

## OmniVision Packaging Specifications

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1.0	04/02/02	Release to Marketing
1.1	10/09/02	Minor corrections
1.2	02/03/03	Add backend chip package specifications and minor corrections

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# 1 General Description

This document defines and describes the package specifications and dimensions for OmniVision Technologies CAMERACHIPS™.

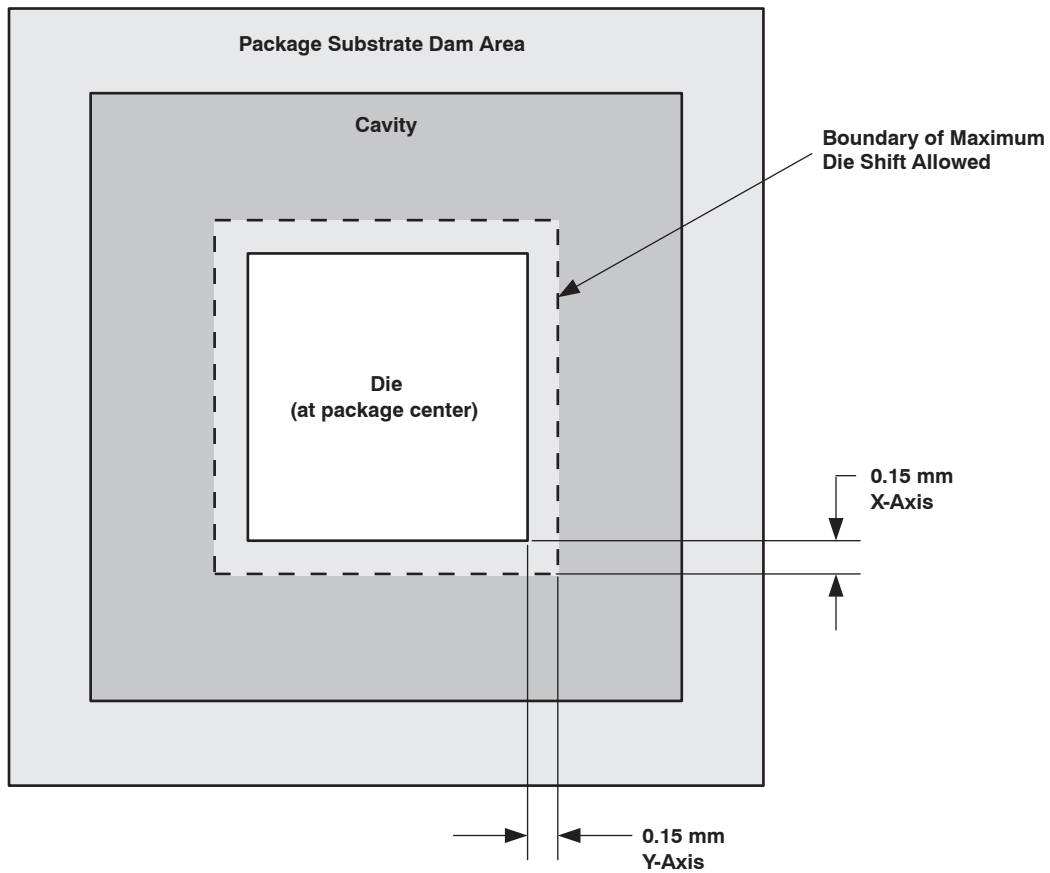
## 2 Die Position

### 2.1 Die Shift Specification

Figure 2-1. illustrates the CameraChip die shift tolerances which are as follows:

- X-axis:  $\pm 0.15$  mm (6.0 mils) maximum
- Y-axis:  $\pm 0.15$  mm (6.0 mils) maximum

