CM6300

EMI Filters with ESD Protection for SIM Card Applications

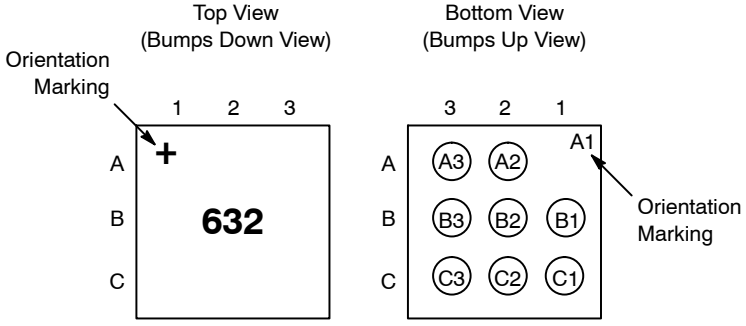
Product Description

The CM6300 is a 3 x 3, 8−bump EMI filter with ESD protection device for SIM card applications in 0.5 mm pitch CSP form factor. It is fully compliant with IEC 61000−4−2. The CM6300 is RoHS II compliant.

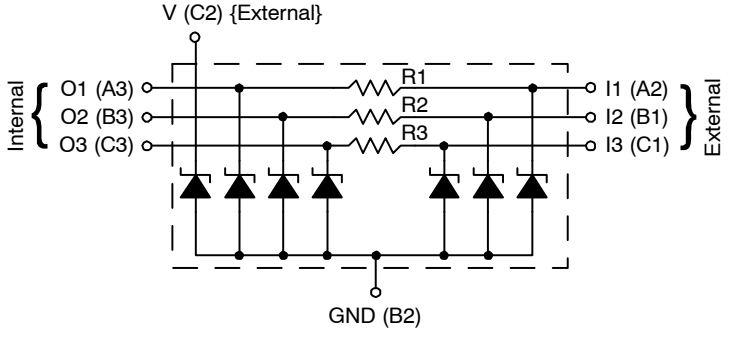
Table 1. PIN DESCRIPTIONS

8−bump CSP Package	
Pin	**Description**
A2	Channel 1 External
A3	Channel 1 Internal
B1	Channel 2 External
B2	GND
B3	Channel 2 Internal
C1	Channel 3 External
C2	V External
C3	Channel 3 Internal

PACKAGE / PINOUT DIAGRAMS



ELECTRICAL SCHEMATIC



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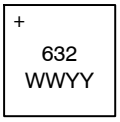
WLCSP8
CASE 567CD

MARKING DIAGRAM



632 = CM6300
WWYY = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
CM6300	CSP−8 (Pb−Free)	5000/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.

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
R_1	Resistance		80	100	120	Ω
R_2	Resistance		37.6	47	56.4	Ω
R_3	Resistance		80	100	120	Ω
C	Capacitance on filter channels 1, 2 and 3	At 1 MHz, V_{IN} = 0 V	13.4	16.7	20	pF
	Capacitance on clamp channel (pin C2)	At 1 MHz, V_{IN} = 0 V	8.2	10.3	12.4	pF
V_B	Breakdown Voltage (Positive)	I_F = 8 mA	6	6.8	20	V
V_{ESD}	ESD Protection Peak Discharge Voltage at A2, B1 and C1 pins a) Contact Discharge per IEC 61000−4−2 standard b) Air Discharge per IEC 61000−4−2 standard	(Note 2)	 ±15 ±15			kV
	ESD Protection Peak Discharge Voltage at C2 pin a) Contact Discharge per IEC 61000−4−2 standard b) Air Discharge per IEC 61000−4−2 standard	(Note 2)	 ±15 ±15			kV
	ESD Protection Peak Discharge Voltage at A3, B3 and C3 pins a) Contact Discharge per IEC 61000−4−2 standard b) Air Discharge per IEC 61000−4−2 standard	(Note 2)	 ±4 ±4			kV

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

MECHANICAL SPECIFICATION

Table 4. VERTICAL STRUCTURE DIMENSIONS (nominal)

Ref.	Parameter	Material	Dimension
a	Die Thickness	Silicon	396 μm
h	Repassivation	Polyimide	10 μm
d	UBM−(Ti/Cu)	Plated Cu	5.0 μm
		Sputtered Cu	0.4 μm
		Sputtered Ti	0.1 μm
e	UBM Wetting Area Diameter		280 μm
b	Bump Standoff		240 μm
f	Solder Bump Diameter after Bump Reflow		320 μm
c	Metal Pad Height	AlSiCu	1.5 μm
g	Metal Pad Diameter		60 μm
D1	Finished Thickness		0.650 mm
D2			0.406 mm

