CM1242-07CP

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

ON Semiconductor®

http://onsemi.com

WLCSP2
CP SUFFIX
CASE 567AV

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

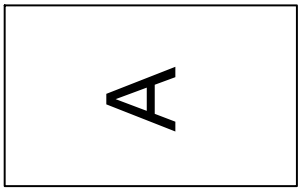
- Low Capacitance < 5.8 pF
- Low Clamping Voltage
- Small Body Outline Dimensions:0.60 mm x 0.30 mm
- Low Body Height: 0.275 mm
- Stand−off Voltage: ±5.0 V
- Low Dynamic Resistance: < 1.5 Ω
- IEC61000−4−2 Level 4 ESD Protection
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Table 1. PIN DESCRIPTIONS

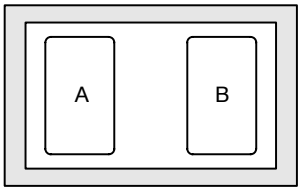
Pin	Description
A	ESD Channel Pin 1
B	ESD Channel Pin 2

PACKAGE / PINOUT DIAGRAMS

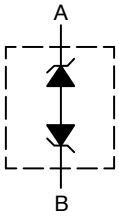
Top View
(Bumps Down)



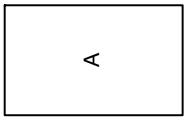
Bottom View
(Bumps Up)



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.

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 mA I_F = −1.0 mA	6.0 −9.0	7.6 −7.6	9.0 −6.0	V
I_{LEAK}	Channel Leakage Current	V_{IN} = ±5.0 V		±1.0	±100	nA
C_{IN}	Channel Input Capacitance	At 1 MHz, V_{IN} = 0 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 A, t_p = 8/20 μs		 +9.8 −9.8		V
R_{DYN}	Dynamic Resistance Positive Transients Negative Transients	I_{PP} = 1 A, t_p = 8/20 μs		 1.5 1.5		Ω

1. T_A = 25°C unless otherwise specified.
2. Standard IEC 61000−4−2 with $C_{Discharge}$ = 150 pF, $R_{Discharge}$ = 330 Ω.