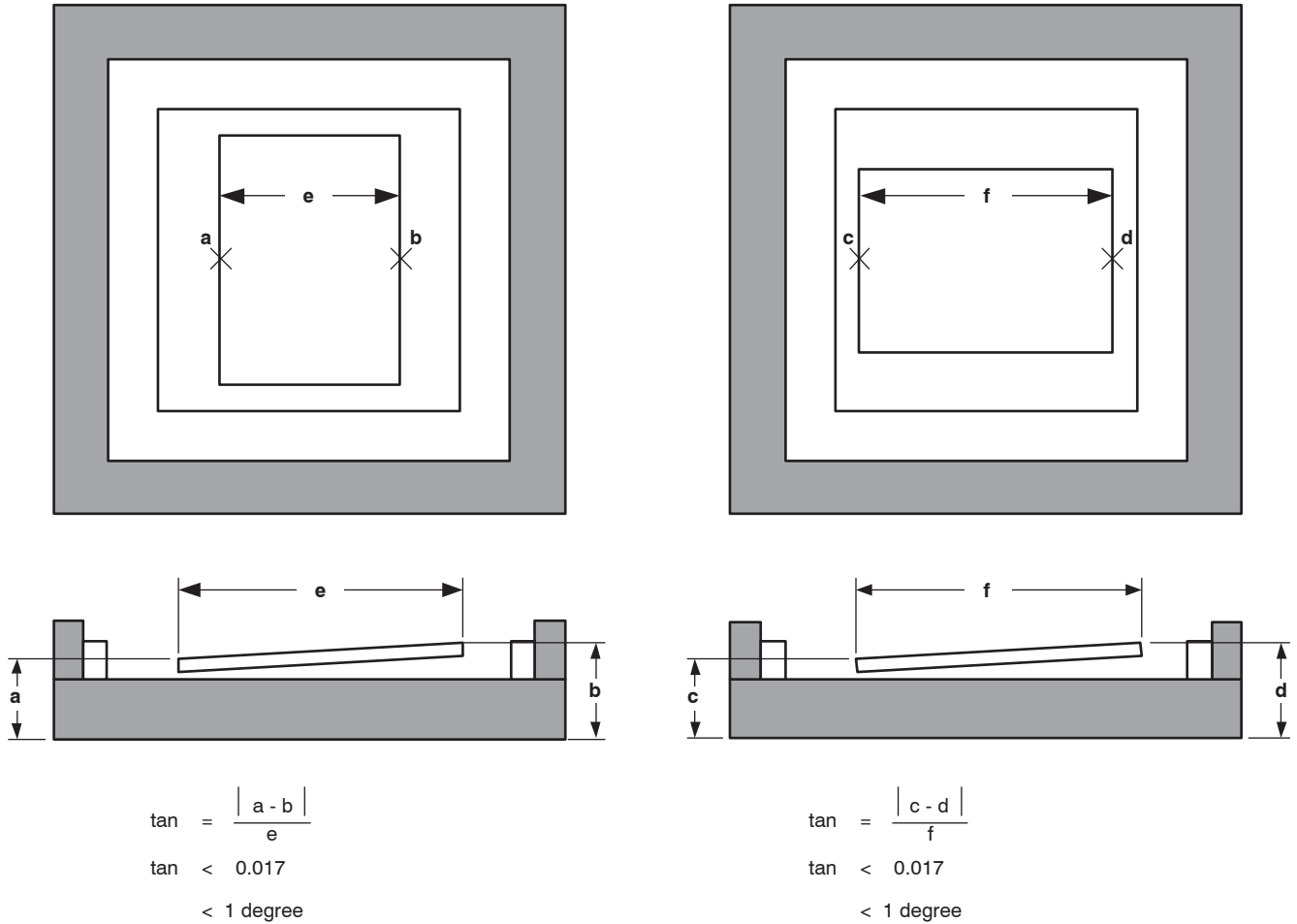
Figure 2-1. Die Shift Tolerances



## 2.2 Die Tilt Specification

Figure 2-2. illustrates the OmniVision CAMERACHIP die tilt tolerances. The tilt angle ( $\theta$ ) must be less than 1 degree.

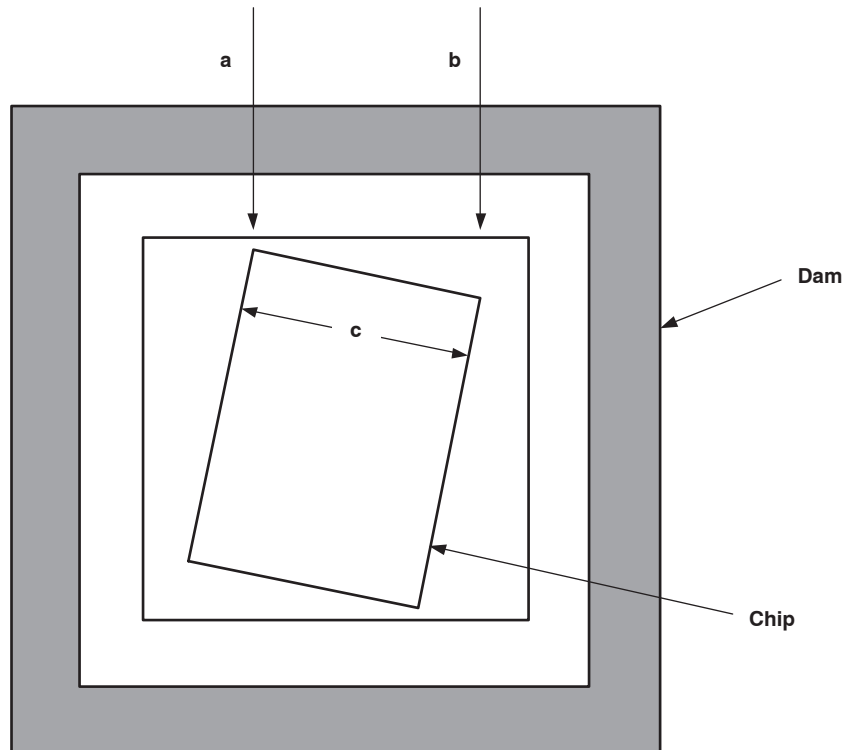
Figure 2-2. Die Tilt Tolerances



## 2.3 Die Rotation Specification

Figure 2-3. illustrates the OmniVision CAMERACHIP die rotation tolerances. The rotation angle ( $\theta$ ) must be less than 3 degrees.

**Figure 2-3. Die Rotation Tolerances**



$$\tan \theta = \frac{|a - b|}{c}$$
$$\tan \theta < 0.035$$
$$\theta < 3 \text{ degrees}$$

