

Belogog Package Window Size in Front of the IR Receiver Module

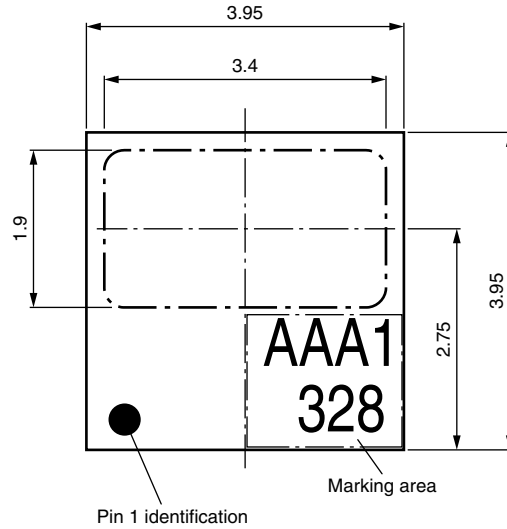


Fig. 1

The window in front of the receiver should be sized in order to optimize the required viewing angle. A formula to calculate the optimal window size, given the required viewing angle, is presented below.

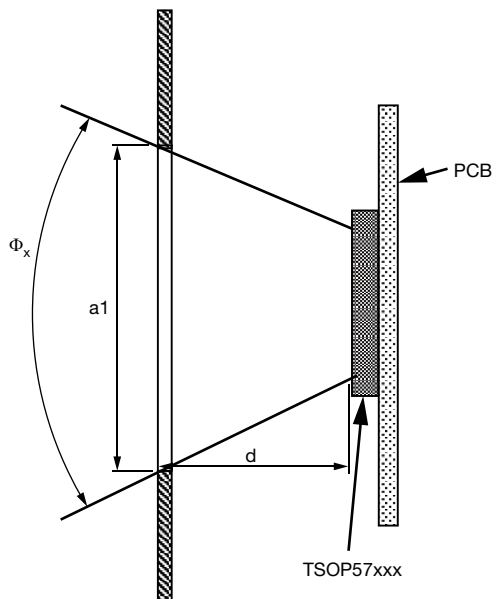


Fig. 2

a1: horizontal window size

d: distance between top of the lens and the window

Φ_x: required total viewing angle. If the required viewing angle is ± 50°, Φ_x would be 100°

The minimum window width is:

$$a1 = 3.4 \text{ mm} + 2d \tan\left(\frac{\Phi_x}{2}\right)$$

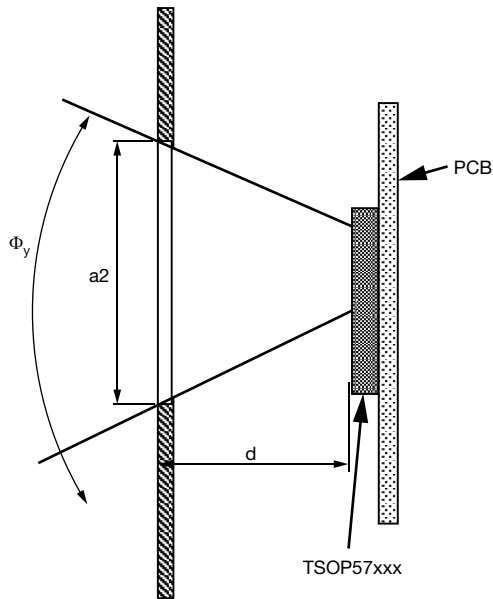


Fig. 3

a2: horizontal window size

d: distance between top of the lens and the window

Φ_y : required total viewing angle. If the required viewing angle is $\pm 50^\circ$, Φ_y would be 100°

The minimum window width is:

$$a2 = 1.9 \text{ mm} + 2d \tan\left(\frac{\Phi_y}{2}\right)$$

Example:

The horizontal or vertical receiving angle should be $\pm 60^\circ$, the distance between window and IR receiver is 3 mm. In that case the minimum window size should be: 13.78 mm x 12.28 mm

Calculation:

$$a1 = 3.4 \text{ mm} + 2 \times 3 \text{ mm} \times 1.73 = 13.78 \text{ mm}$$

$$a2 = 1.9 \text{ mm} + 2 \times 3 \text{ mm} \times 1.73 = 12.28 \text{ mm}$$