

# CM6205

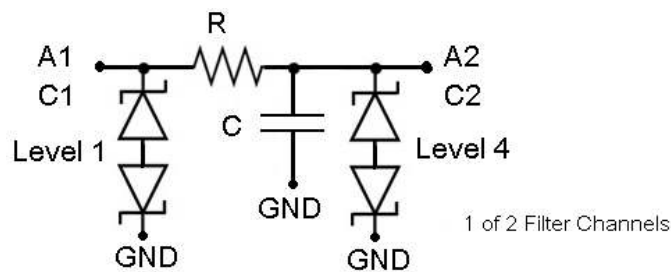
## EMI Filters with ESD Protection for Audio

### Description

The CM6205 is a 3x2, 5-bump EMI filter with ESD protection device for an audio interface in a CSP form factor, 0.4 mm pitch. The CM6205 is fully compliant with IEC 61000-4-2 and is also RoHS II compliant.

### Features

- This Device is Pb-Free, Halogen Free/BFR Free and is RoHS Compliant



B2 is ground pin.

Figure 1. Electrical Schematic



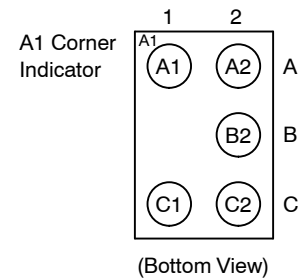
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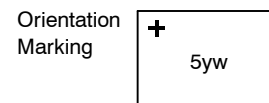


WLCSP-5  
CASE 567CC

### PACKAGE PINOUT



### MARKING DIAGRAM



5 = CM6205  
yw = Date Code

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

# CM6205

## Pin Information

**Table 1. PIN DESCRIPTIONS**

Pin	Description	Pin	Description
A1	Channel 1 Internal	A2	Channel 1 External
		B2	GND
C1	Channel 2 Internal	C2	Channel 2 External

## Electrical Specifications and Conditions

**Table 2. PARAMETERS AND OPERATING CONDITIONS**

Parameter	Rating	Units
Storage Temperature Range	-55 to +150	°C
Operating Temperature Range	-40 to +85	°C
Power Dissipation per Channel	100	mW

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
R <sub>1</sub> , R <sub>2</sub>	Resistance		13.5	15	16.5	Ω
C <sub>1</sub> , C <sub>2</sub>	Pin Capacitance	At 1 MHz, V <sub>IN</sub> = 0 V	4	5	6	nF
I <sub>LEAK</sub>	Leakage Current per Channel	V <sub>IN</sub> = 5 V, other pins floating		1.0	100	nA
V <sub>BR</sub>	Breakdown Voltage (Positive)	I <sub>R</sub> = +1 mA	14			V
	Breakdown Voltage (Negative)	I <sub>R</sub> = -1 mA			-14	V
V <sub>ESD</sub>	ESD Protection Peak Discharge Voltage at A2 and C2 pins a) Contact discharge per IEC 61000-4-2 standard b) Air discharge per IEC 61000-4-2 standard	(Note 2)	±15			kV
	ESD Protection Peak Discharge Voltage at A1 and C1 pins a) Contact discharge per IEC 61000-4-2 standard b) Air discharge per IEC 61000-4-2 standard	(Note 2)	±2			kV

- All parameters specified at T<sub>A</sub> = 25°C unless otherwise noted.
- Standard IEC 61000-4-2 with C<sub>Discharge</sub> = 150 pF, R<sub>Discharge</sub> = 330 Ω.