### 3 CameraChip Package Specification

#### 3.1 24-Pin CLCC Ceramic Package Specification

Figure 3-1. 24-Pin CLCC Ceramic Package Specifications

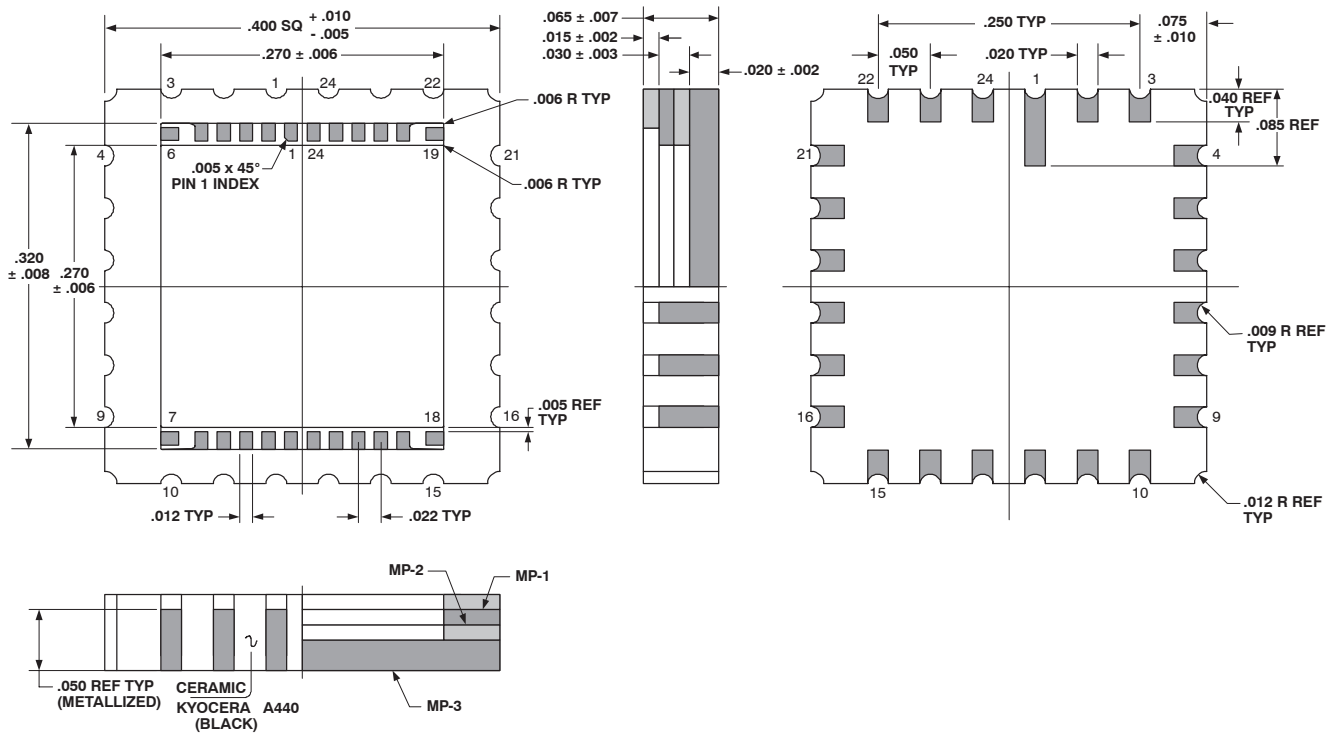


Table 3-1. 24-Pin CLCC Ceramic Package Dimensions

Dimensions	Millimeters (mm)	Inches (in.)
Package Size	10.16 + 0.25 / -0.13 SQ	.400 +.01 / -.005 SQ
Package Height	2.24 ± 0.28	.088 ± .011
Substrate Height	0.51 ± 0.05	.020 ± .002
Cavity Size	6.99 ± 0.15 SQ	.275 ± .006 SQ
Castellation Height	1.14 ± 0.13	.045 ± .005
Pin #1 Pad Size	0.51 x 2.16	.020 x .085
Pad Size	0.51 x 1.02	.020 x .04
Pad Pitch	1.27 ± 0.10	.050 ± .004
Package Edge to First Lead Center	1.91 ± 0.25	.075 ± .01
End-to-End Pad Center-Center	6.35 ± 0.13	.250 ± .005
Glass Size	9.50 ± 0.10 SQ	.374 ± .004 SQ
Glass Height	0.55 ± 0.05	.022 ± .002



