

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

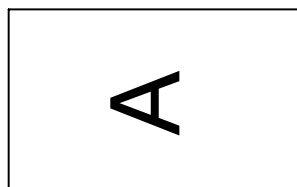
- Low Capacitance < 5.8 pF
- Low Clamping Voltage
- Small Body Outline Dimensions: 0.60 mm x 0.30 mm
- Low Body Height: 0.275 mm
- Stand-off Voltage: ± 5.0 V
- Low Dynamic Resistance: < 1.5 Ω
- IEC61000-4-2 Level 4 ESD Protection
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Table 1. PIN DESCRIPTIONS

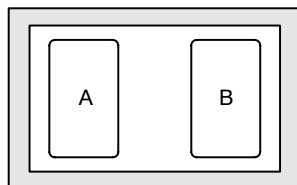
| Pin | Description |
|-----|-------------------|
| A | ESD Channel Pin 1 |
| B | ESD Channel Pin 2 |

PACKAGE / PINOUT DIAGRAMS

Top View
(Bumps Down)



Bottom View
(Bumps Up)



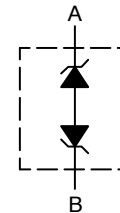
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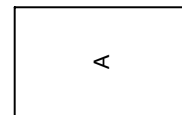


**WLCSP2
CP SUFFIX
CASE 567AV**

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 | $I_F = +1.0 \text{ mA}$ $I_F = -1.0 \text{ mA}$ | 6.0 -9.0 | 7.6 -7.6 | 9.0 -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 a) Contact Discharge per IEC 61000-4-2 standard b) Air Discharge per IEC 61000-4-2 standard | (Note 2) | ±17 ±17 | | | kV |
| V_{CL} | Channel Clamp Voltage Positive Transients Negative Transients | $I_{PP} = 1 \text{ A}$, $t_p = 8/20 \mu\text{s}$ | | +9.8 -9.8 | | V |
| R_{DYN} | Dynamic Resistance Positive Transients Negative Transients | $I_{PP} = 1 \text{ A}$, $t_p = 8/20 \mu\text{s}$ | | 1.5 1.5 | | Ω |

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

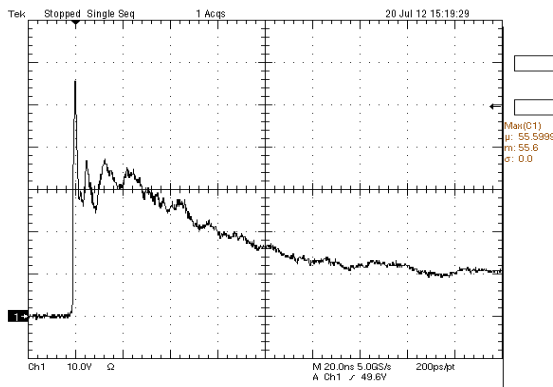


Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2

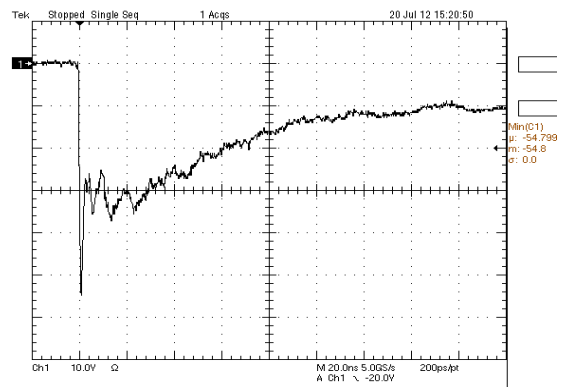


Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2

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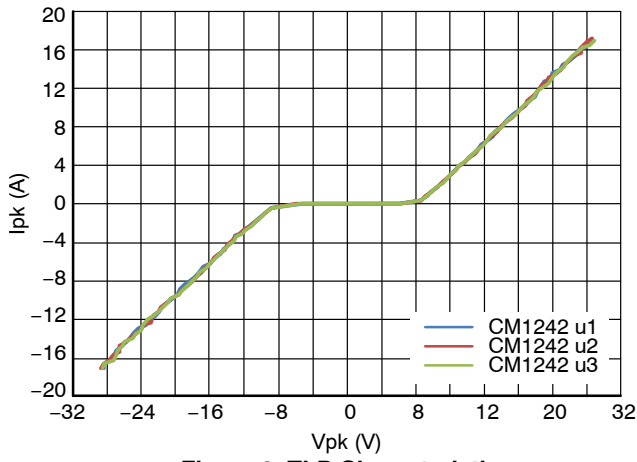


