Window Size in Housings

Vishay Semiconductors

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In Figure 1 and 2, the minimum window size in relation to the distance between the window and the transceiver is described.

Generally speaking, a 10 % transmission loss should be accounted for in the design calculations so that output power and input sensitivity requirements are met for the system design. The external filter should be placed squarely against the transceiver otherwise reflection may cause emitter power loss or a decrease in receiver sensitivity in the system.

Optically transparent window materials are available from different sources, e.g. Bayer, GE, Rohm & Haas (see "Source for Accessories").

The optical window must be a minimum size of **d1** x **d2** rectangular or elliptical so as not to reduce the IrDA performance.

The following expressions apply to figures 1 to 4.

$d1 = w + 2x = w + 0.54a$

$d2 = h + 2x = h + 0.54a$

where $x = a \tan 15°$

Dimensions of **d1**, **d2**, and **a** are given in mm.

The dimensions for w and h for the different packages are as follows:

Device Package Type	w (mm)	h (mm)
Baby Face (TFDUx1xx) family	9.7	4.0
2.5 mm family (as TFDUx3xx)	8.5	2.5
1.9 mm family (as TFBSx7xx)	6.2	2.0
1.6 mm family (as TFBSx6xx)	7.0	1.7
Micro Face (as TFDUx2xx)	5.7	2.7

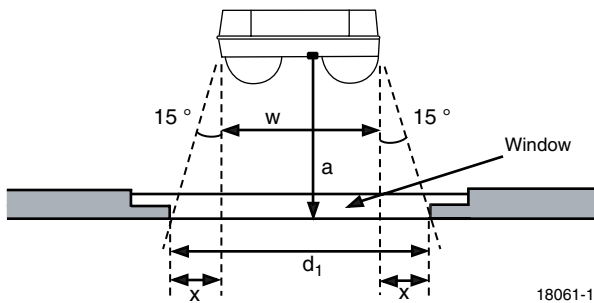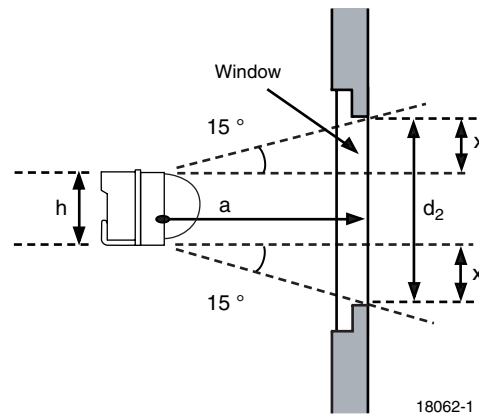Figure 2. View from the side, example Baby Face package
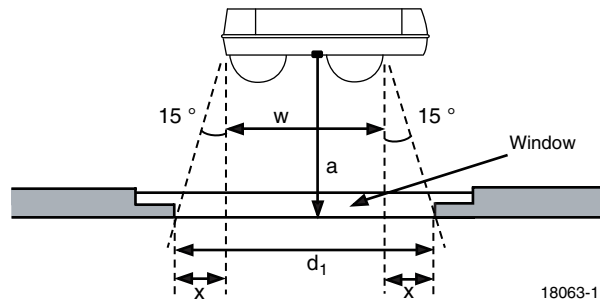
Figure 3. View from above, example Micro Face package

Figure 1. View from above, example Baby Face package

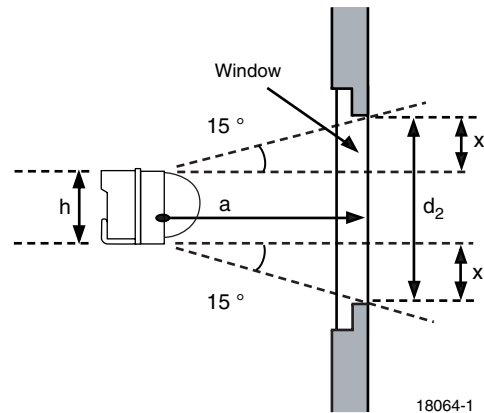Figure 4. View from the side, example Micro Face package

Recessed transceiver is recommended to shield against ambient (sun)light

Recessed window avoiding scratches

±15°

Avoid vignettation but limit the reception angle
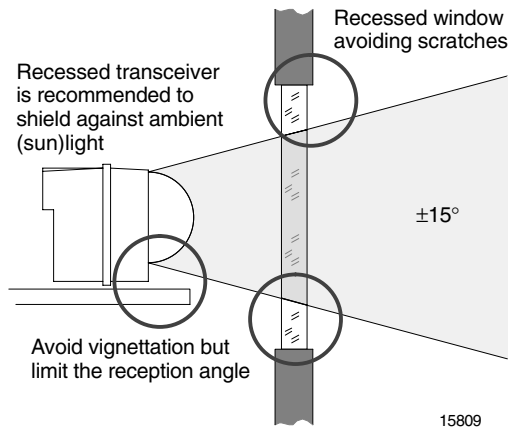
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Figure 5.

Some recommendations to enhance robustness of your design:

- Do not make the window larger than needed, otherwise you will unnecessarily increase the influence of ambient (sun) light.

- The larger the distance **a**, the better the shielding against the ambient light.

- The outer window surface may be recessed against the surrounding case material to protect the window from scratches, abrasion, dust, etc.
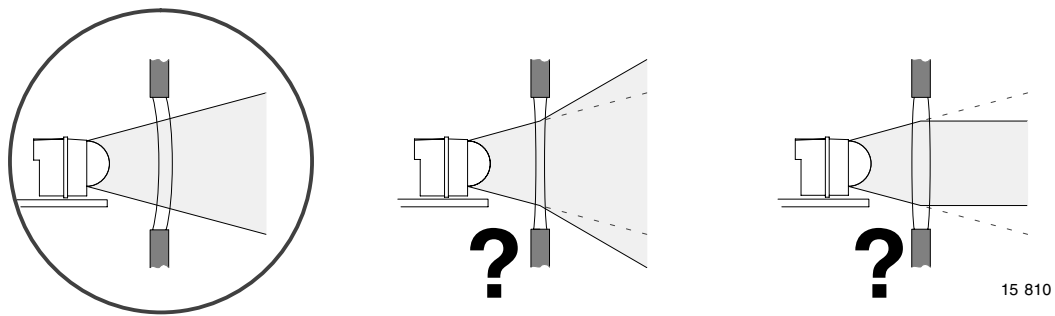

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Figure 6. Avoid an unintentional lens effect of your window