### 3.2 28-Pin CLCC Ceramic Package Specification

Figure 3-2. 28-Pin CLCC Ceramic Package Specifications

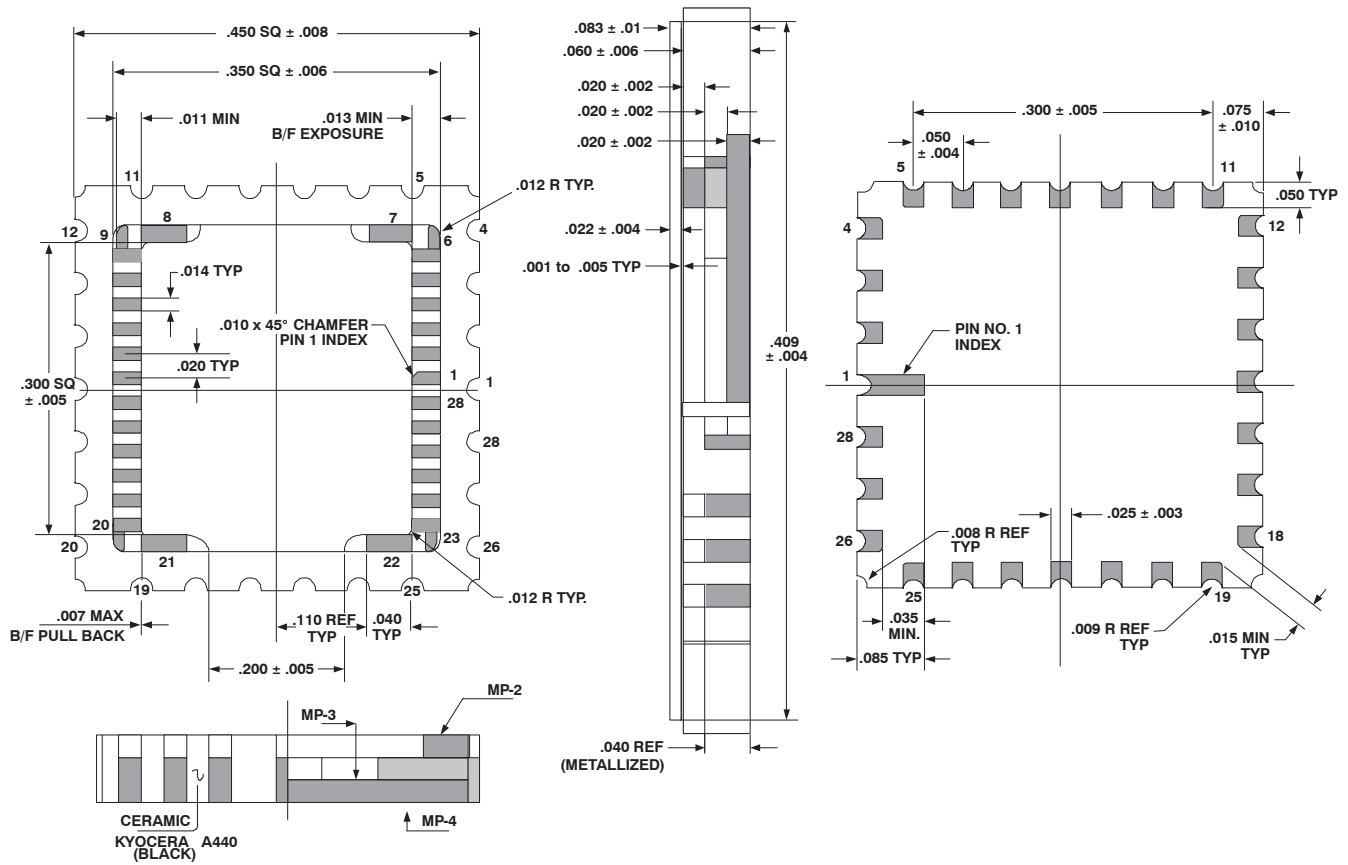


Table 3-2. 28-Pin CLCC Ceramic Package Dimensions

Dimensions	Millimeters (mm)	Inches (in.)
Package Size	11.43 ± 0.20 SQ	.450 ± .008 SQ
Package Height	2.11 ± 0.25	.083 ± .01
Substrate Height	0.51 ± 0.05	.020 ± .002
Cavity Size	7.62 ± 0.13 SQ	.300 ± .005 SQ
Castellation Height	1.02 ± 0.1	.040 ± .004
Pin #1 Pad Size	0.64 x 2.16	.025 x .085
Pad Size	0.64 x 1.27	.025 x .050
Pad Pitch	1.27 ± 0.10	.050 ± .004
Package Edge to First Lead Center	1.91 ± 0.25	.075 ± .010
End-to-End Pad Center-Center	7.62 ± 0.13	.300 ± .005
Glass Size	10.41 ± 0.10 SQ	.409 ± .004 SQ
Glass Height	0.55 ± 0.05	.022 ± .002

### 3.3 28-Pin PLCC Plastic Package Specification

Figure 3-3. 28-Pin PLCC Plastic Package Specifications

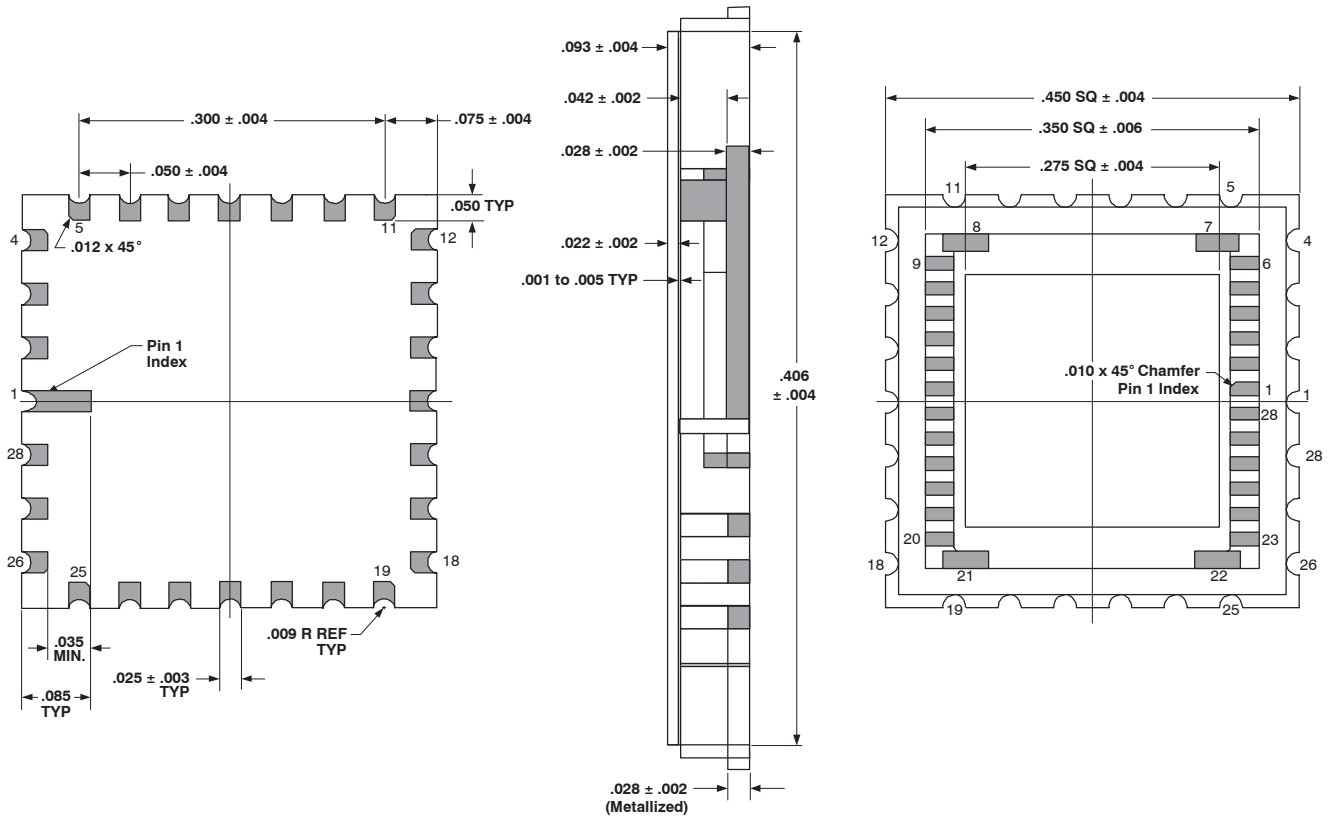


Table 3-3. 28-Pin PLCC Plastic Package Dimensions

Dimensions	Millimeters (mm)	Inches (in.)
Package Size	11.43 ± 0.10 SQ	.450 ± .004 SQ
Package Height	2.35 ± 0.1	.093 ± .004
Substrate Height	0.70 ± 0.05	.028 ± .002
Cavity Size	7.00 ± 0.10 SQ	.275 ± .004 SQ
Castellation Height	1.07 ± 0.05	.042 ± .002
Pin #1 Pad Size	0.64 x 2.16	.025 x .085
Pad Size	0.64 x 1.27	.025 x .050
Pad Pitch	1.27 ± 0.10	.050 ± .004
Package Edge to First Lead Center	1.90 ± 0.10	.075 ± .004
End-to-End Pad Center-Center	7.62 ± 0.10	.300 ± .004
Glass Size	10.30 ± 0.10 SQ	.406 ± .004 SQ
Glass Height	0.55 ± 0.05	.022 ± .002

