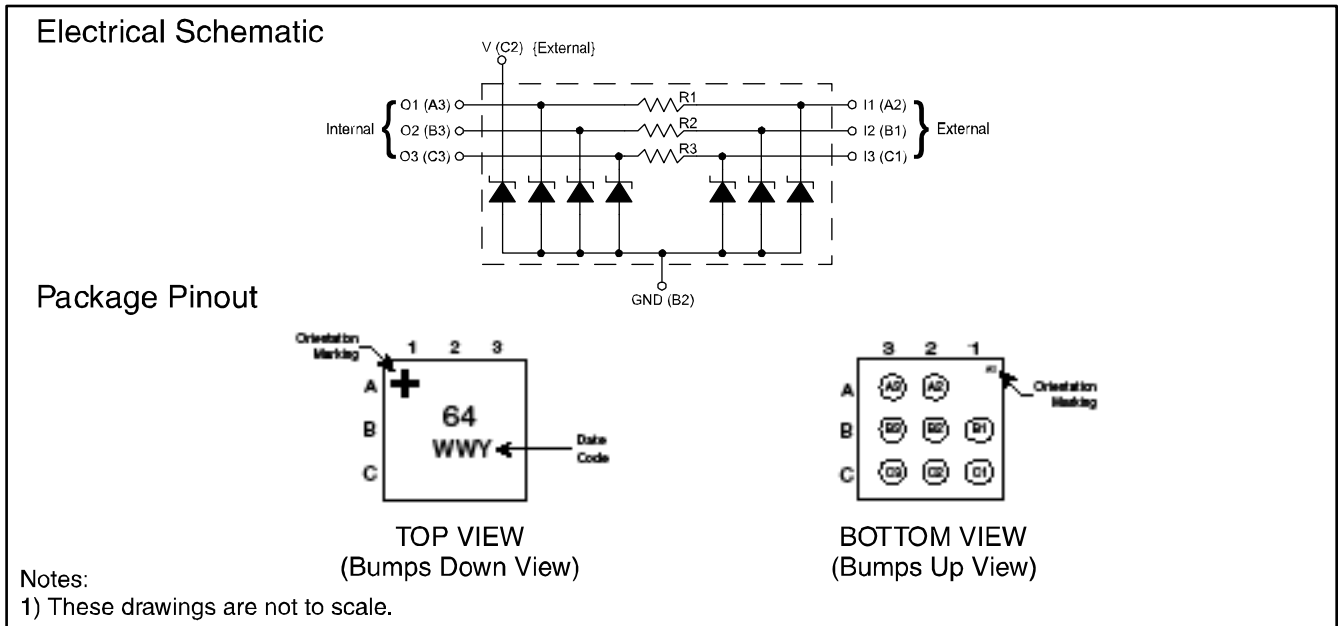




Product Description

The CM6304 is a 3x3, 8-bump EMI filter with ESD protection device for SIM card applications in a 0.4mm pitch CSP form factor. It is fully compliant with IEC 61000-4-2. The CM6304 is also RoHS II compliant.

Electrical Schematic / Pin Description



Pin Information

PIN DESCRIPTIONS			
PIN	DESCRIPTION	PIN	DESCRIPTION
A2	Channel 1 External	A3	Channel 1 Internal
B1	Channel 2 External	B3	Channel 2 Internal
C1	Channel 3 External	C3	Channel 3 Internal
B2	GND	C2	V External

Ordering Information

PART NUMBERING INFORMATION

Bumps	Package	Variation	Ordering Part Number ¹	Part Marking
8	CSP	CSP-SAC105	CM6304	64

Note 1: Parts are shipped in Tape & Reel form unless otherwise specified.