Performance Information

Frequency Response – Filters 1 & 2, RF probes

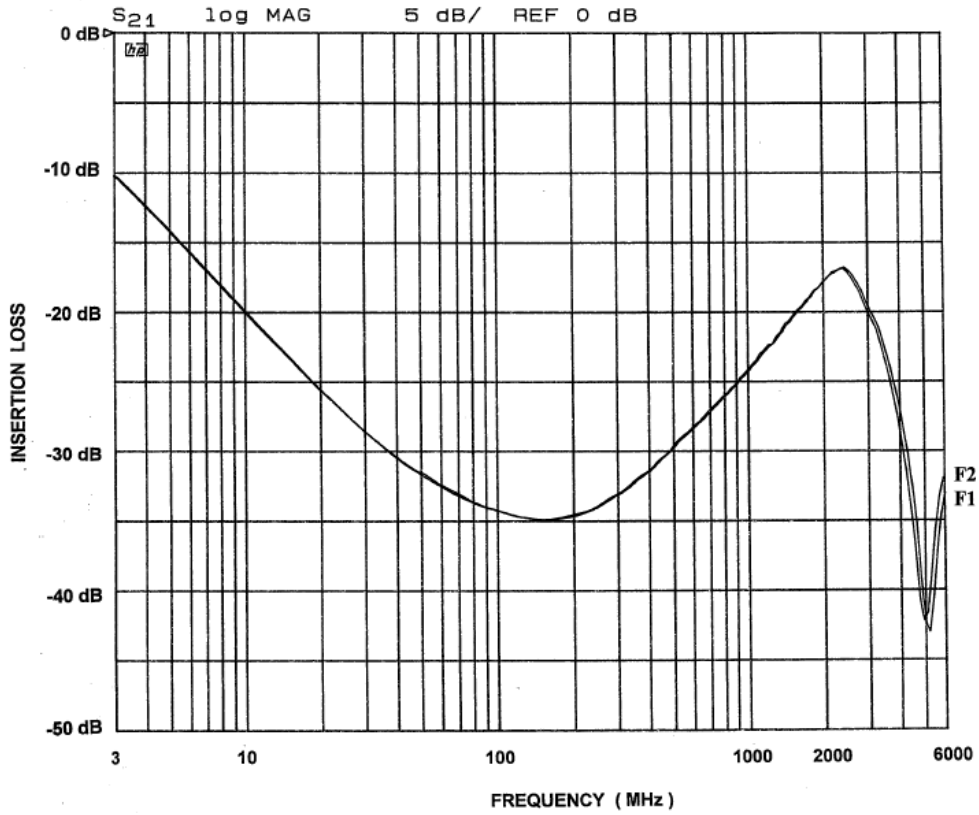


Figure 2. Typical Insertion Loss (Bias = 0 V, T<sub>A</sub> = 25°C; 50 Ω Environment)

Vertical Structure Specification\*

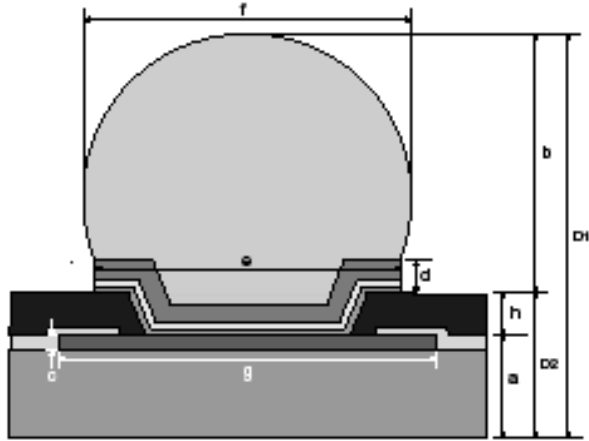


Figure 3. Sectional View

VERTICAL STRUCTURE DIMENSIONS (nominal)

Ref.	Parameter	Material	Dimension
a	Die Thickness	Silicon	396 $\mu\text{m}$
h	Repassivation	Polyimide	10 $\mu\text{m}$
d	UBM-(Ti/Cu)	Plated Cu	7.0 $\mu\text{m}$
		Sputtered Cu	0.4 $\mu\text{m}$
		Sputtered Ti	0.1 $\mu\text{m}$
e	UBM Wetting Area Diameter		240 $\mu\text{m}$
b	Bump Standoff		194 $\mu\text{m}$
f	Solder Bump Diameter after Bump Reflow		270 $\mu\text{m}$
c	Metal Pad Height	AlSiCu	1.5 $\mu\text{m}$
g	Metal Pad Diameter		284 $\mu\text{m}$
D2			0.406 mm
D1	Finished Thickness		0.600 mm