### 3.4 48-Pin CLCC Ceramic Package Specification

Figure 3-4. 48-Pin CLCC Ceramic Package Specifications

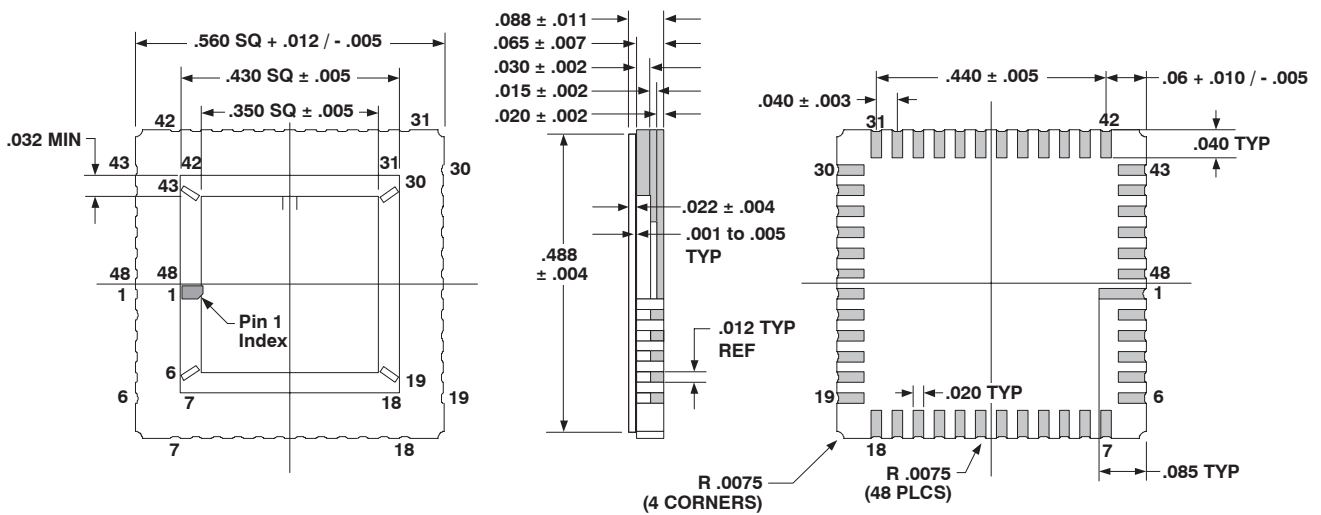


Table 3-4. 48-Pin CLCC Ceramic Package Dimensions

Dimensions	Millimeters (mm)	Inches (in.)
Package Size	$14.22 + 0.30 / - 0.13 \text{ SQ}$	$.560 + .012 / - .005 \text{ SQ}$
Package Height	$2.23 \pm 0.28$	$.088 \pm .011$
Substrate Height	$0.51 \pm 0.05$	$.020 \pm .002$
Cavity Size	$8.89 \pm 0.13 \text{ SQ}$	$.350 \pm .005 \text{ SQ}$
Castellation Height	$1.14 \pm 0.13$	$.045 \pm .005$
Pin #1 Pad Size	$0.51 \times 2.16$	$.020 \times .085$
Pad Size	$0.51 \times 1.02$	$.020 \times .040$
Pad Pitch	$1.02 \pm 0.08$	$.040 \pm .003$
Package Edge to First Lead Center	$1.524 + 0.25 / - 0.13$	$.06 + .010 / - .005$
End-to-End Pad Center-Center	$11.18 \pm 0.13$	$.440 \pm .005$
Glass Size	$12.40 \pm 0.10 \text{ SQ} / 13.00 \pm 0.10 \text{ SQ}$	$.488 \pm .004 \text{ SQ} / .512 \pm .004 \text{ SQ}$
Glass Height	$0.55 \pm 0.05$	$.022 \pm .002$

