

# CM1242-07CP

## 1-Channel Ultra Small 0201 Package ESD Protection Device in 0201

### Description

The CM1242-07CP is a 2-bump ESD protection device in 0201 form factor. It is fully compliant with IEC 61000-4-2. The CM1242-07CP is also RoHS II compliant and has a pure tin finish.

### Features

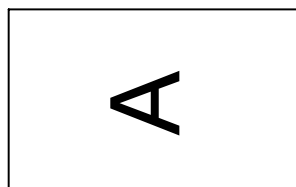
- Low Capacitance < 5.8 pF
- Low Clamping Voltage
- Small Body Outline Dimensions: 0.60 mm x 0.30 mm
- Low Body Height: 0.275 mm
- Stand-off Voltage:  $\pm 5.0$  V
- Low Dynamic Resistance: < 1.5  $\Omega$
- IEC61000-4-2 Level 4 ESD Protection
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

**Table 1. PIN DESCRIPTIONS**

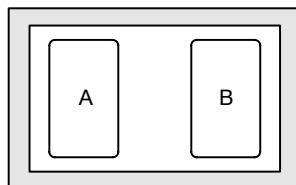
| Pin | Description       |
|-----|-------------------|
| A   | ESD Channel Pin 1 |
| B   | ESD Channel Pin 2 |

### PACKAGE / PINOUT DIAGRAMS

Top View  
(Bumps Down)



Bottom View  
(Bumps Up)



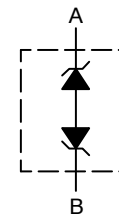
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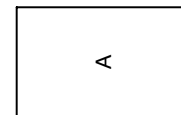


**WLCSP2  
CP SUFFIX  
CASE 567AV**

### BLOCK DIAGRAM



### MARKING DIAGRAM



A = Specific Device Code

### ORDERING INFORMATION

| Device      | Package   | Shipping           |
|-------------|-----------|--------------------|
| CM1242-07CP | (Pb-Free) | 10,000/Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

# CM1242-07CP

## SPECIFICATIONS

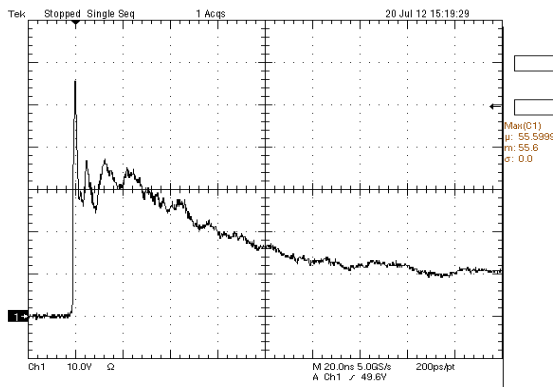
**Table 2. STANDARD OPERATING CONDITIONS**

| Parameter                   | Rating      | Units |
|-----------------------------|-------------|-------|
| Storage Temperature Range   | -55 to +150 | °C    |
| Operating Temperature Range | -40 to +85  | °C    |
| Maximum Input Voltage       | ±5.5        | V     |

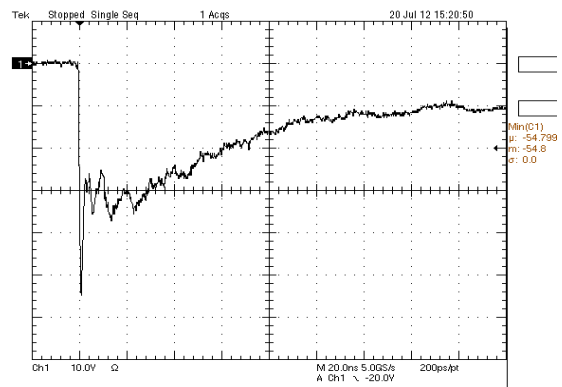
**Table 3. ELECTRICAL OPERATING CHARACTERISTICS** (Note 1)

| Symbol     | Parameter  | Conditions   | Min         | Typ          | Max         | Units |
|------------|--|--|-------------|--------------|-------------|-------|
| $V_B$      | Breakdown Voltage  | $I_F = +1.0 \text{ mA}$<br>$I_F = -1.0 \text{ mA}$ | 6.0<br>-9.0 | 7.6<br>-7.6  | 9.0<br>-6.0 | V     |
| $I_{LEAK}$ | Channel Leakage Current  | $V_{IN} = \pm 5.0 \text{ V}$                       |             | ±1.0         | ±100        | nA    |
| $C_{IN}$   | Channel Input Capacitance  | At 1 MHz, $V_{IN} = 0 \text{ V}$                   | 4.6         | 5.8          | 7.0         | pF    |
| $V_{ESD}$  | ESD Protection Peak Discharge Voltage at any channel input<br>a) Contact Discharge per IEC 61000-4-2 standard<br>b) Air Discharge per IEC 61000-4-2 standard | (Note 2)   | ±17<br>±17  |              |             | kV    |
| $V_{CL}$   | Channel Clamp Voltage<br>Positive Transients<br>Negative Transients  | $I_{PP} = 1 \text{ A}$ , $t_p = 8/20 \mu\text{s}$  |             | +9.8<br>-9.8 |             | V     |
| $R_{DYN}$  | Dynamic Resistance<br>Positive Transients<br>Negative Transients   | $I_{PP} = 1 \text{ A}$ , $t_p = 8/20 \mu\text{s}$  |             | 1.5<br>1.5   |             | Ω     |