Vertical Structure Specification*

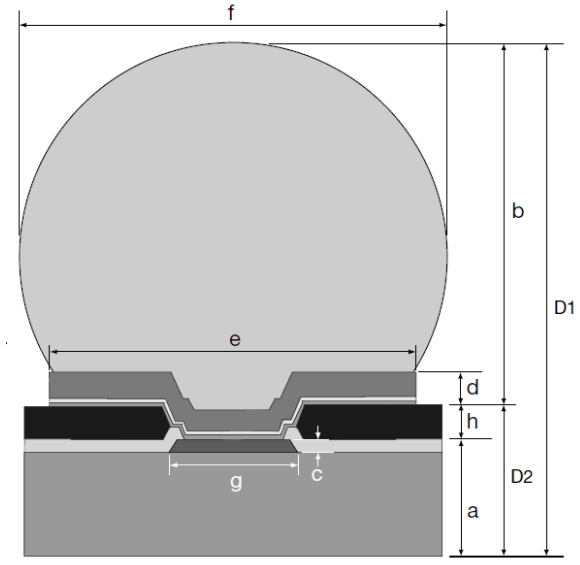


Figure 1. Sectional View

* Daisy Chain CM6020

RF CHARACTERISTICS

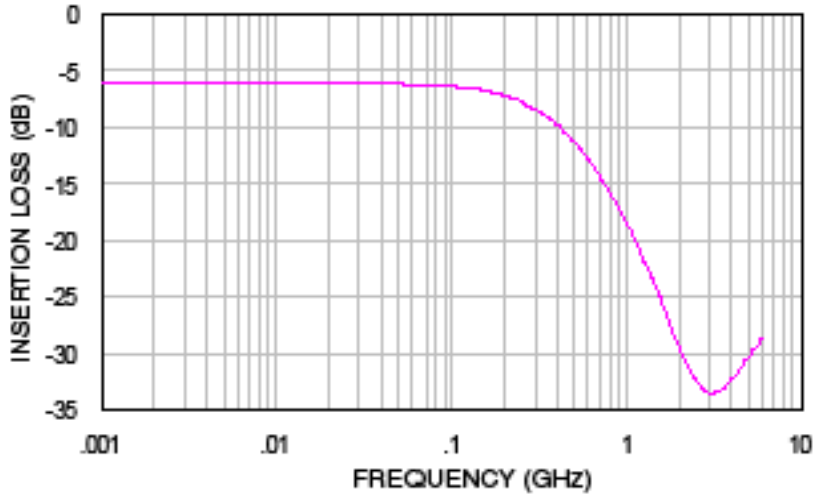


Figure 2. Insertion Loss, Filter 1 (pins A2, A3) and Filter 3 (pins C1, C3) (Bias = 0 V, T_A = 25°C)

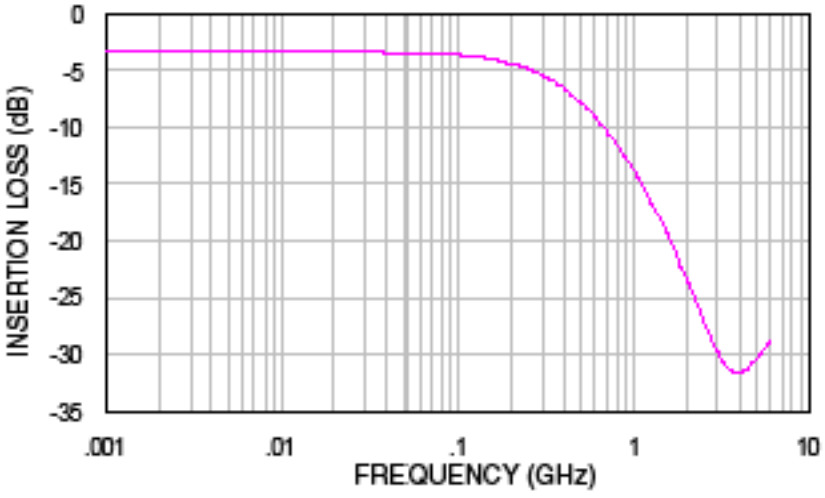
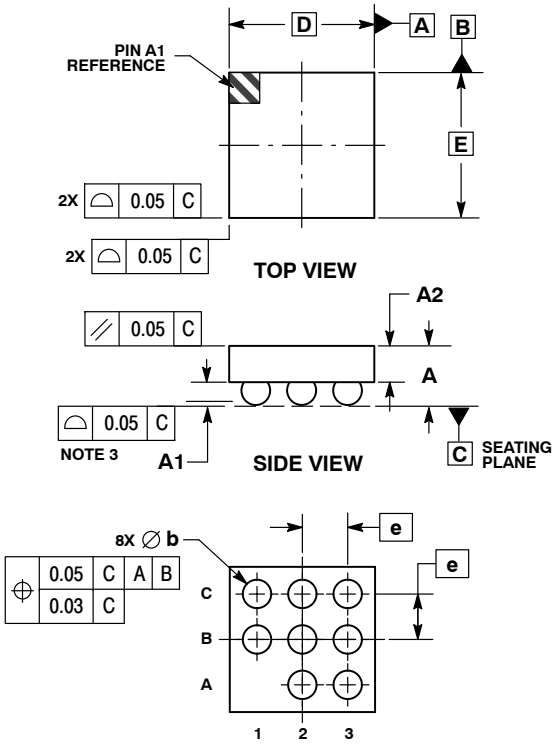


Figure 3. Insertion Loss, Filter 2 (pins B1, B3) (Bias = 0 V, T_A = 25°C)

PACKAGE DIMENSIONS

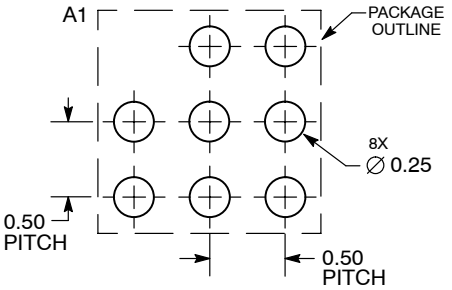
WLCSP8, 1.6x1.6
CASE 567CD−01
ISSUE O



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

	MILLIMETERS	
DIM	MIN	MAX
A	0.61	0.69
A1	0.21	0.27
A2	0.41 REF	
b	0.29	0.34
D	1.60 BSC	
E	1.60 BSC	
e	0.50 BSC	

RECOMMENDED SOLDERING 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.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
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