### 3.5 48-Pin PLCC Plastic Package Specification

Figure 3-5. 48-Pin PLCC Plastic Package Specifications

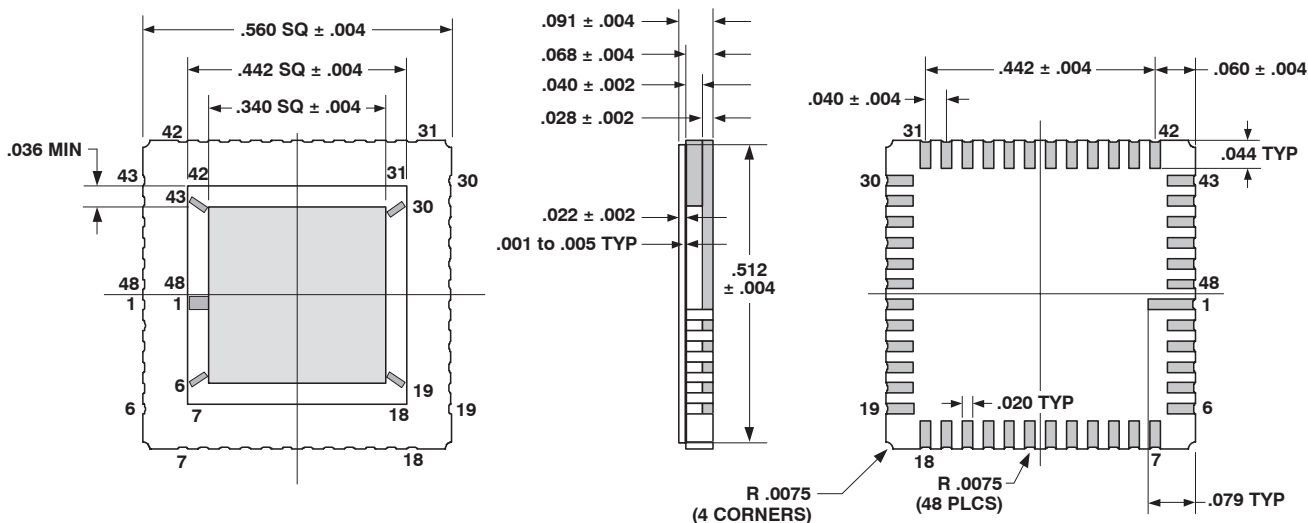


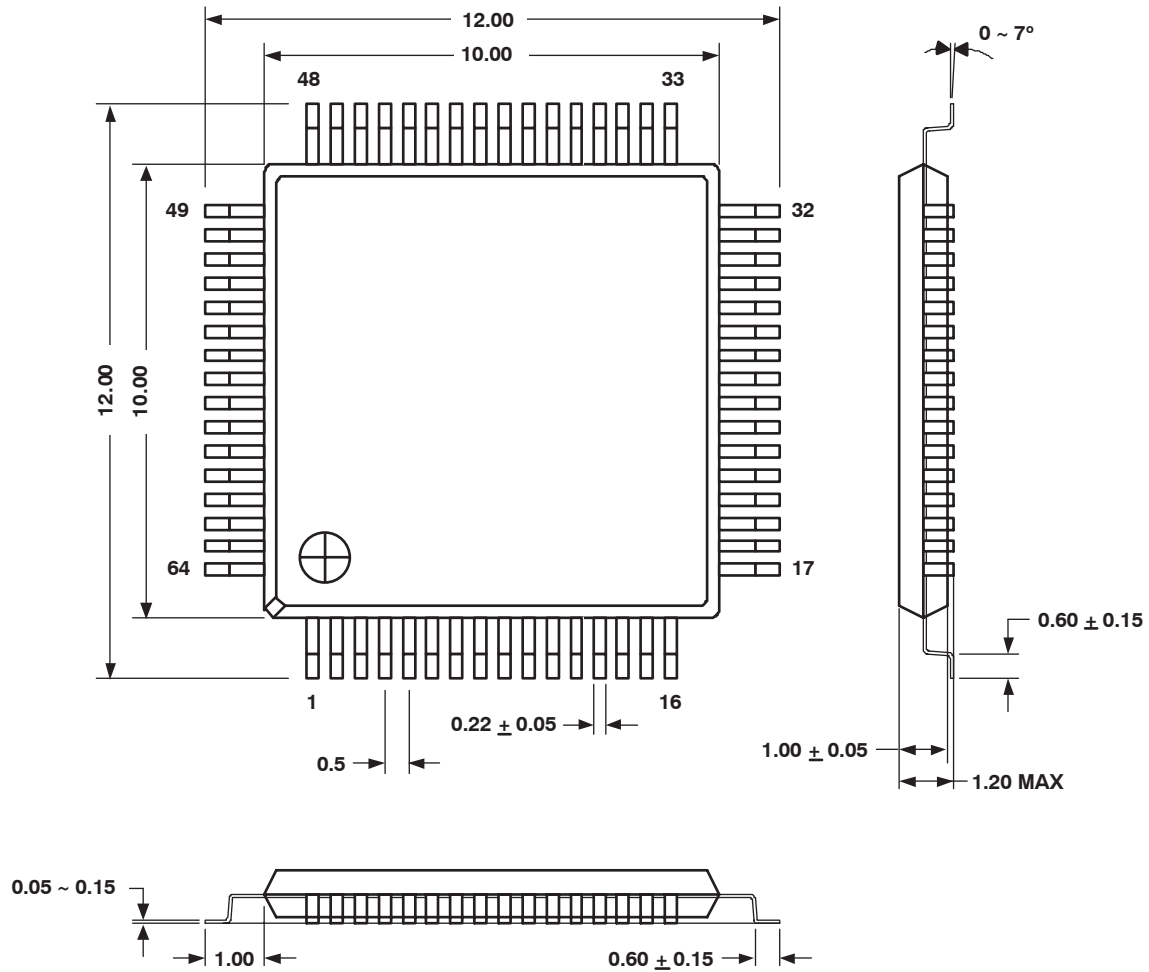
Table 3-5. 48-Pin PLCC Plastic Package Dimensions

Dimensions	Millimeters (mm)	Inches (in.)
Package Size	$14.22 \pm 0.10 \text{ SQ}$	$.560 \pm .004 \text{ SQ}$
Package Height	$2.30 \pm 0.10$	$.091 \pm .004$
Substrate Height	$0.70 \pm 0.05$	$.028 \pm .002$
Cavity Size	$8.60 \pm 0.10 \text{ SQ}$	$.340 \pm .004 \text{ SQ}$
Castellation Height	$1.02 \pm 0.05$	$.040 \pm .002$
Pin #1 Pad Size	$0.51 \times 2.00$	$.020 \times .079$
Pad Size	$0.51 \times 1.11$	$.020 \times .044$
Pad Pitch	$1.02 \pm 0.10$	$.040 \pm .004$
Package Edge to First Lead Center	$1.50 \pm 0.10$	$.060 \pm .004$
End-to-End Pad Center-Center	$11.22 \pm 0.10$	$.442 \pm .004$
Glass Size	$13.00 \pm 0.10 \text{ SQ}$	$.512 \pm .004 \text{ SQ}$
Glass Height	$0.55 \pm 0.05$	$.022 \pm .002$