- $T_A = 25^\circ\text{C}$  unless otherwise specified.
- Standard IEC 61000-4-2 with  $C_{Discharge} = 150 \text{ pF}$ ,  $R_{Discharge} = 330 \Omega$ .



**Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2**



**Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2**

# CM1242-07CP

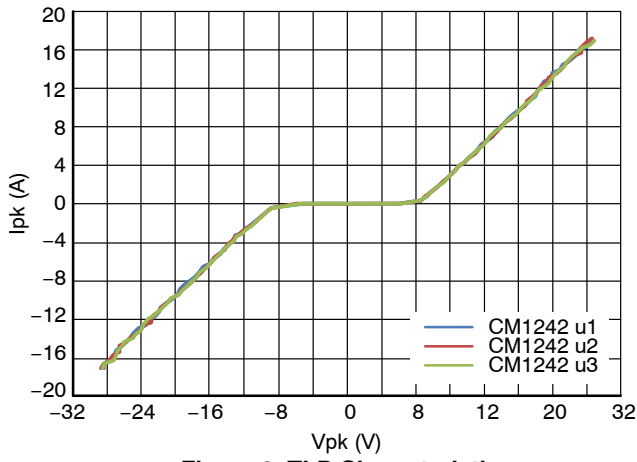


Figure 3. TLP Characteristics

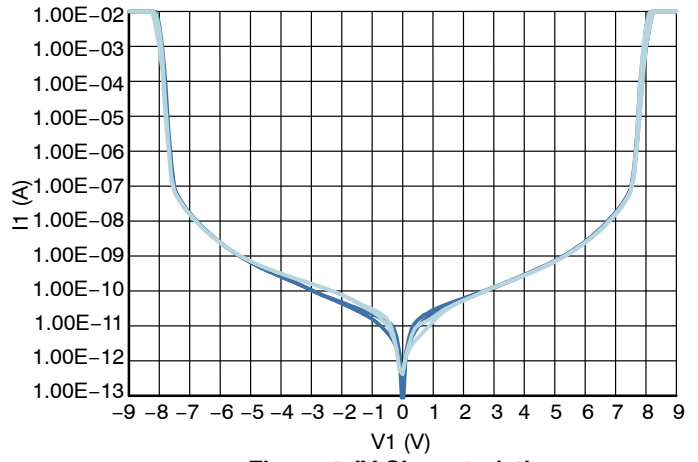


Figure 4. IV Characteristics

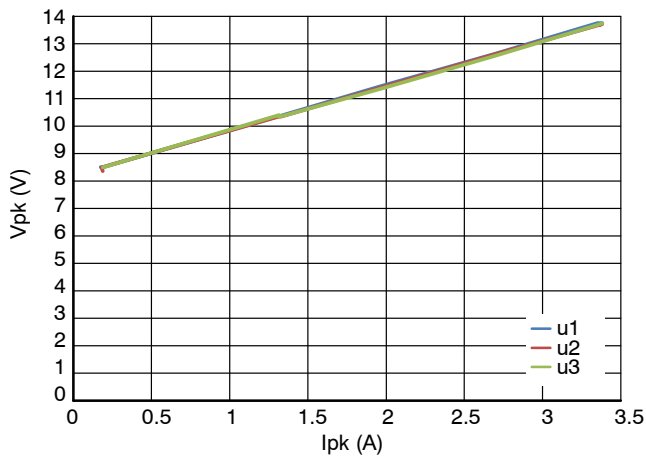


Figure 5. 80 x 20 Surge Characteristics

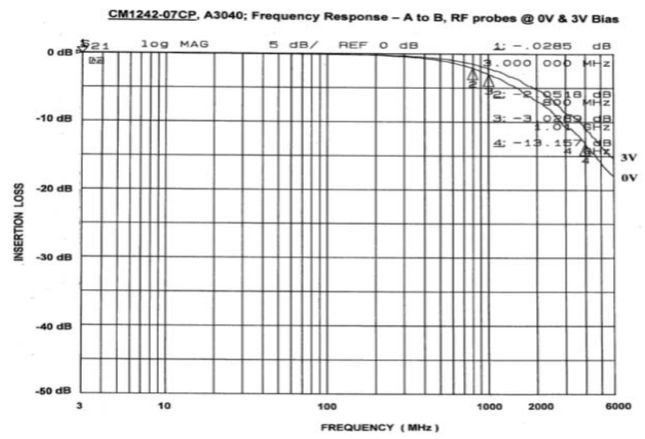


Figure 6. Typical Insertion Loss (S21)

