5min	φ6.20	φ7.27	○	-		
TO-5	φ8.25	φ4.5min	φ7.85	φ9.10	-	○		

## SLANTED WINDOW CAP

Shell material: 50NiFe  
Window material: Borosilicate glass



Cap type	A	B	C <sup>※effective diameter</sup>	D	E	F	AR coating	Pb Free
H3.35	φ4.73	φ2.5	φ1.8min	4.34	5.35	3.35max	○	○
H3.9						3.9max		

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