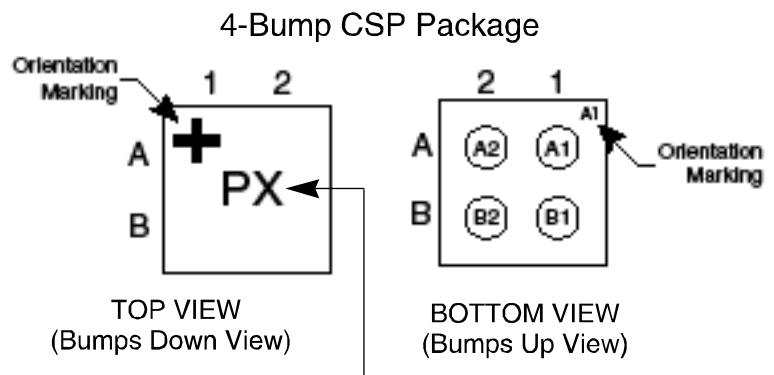
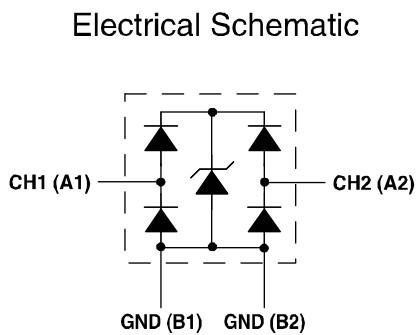




Product Description

The 6100 is a 4-bump very low capacitance ESD protection device in 0.4mm CSP form factor. It is fully compliant with IEC 61000-4-2. The CM6100 is RoHS II compliant.

Electrical Schematic / Pin Description



| WHERE X = | | |
|----------------|----------------|----------------|
| A = ww01, ww02 | J = ww19, ww20 | S = ww37, ww38 |
| B = ww03, ww04 | K = ww21, ww22 | T = ww39, ww40 |
| C = ww05, ww06 | L = ww23, ww24 | U = ww41, ww42 |
| D = ww06, ww08 | M = ww25, ww26 | V = ww43, ww44 |
| E = ww08, ww10 | N = ww27, ww28 | W = ww45, ww46 |
| F = ww11, ww12 | O = ww29, ww30 | X = ww47, ww48 |
| G = ww13, ww14 | P = ww31, ww32 | Y = ww49, ww50 |
| H = ww15, ww16 | Q = ww33, ww34 | Z = ww51, ww52 |
| I = ww17, ww18 | R = ww35, ww36 | |

Notes:

1) These drawings are not to scale.

Pin Information

| PIN DESCRIPTIONS | | | | |
|------------------|---------------|--|-----|---------------|
| PIN | DESCRIPTION | | PIN | DESCRIPTION |
| A1 | ESD Channel 1 | | B1 | Device Ground |
| A2 | ESD Channel 2 | | B2 | Device Ground |

Ordering Information

| PART NUMBERING INFORMATION | | | | |
|----------------------------|---------|------------|-----------------------------------|--------------|
| Bumps | Package | Variation | Ordering Part Number ¹ | Part Marking |
| 4 | CSP | CSP-SAC105 | CM6100 | P |

Note 1: Parts are shipped in Tape & Reel form unless otherwise specified.

Electrical Specifications and Conditions

| PARAMETERS AND OPERATING CONDITIONS | | |
|-------------------------------------|-------------|-------|
| PARAMETER | RATING | UNITS |
| Storage Temperature Range | -55 to +150 | °C |
| Operating Temperature Range | -40 to +85 | °C |

ELECTRICAL OPERATING CHARACTERISTICS (SEE NOTE 1)

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|-----------------|--|---|---------------------|--------------|------------|----------------------|
| V_{IN} | Input Operating Supply Voltage | | | 3.0 | 5.5 | V |
| V_B | Breakdown Voltage (Positive) | $I_F = 8\text{mA}$ | 6 | | | V |
| I_{LEAK} | Channel Leakage Current | $V_{IN} = 3\text{V}$ | | ± 0.1 | ± 0.30 | μA |
| C_{IN} | Channel Input Capacitance | At 1 MHz, $V_{IN}=0\text{V}$ | | | 1.5 | pF |
| ΔC_{IN} | Channel Input Capacitance Matching | At 1 MHz, $V_{IN}=0\text{V}$ | | 0.02 | | pF |
| V_{ESD} | ESD Protection Peak Discharge Voltage at any channel input a) Contact discharge per IEC 61000-4-2 standard b) Air discharge per IEC 61000-4-2 standard | Notes 2 | ± 8 ± 15 | | | kV kV |
| V_{CL} | Channel Clamp Voltage Positive Transients Negative Transients | $I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$ | | +9.8 -1.5 | | V V |
| R_{DYN} | Dynamic Resistance Positive Transients Negative Transients | $I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$ Any I/O pin to Ground | | 0.7 0.5 | | Ω Ω |

Note 1: All parameters specified at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Note 2: Standard IEC 61000-4-2 with $C_{Discharge} = 150\text{pF}$, $R_{Discharge} = 330\Omega$.

