

# CM6200

## Advance Information

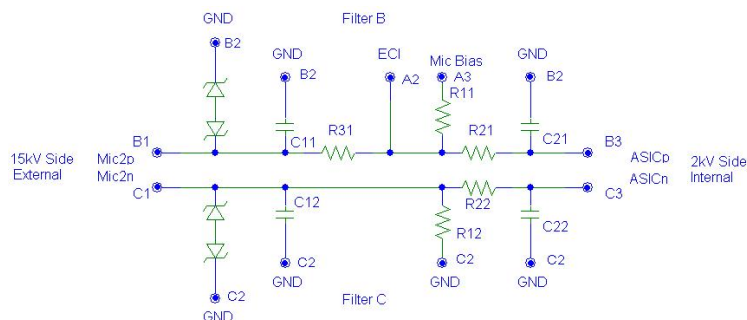
# EMI Filters with ESD Protection for Microphone Interface

### Description

ON Semiconductor's CM6200 is a 3x3, 8-bump EMI filter with ESD protection device for microphone interface applications in a CSP form factor, 0.4 mm pitch. The CM6200 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



Note: B2 and C2 are ground pins and should be connected together on the PCB

Figure 1. Electrical Schematic



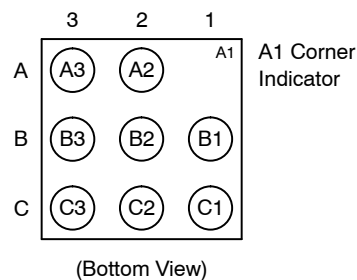
ON Semiconductor®

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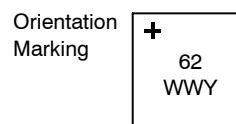


WLCSP-8  
PLASTIC  
CASE 567CF

### PACKAGE PINOUT



### MARKING DIAGRAM



62 = CM6200  
WWY = Date Code

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 6 of this data sheet.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

# CM6200

## Pin Information

**Table 1. PIN DESCRIPTIONS**

Pin	Description	Pin	Description
A2	ECI	B3	ASICp (Internal)
A3	Mic_Bias	C1	Mic2n (External)
B1	Mic2p (External)	C2	GND
B2	GND	C3	ASICn (Internal)

## 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

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
R11	Bias Resistance		1.9	2.0	2.1	kΩ
R12	Resistance		0.8	1.0	1.2	kΩ
R21	Resistance		1.76	2.20	2.64	kΩ
R22	Resistance		1.76	2.20	2.64	kΩ
R31	Resistance		20	25	30	Ω
C11, C12	Pin Capacitance	At 1 MHz, $V_{IN} = 0$ V	0.67	0.83	1.0	nF
C21, C22	Pin Capacitance	At 1 MHz, $V_{IN} = 0$ V	1.0	1.25		nF
$I_{LEAK\_B}$	Leakage Current from Pins B1 to B2	$V_{IN} = 5$ V; B3, A2 and A3 floating. C1, C2, and C3 grounded.		1.0	100	nA
$I_{LEAK\_C}$	Diode Leakage Current from Filter C	$V_{IN} = 5$ V; (Note 3)		1.0		nA
$V_B$	Breakdown Voltage (Positive)	$I_f = +1$ mA (Filter B only); (Note 3)	13			V
	Breakdown Voltage (Negative)	$I_f = -1$ mA (Filter B only); (Note 3)			-13	V
$V_{ESD}$	ESD Protection Peak Discharge Voltage at B1 and C1 pins a) Contact discharge per IEC 61000-4-2 standard and b) Air discharge per IEC 61000-4-2 standard	(Note 2)	$\pm 15$ $\pm 15$			kV
	ESD Protection Peak Discharge Voltage at A2, A3, B3, and C3 pins a) Contact discharge per IEC 61000-4-2 standard and b) Air discharge per IEC 61000-4-2 standard	(Note 2)	$\pm 2$ $\pm 2$			kV

1. All parameters specified at  $T_A = 25^\circ\text{C}$  unless otherwise noted.
2. Standard IEC 61000-4-2 with  $C_{Discharge} = 150$  pF,  $R_{Discharge} = 330$  Ω.
3. Filter C parameters are guaranteed by similarity to Filter B.