\*Daisy Chain CM6004

Table 4. 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	$P_0$	$P_1$
CM6205	1.20 X 0.80 X 0.60	1.35 X 0.95 X 0.70	8 mm	178 mm (7")	5000	4 mm	4 mm

†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.

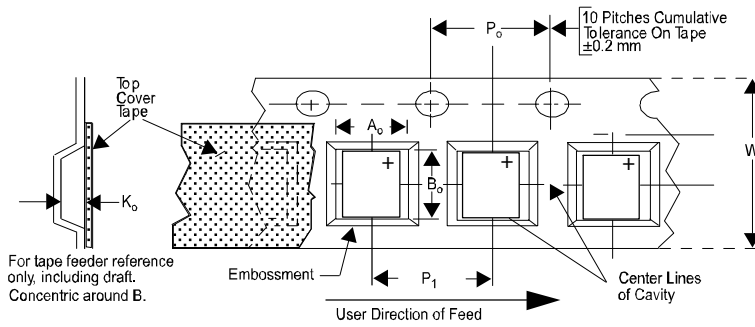
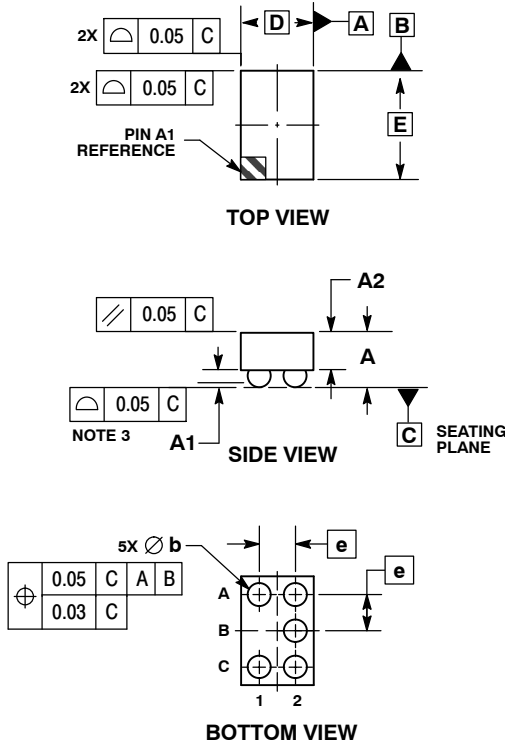


Figure 4. Tape and Reel Mechanical Data

# CM6205

## PACKAGE DIMENSIONS

WLCSP5, 0.80x1.20  
CASE 567CC-01  
ISSUE O

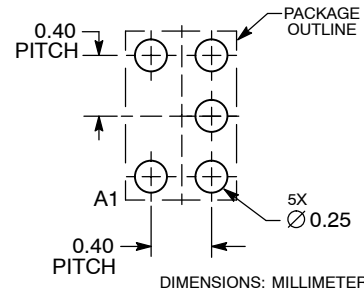


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

DIM	MILLIMETERS	
	MIN	MAX
A	0.57	0.63
A1	0.17	0.24
A2	0.41 REF	
b	0.24	0.29
D	0.80 BSC	
E	1.20 BSC	
e	0.40 BSC	

**RECOMMENDED SOLDERING FOOTPRINT\***



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

### Ordering Information

**Table 5. PART NUMBERING INFORMATION**

Bumps	Package	Ordering Part Number (Note 3)	Part Marking (Date Code)
5	CSP-SAC105	CM6205	5yw

3. Parts are shipped in Tape and Reel form unless otherwise specified.

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