Figure 3. TLP Characteristics

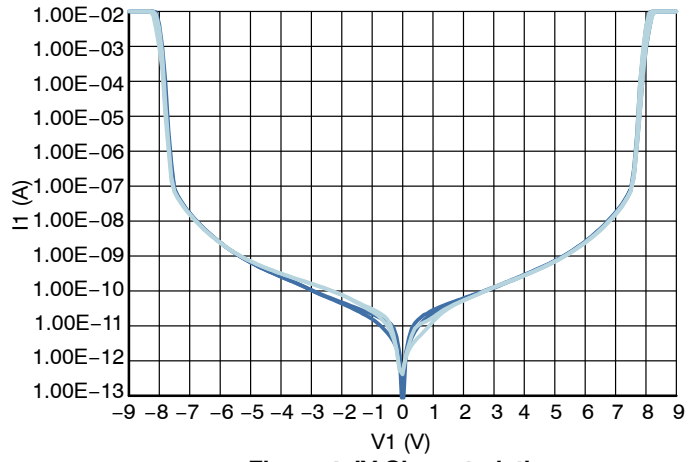


Figure 4. IV Characteristics

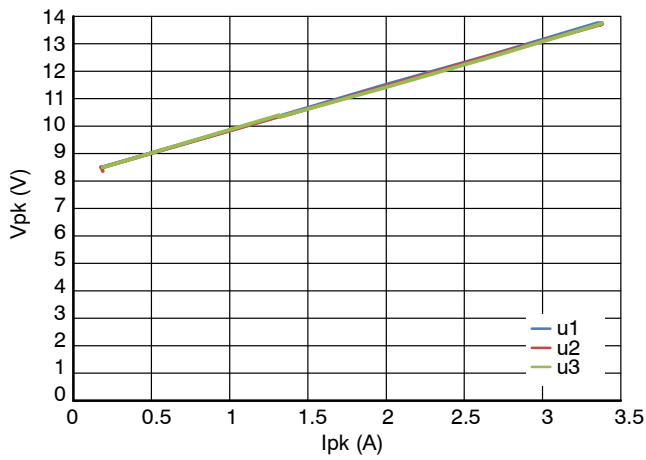


Figure 5. 80 x 20 Surge Characteristics

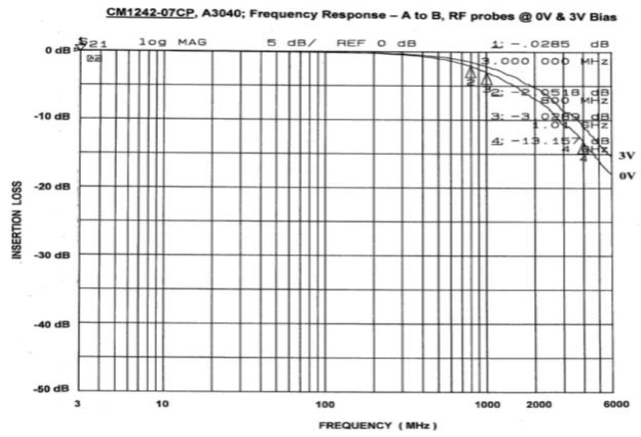


Figure 6. Typical Insertion Loss (S21)

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) $B_0 \times A_0 \times K_0$ | Tape Width 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 |

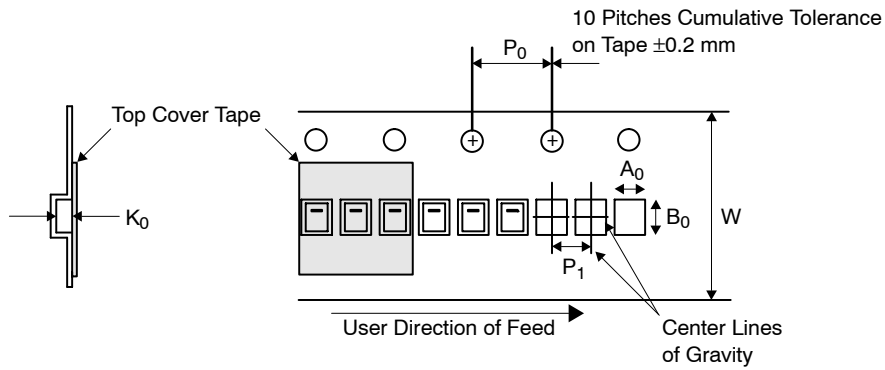


Figure 7. Tape and Reel Mechanical Data

CM1242-07CP Board Level Application.

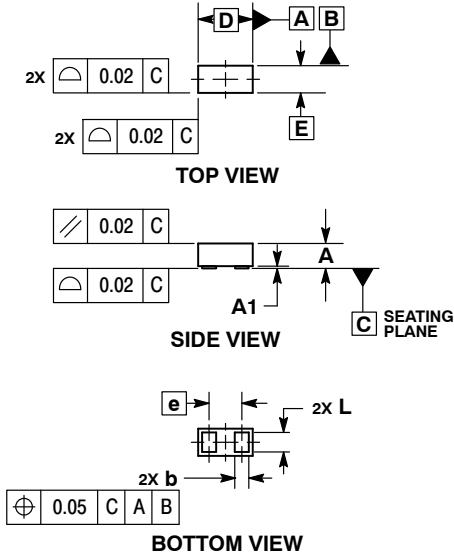
Refer to Application Note AND8398/D – Board Level Application Note for 0201 DSN2 Package.



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 |

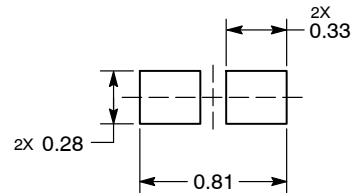
GENERIC MARKING DIAGRAM*



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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