# CM1242-07CP

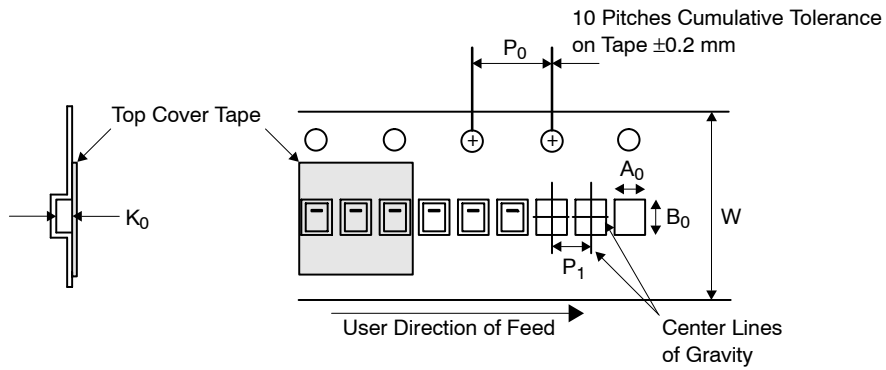
## MECHANICAL SPECIFICATIONS

### CM1242-07CP Mechanical Specifications

The CM1242-07CP is supplied in a 2-bump custom package. Dimensions are presented below.

**Table 4. TAPE AND REEL SPECIFICATIONS**

| Part Number | Chip Size (mm)      | Pocket Size (mm)<br>$B_0 \times A_0 \times K_0$ | Tape Width<br>W | Reel Diameter | Qty per Reel | $P_0$ | $P_1$ |
|-------------|---------------------|---|-----------------|---------------|--------------|-------|-------|
| CM1242-07CP | 0.60 X 0.30 X 0.275 | 0.67 X 0.37 X 0.35                              | 8 mm            | 178 mm (7")   | 10,000       | 4 mm  | 2 mm  |



**Figure 7. Tape and Reel Mechanical Data**

### CM1242-07CP Board Level Application.

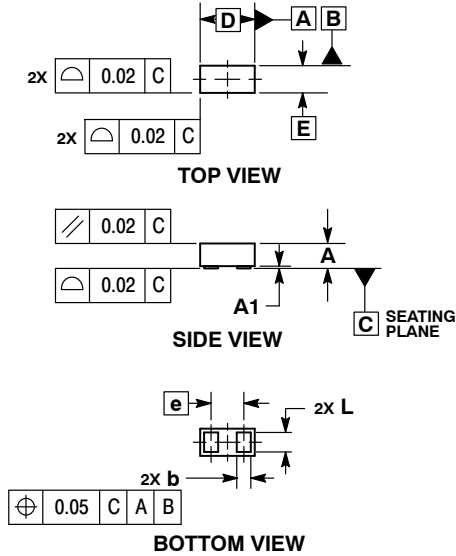
Refer to Application Note AND8398/D – Board Level Application Note for 0201 DSN2 Package.



SCALE 12:1

**WLCSP2, 0.6x0.3**  
**CASE 567AV**  
**ISSUE C**

DATE 22 SEP 2017



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  2. CONTROLLING DIMENSION: MILLIMETERS.

| MILLIMETERS |          |       |       |
|-------------|----------|-------|-------|
| DIM         | MIN      | NOM   | MAX   |
| A           | 0.250    | 0.275 | 0.300 |
| A1          | 0.000    | 0.025 | 0.050 |
| b           | 0.140    | 0.155 | 0.170 |
| D           | 0.570    | 0.600 | 0.630 |
| E           | 0.270    | 0.300 | 0.330 |
| e           | 0.36 BSC |       |       |
| L           | 0.190    | 0.215 | 0.240 |

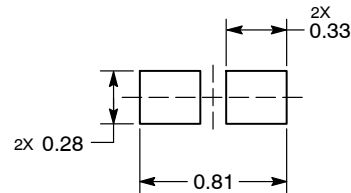
**GENERIC MARKING DIAGRAM\***



X = Specific Device Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

**RECOMMENDED SOLDER FOOTPRINT\***



DIMENSIONS: MILLIMETERS

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

|                         |                        |  |
|-------------------------|------------------------|--|
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