## Performance Information

### Simulation

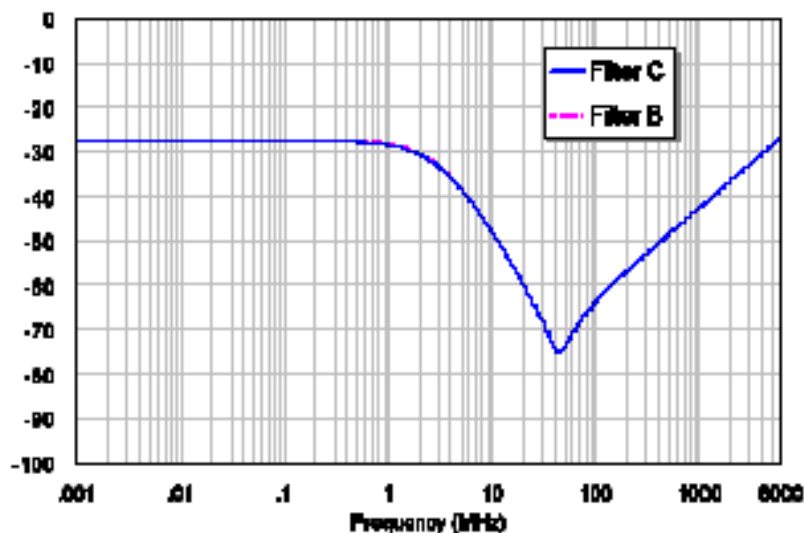


Figure 2. Typical Insertion Loss (Bias = 0 V,  $T_A = 25^\circ\text{C}$ ; 50  $\Omega$  Environment)

### RF Characteristics

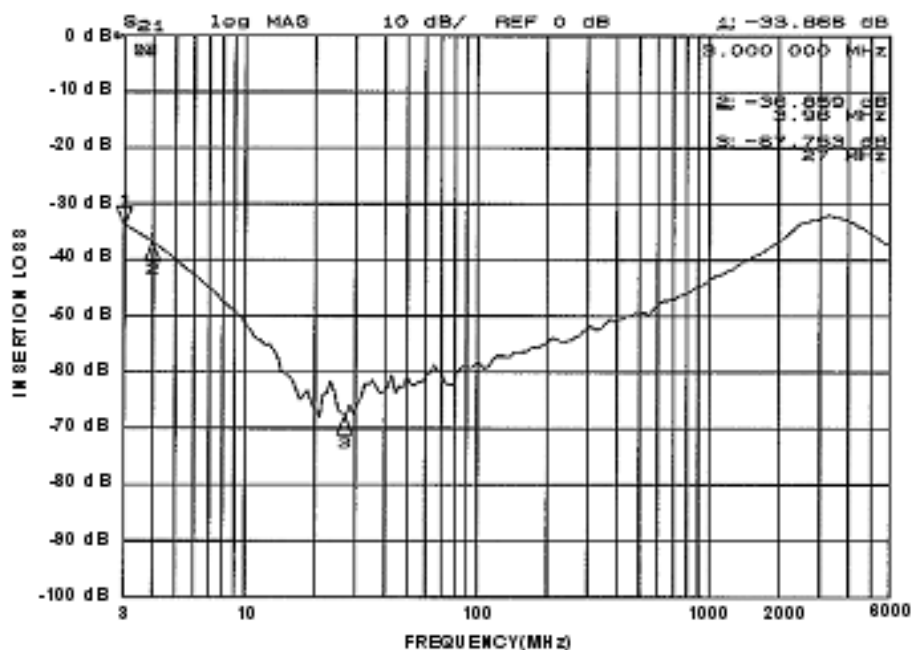


Figure 3. Typical Insertion Loss for Filter B (Bias = 0 V,  $T_A = 25^\circ\text{C}$ ; 50  $\Omega$  Environment); Pins A2 and A3 Floating

RF Characteristics

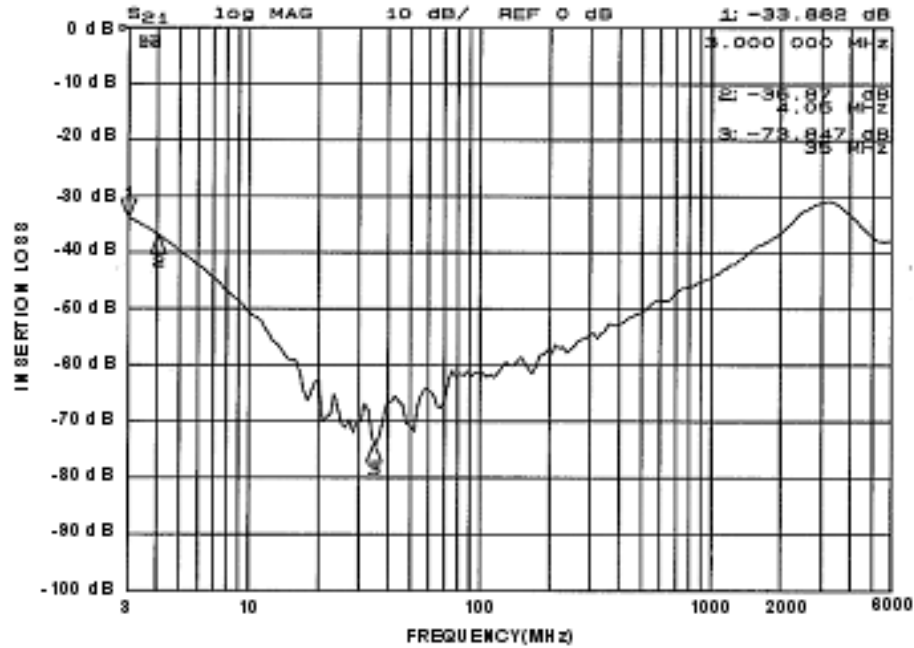


Figure 4. Typical Insertion Loss for Filter C (Bias = 0 V,  $T_A = 25^\circ\text{C}$ ;  $50\ \Omega$  Environment)