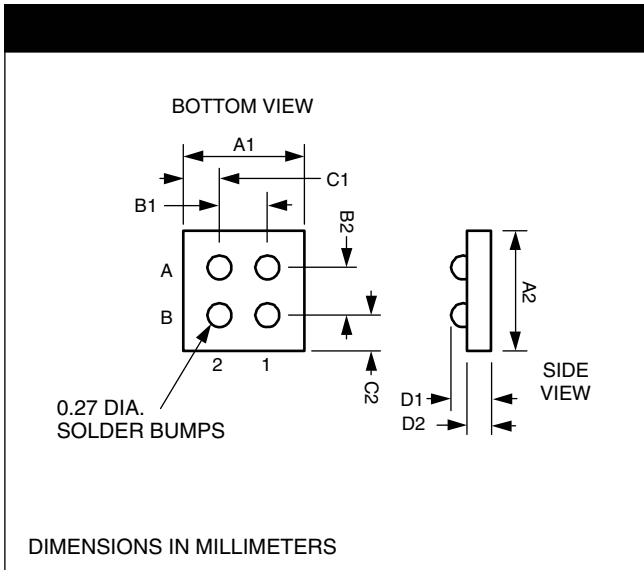
Mechanical Specification

CSP-4 Mechanical Specifications

The CM6100 is supplied in a 4 bump Chip Scale Package (CSP).

Controlling dimension: millimeters

| PACKAGE DIMENSIONS | | | | | | |
|--------------------|-------------|-------|-------|--------|--------|--------|
| Package | Custom CSP | | | | | |
| Bumps | 4 | | | | | |
| Dim | Millimeters | | | Inches | | |
| | Min | Nom | Max | Min | Nom | Max |
| A1 | 0.755 | 0.800 | 0.845 | 0.0297 | 0.0315 | 0.0333 |
| A2 | 0.755 | 0.800 | 0.845 | 0.0297 | 0.0315 | 0.0333 |
| B1 | 0.395 | 0.400 | 0.405 | 0.0156 | 0.0157 | 0.0159 |
| B2 | 0.395 | 0.400 | 0.405 | 0.0156 | 0.0157 | 0.0159 |
| C1 | 0.150 | 0.200 | 0.250 | 0.0059 | 0.0079 | 0.0098 |
| C2 | 0.150 | 0.200 | 0.250 | 0.0059 | 0.0079 | 0.0098 |
| D1 | 0.570 | 0.600 | 0.630 | 0.0224 | 0.0236 | 0.0248 |
| D2 | 0.394 | 0.406 | 0.418 | 0.0155 | 0.0160 | 0.0165 |



**Package Dimensions for
CM6100 Chip Scale Package**

Vertical Structure Specification*

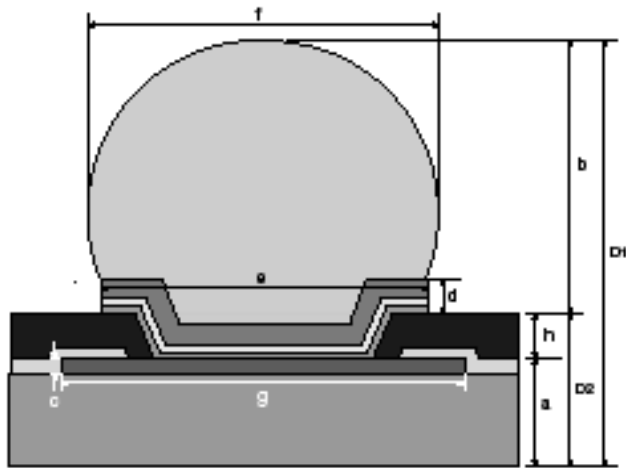


Figure 1. Sectional View

* Daisy Chain CM6000

Vertical Structure Dimensions (nominal)

| REF. | Parameter | Material | Dimension |
|------|--|--------------|-------------|
| a | Die Thickness | Silicon | 396 μ m |
| h | Repassivation | Polyimide | 10 μ m |
| d | UBM-(Ti/Cu) | Plated Cu | 5.0 μ m |
| | | Sputtered Cu | 0.4 μ m |
| | | Sputtered Ti | 0.1 μ m |
| e | UBM Wetting Area Diameter | | 240 μ m |
| b | Bump Standoff | | 194 μ m |
| f | Solder Bump Diameter after Bump Reflow | | 270 μ m |
| c | Metal Pad Height | AlSiCu | 1.5 μ m |
| g | Metal Pad Diameter | | 310 μ m |
| D2 | | | 0.406mm |
| D1 | Finished Thickness | | 0.600mm |

Mechanical Specification (cont'd)

CSP Tape and Reel Specifications

| PART NUMBER | CHIP SIZE (mm) | POCKET SIZE (mm) $B_0 \times A_0 \times K_0$ | TAPE WIDTH W | REEL DIA. | QTY PER REEL | P_0 | P_1 |
|-------------|------------------|---|-----------------|--------------|--------------------|-------|-------|
| CM6100 | 0.8 X 0.8 X 0.60 | 0.89 x 0.91 x 0.67 | 8mm | 178mm (7") | 5000 | 4mm | 4mm |

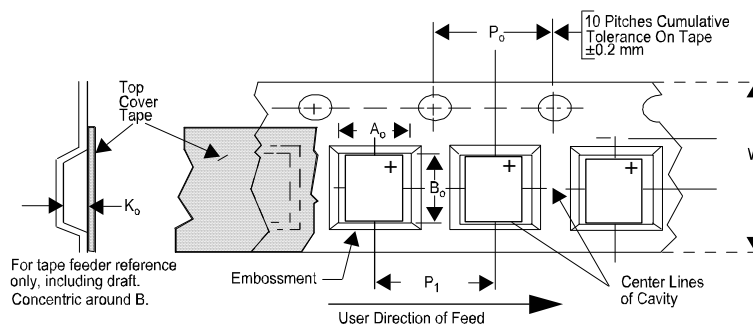


Figure 2. Tape and Reel Mechanical Data

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