## 4 Backend Chip Package Specifications

### 4.1 64-Pin TQFP Package Specification

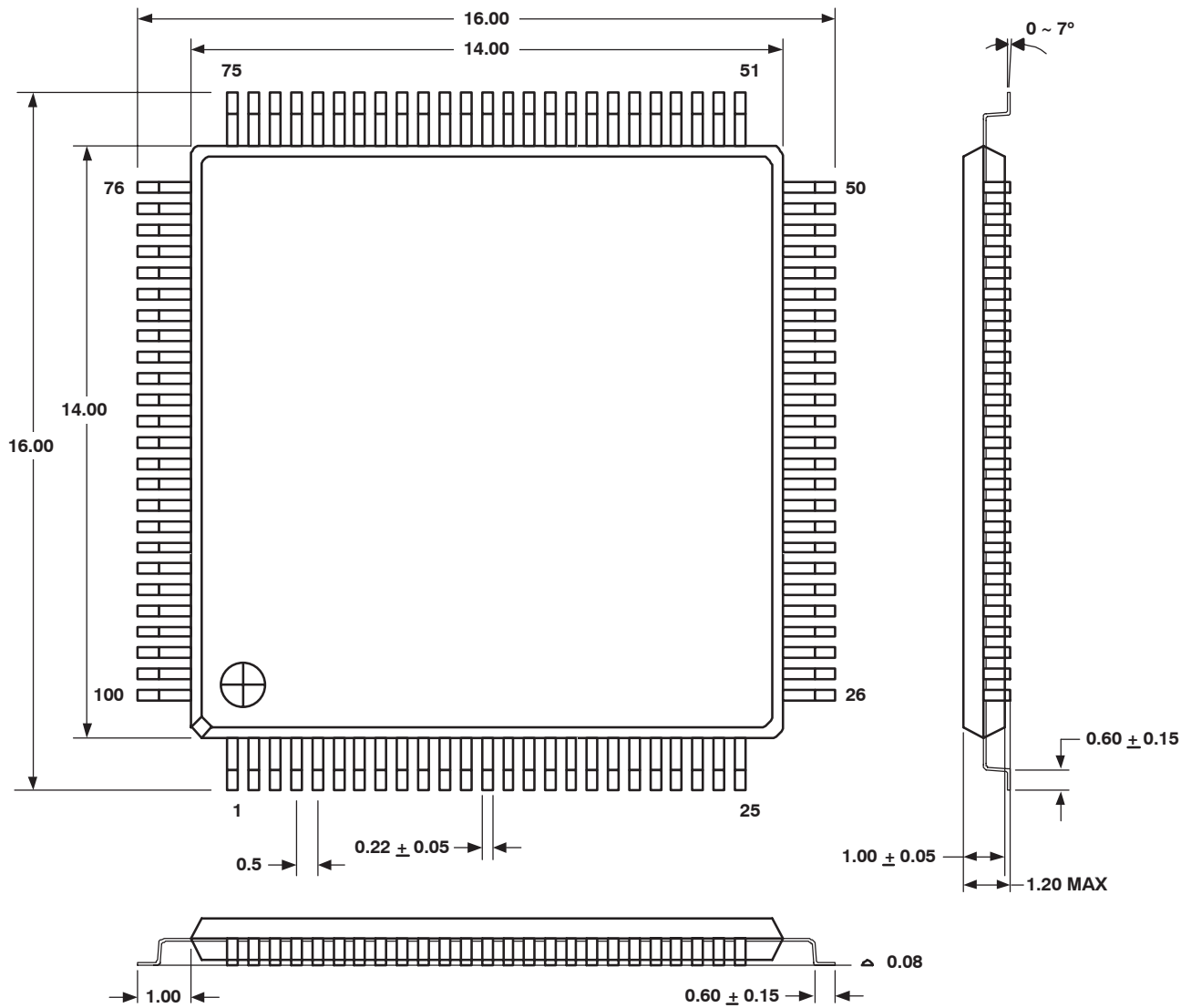
Figure 4-1. 64-Pin TQFP Package Specifications



NOTE: All dimensions are in mm

## 4.2 100-Pin TQFP Package Specification

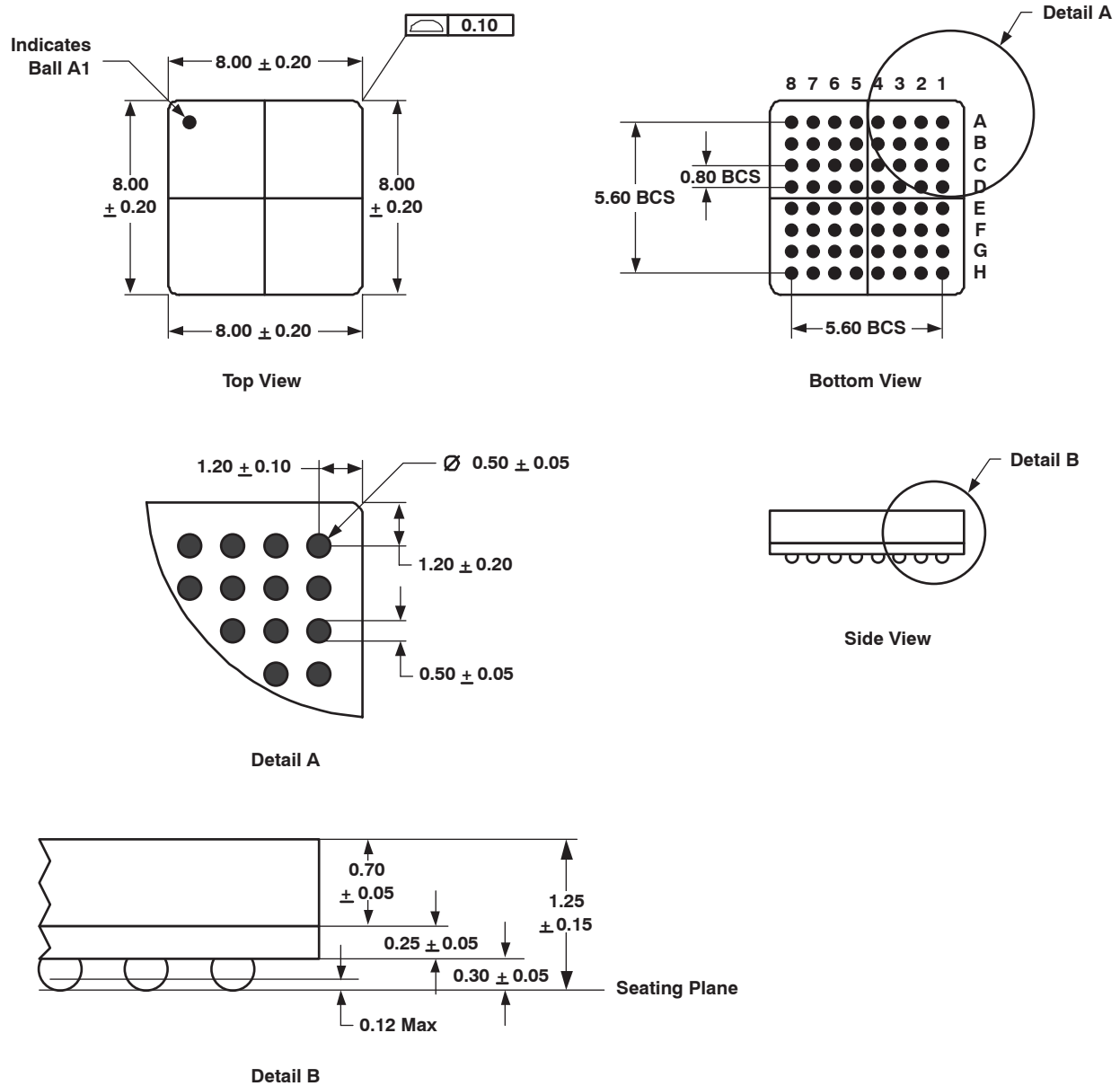
Figure 4-2. 100-Pin TQFP Package Specifications