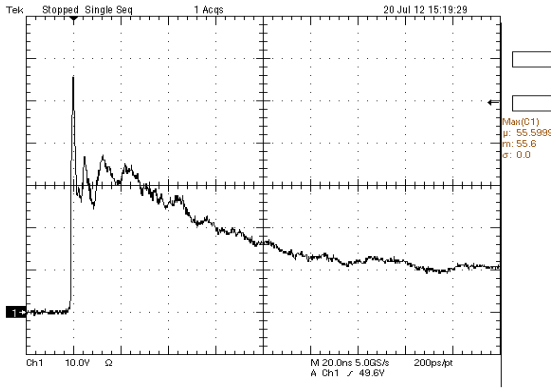


Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000−4−2

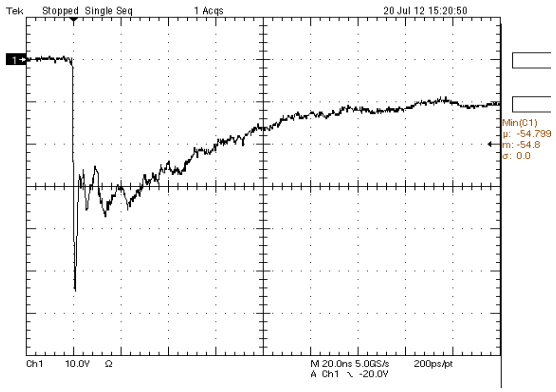


Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000−4−2

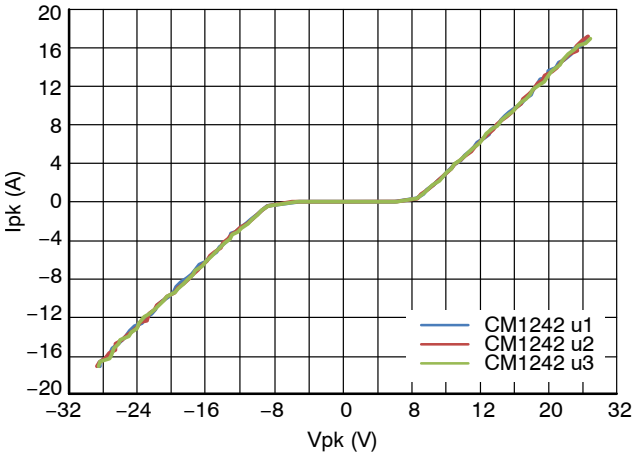


Figure 3. TLP Characteristics

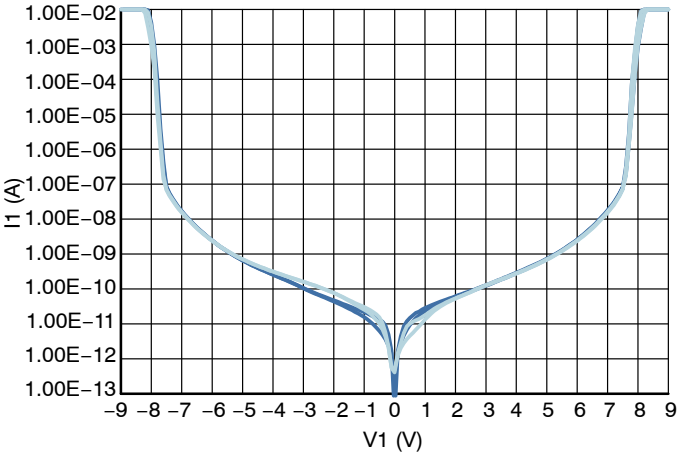


Figure 4. IV Characteristics

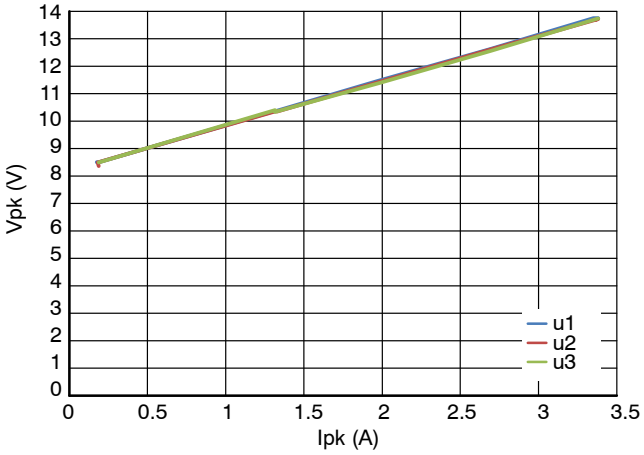


Figure 5. 80 x 20 Surge Characteristics

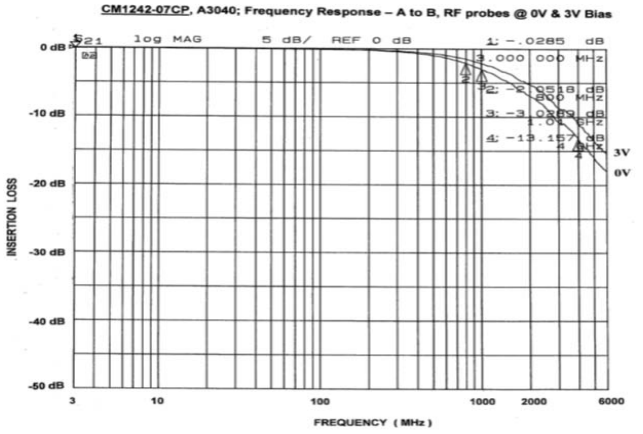


Figure 6. Typical Insertion Loss (S21)

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 X A_0 X 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

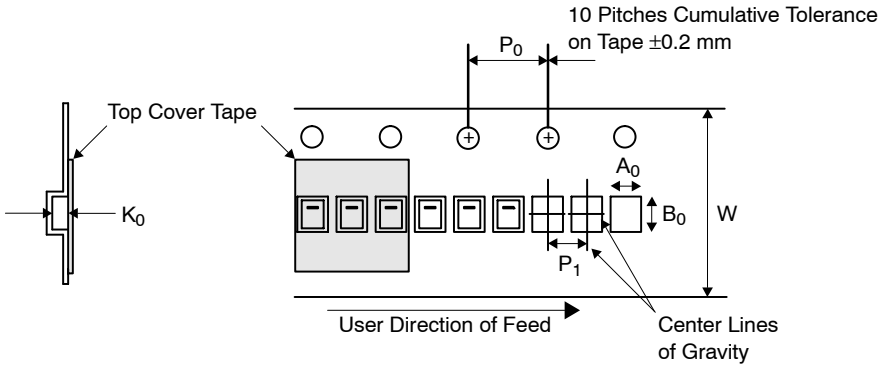


Figure 7. Tape and Reel Mechanical Data

CM1242−07CP Board Level Application.

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

WLCSP2, 0.6x0.3
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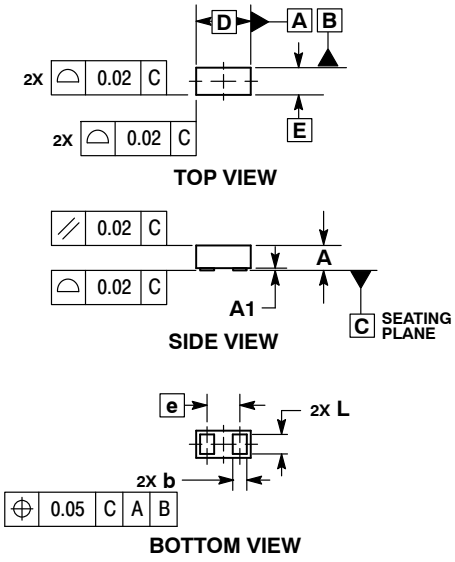
ISSUE C

DATE 22 SEP 2017

SCALE 12:1



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

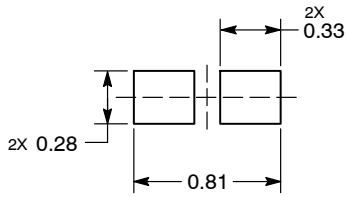
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.250	0.275	0.300
A1	0.000	0.025	0.050
b	0.140	0.155	0.170
D	0.570	0.600	0.630
E	0.270	0.300	0.330
e	0.36 BSC		
L	0.190	0.215	0.240

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 **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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