Electrical Specifications and Conditions

PARAMETERS AND OPERATING CONDITIONS

PARAMETER	RATING	UNITS
Storage Temperature Range	-55 to +150	°C
Operating Temperature Range	-40 to +85	°C

ELECTRICAL OPERATING CHARACTERISTICS (SEE 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} =0V	13.4	16.7	20	pF
	Capacitance on clamp channel (pin C2)	At 1 MHz, V _{IN} =0V	8.2	10.3	12.4	pF
V _B	Breakdown Voltage (Positive)	I _F = 8mA;	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			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			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			kV

Note 1: All parameters specified at T_A = 25°C unless otherwise noted.

Note 2: Standard IEC 61000-4-2 with C_{Discharge} = 150pF, R_{Discharge} = 330Ω.

RF Characteristics

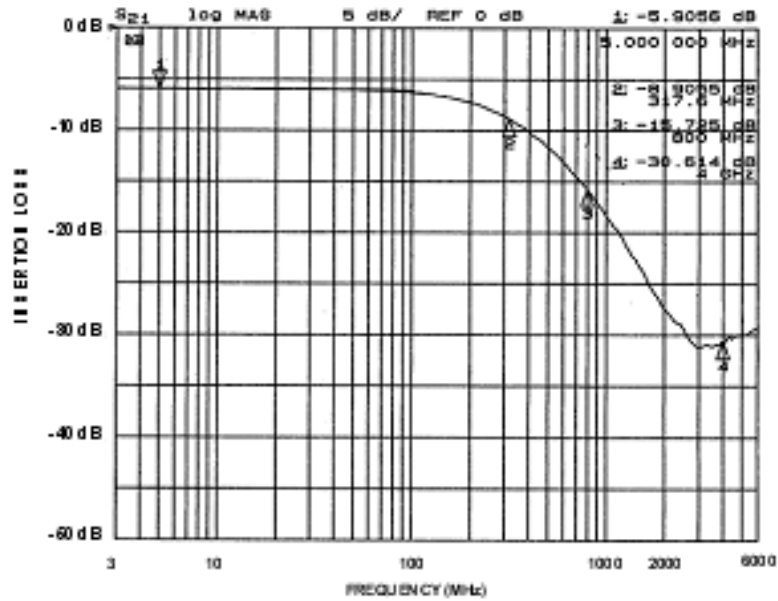


Figure 1. Insertion loss, Filter 1 (pins A2,A3) and Filter 3 (pins C1,C3) (Bias=0V, T_A=25°C)

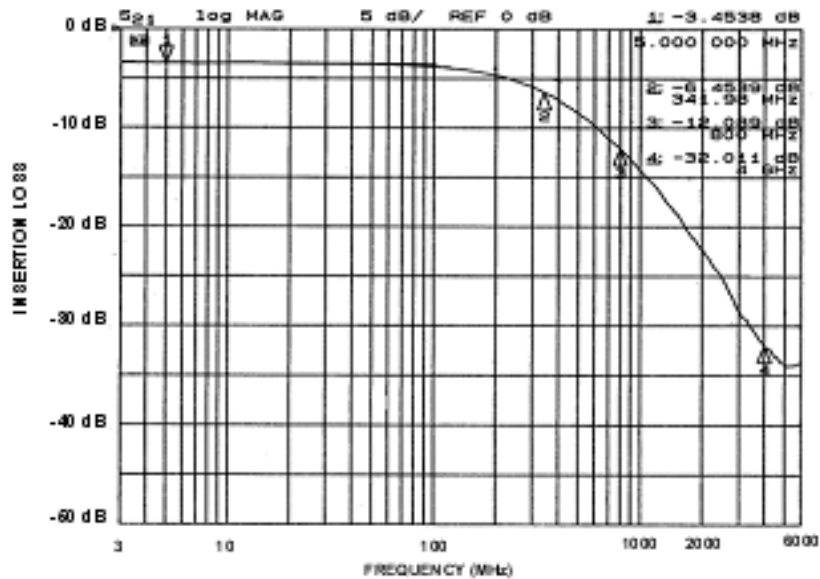


Figure 2. Insertion loss, Filter 2 (pins B1,B3) (Bias=0V, T_A=25°C)