NOTE: All dimensions are in mm

### 4.3 64-Pin BGA Package Specification

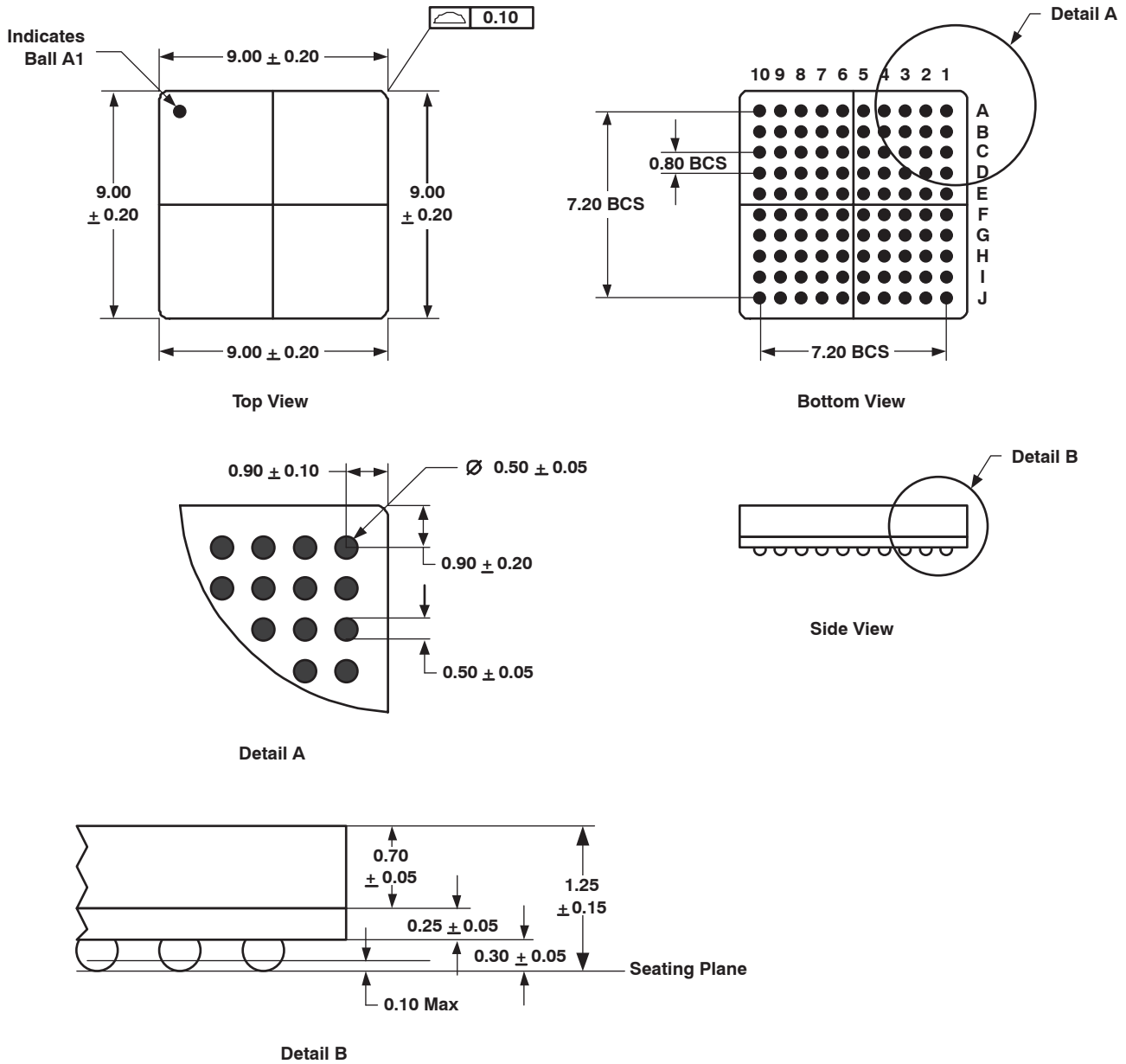
Figure 4-3. 64-Pin BGA Package Specifications



NOTE: All dimensions are in mm

### 4.4 100-Pin BGA Package Specification

Figure 4-4. 100-Pin BGA Package Specifications



NOTE: All dimensions are in mm