Vertical Structure Specification\*

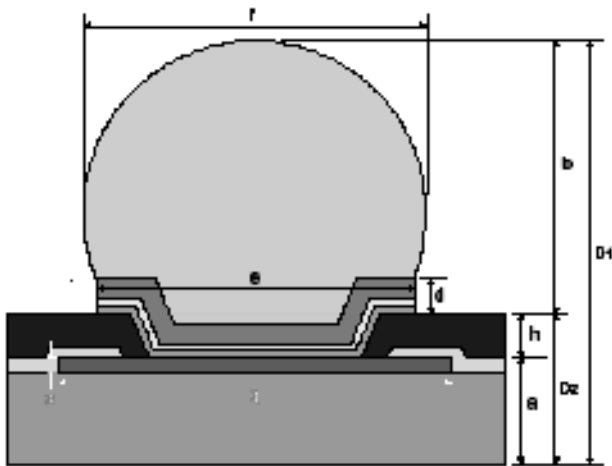


Figure 5. Sectional View

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		310 $\mu\text{m}$
D2			0.406 mm
D1	Finished Thickness		0.600 mm

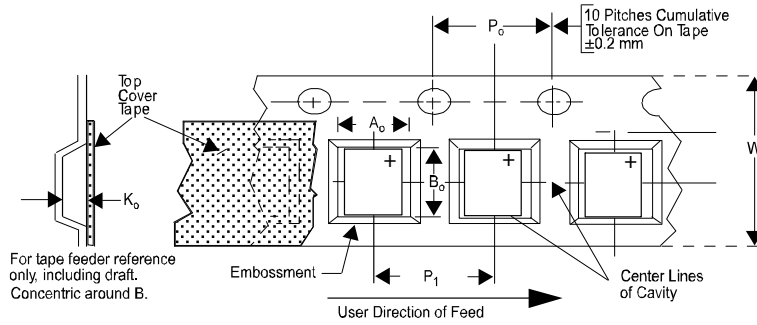
\*Daisy Chain CM6000

# CM6200

**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	$P_0$	$P_1$
CM6200	1.20 X 1.20 X 0.60	1.346 X 1.346 X 0.729	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.

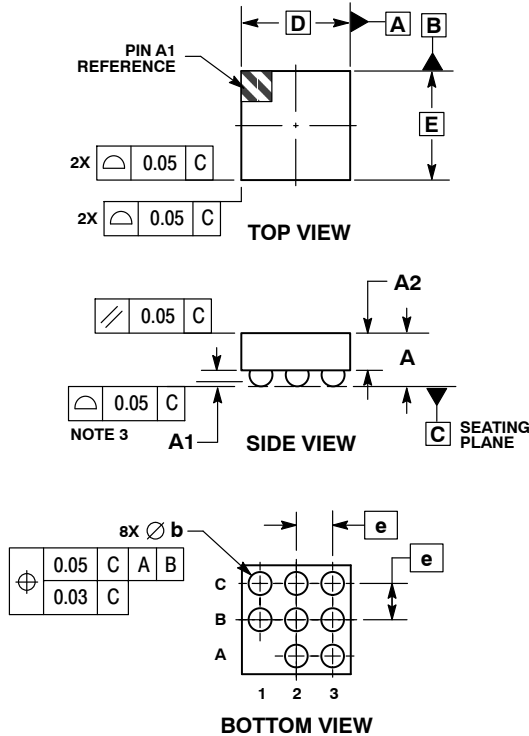


**Figure 6. Tape and Reel Mechanical Data**

# CM6200

## PACKAGE DIMENSIONS

WLCSP8, 1.2x1.2  
CASE 567CF-01  
ISSUE O

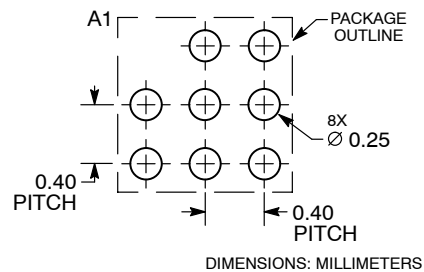


### NOTES:

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	1.20	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, SOLDERM/D.

## Ordering Information

Table 5. PART NUMBERING INFORMATION

Bumps	Package	Ordering Part Number (Note 4)	Part Marking
8	CSP-SAC105	CM6200	62

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

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