Ceramic Leadless Chip Carrier (CLCC) and Ceramic Land Grid Array (CLGA) for Image Sensor are ceramic based cavity packages that offer superior optical and reliability performance in camera applications.

UTAC’s CLCC can provide a small footprint, thin profile in a robust ceramic packaging that makes them suitable for both indoor and outdoor camera applications including: medical, time of flight (TOF) sensors, gaming, automotive and mobile. UTAC CLCC ceramic packages are processed in singulated form which allow short assembly lead times. Standard I/O counts range from 38 to 42 pins.

UTAC’s CLGA support larger die and package sizes with higher pixel density for camera including: broadcast, security, DSLR and others. Standard I/O counts range from 74 to 198 pins.

These ceramic based packaging are suitable for both CCD and CMOS type Image Sensors.

UTAC collaborates with ceramic substrate suppliers to produce cost effective ceramic cavity designs to reduce layers and achieve thin package heights while providing robust and high reliability performance.

Advantages
- Ceramic packages have low moisture content.
- Higher reliability due to low CTE of ceramic materials thus able to withstand higher reflow temperature.
- Robust high strength cavity constructions are ideal for stress sensitive devices and high shock environments.
- Ceramic cavity packages and singulated clean room assembly flows provide improved image quality through reduction in foreign materials.

Typical Applications
- DSLR
- Broadcasting camera
- Security and Surveillance camera
- Gaming
- TOF Sensors
- Medical

Features
- Body sizes up to 21.9 x 27.0 mm
- Glass lid thickness from 0.3, 0.5, 0.7 mm
- Pin count up to 198 I/O
- 0.65, 0.80 and 1.00 mm pitch available
- Package thickness down to 1.0mm
- Can be customized per customer requirements
Reliability

- Preconditioning (EIAJ ED-4701/300-1) Rank D equivalent to (J-STD-20D.1) MSL level between 3 to 2A.
- Temp Cycle (JESD22-A104, Condition C, -65 to 150deg C)
- High Temp Storage (JESD22-103 & A113, 150deg C)
- Temp Humidity Storage (85degC / 85%RH)

Standard Materials

Package: Ceramic
Lead material: Tungsten Metallization
External lead surface finish: Ni/Au plating
Die attach: Non-conductive paste
Wire: 99.99% Au wire
Glass: Borosilicate
Glue: UV Glue
Marking: Laser
Packaging: Protective Seal (in Polyimide)

Moisture Sensitivity Level

UTAC’s CLCC and CLGA package is capable of EIAJ Rank D which is equivalent to Jedic Standard MSL level between 3 to 2A on body sizes up to 21.9 x 27.0mm. EIAJ Rank D packages have limited floor life of up 2 weeks at environmental condition not exceeding 30degC and 70%RH.

Image Sensor Body Size and Pin count Options

<table>
<thead>
<tr>
<th>Package</th>
<th>CLGA198</th>
<th>CLGA104</th>
<th>CLGA102</th>
<th>CLGA074</th>
<th>CLCC046</th>
<th>CLCC042</th>
<th>CLCC040</th>
<th>CLCC038</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Size (mm)</td>
<td>21.9x27.0</td>
<td>12x14.8</td>
<td>11.3x13.3</td>
<td>10.2x11.6</td>
<td>8.3x9.4</td>
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<td>10.0x12.0</td>
<td>8.3x9.4</td>
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<tr>
<td>Pin count</td>
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<td>104</td>
<td>102</td>
<td>74</td>
<td>46</td>
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<tr>
<td>Substrate Thickness (mm)</td>
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<td>1.3</td>
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<td>Glass Thickness (mm)</td>
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<tr>
<td>Package Height (mm)</td>
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<td>Seal width (mm)</td>
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<td>Max Chip size (mm)</td>
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<td>7.9x9.1</td>
<td>7.4x8.3</td>
<td>6.8x7.8</td>
<td>5.9x7.6</td>
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<tr>
<td>D0 (Image to bottom PKG)</td>
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<td>0.9mm</td>
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<td>0.8mm</td>
<td>0.6mm</td>
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<tr>
<td>D1 (Image to glass top)</td>
<td>1.4mm</td>
<td>0.9mm</td>
<td>0.9mm</td>
<td>0.7mm</td>
<td>0.7mm</td>
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<td>0.9mm</td>
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<td>Wire type</td>
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