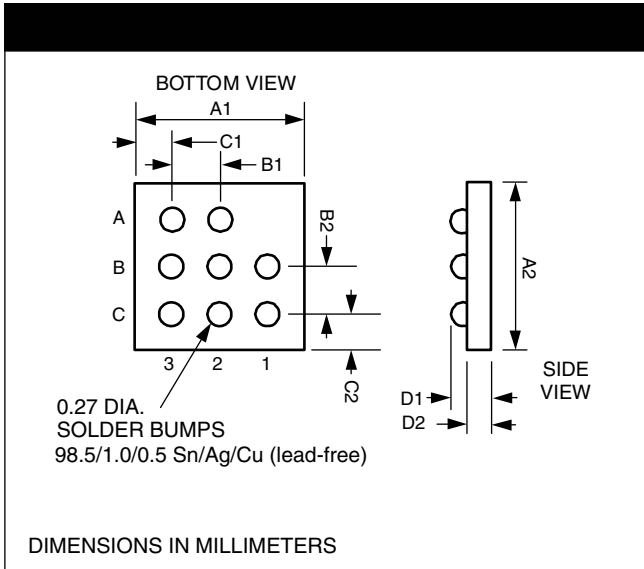
Mechanical Specification

CSP-8 Mechanical Specifications

The CM6304 is supplied in a 8 bump Chip Scale Package (CSP).

PACKAGE DIMENSIONS						
Package	Custom CSP					
Bumps	8					
Dim	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A1	1.155	1.200	1.245	0.0455	0.0472	0.0490
A2	1.155	1.200	1.245	0.0455	0.0472	0.0490
B1	0.395	0.400	0.405	0.0155	0.0157	0.0159
B2	0.395	0.400	0.405	0.0155	0.0157	0.0159
C1	0.150	0.200	0.250	0.0059	0.0079	0.0098
C2	0.150	0.200	0.250	0.0059	0.0079	0.0098
D1	0.570	0.600	0.630	0.0224	0.0236	0.0248
D2	0.394	0.406	0.418	0.0155	0.0160	0.0165

Controlling dimension: millimeters



**Package Dimensions for
CM6304 Chip Scale Package**

Vertical Structure Specification*

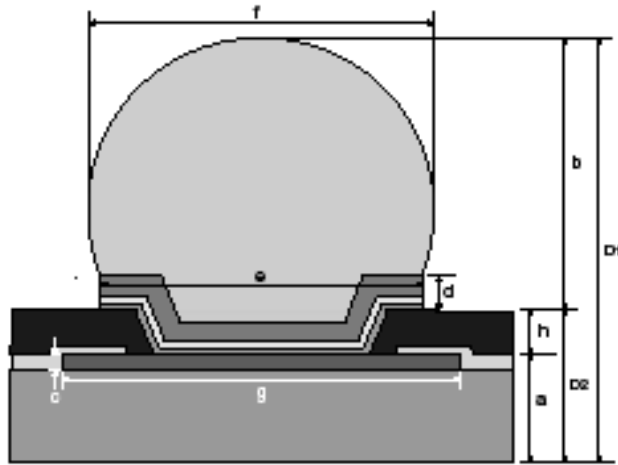


Figure 3. Sectional View

* Daisy Chain CM6000

Vertical Structure Dimensions (nominal)

REF.	Parameter	Material	Dimension
a	Die Thickness	Silicon	396 μ m
h	Repassivation	Polyimide	10 μ m
d	UBM-(Ti/Cu)	Plated Cu	5.0 μ m
		Sputtered Cu	0.4 μ m
		Sputtered Ti	0.1 μ m
e	UBM Wetting Area Diameter		240 μ m
b	Bump Standoff		194 μ m
f	Solder Bump Diameter after Bump Reflow		270 μ m
c	Metal Pad Height	AlSiCu	1.5 μ m
g	Metal Pad Diameter		310 μ m
D2			0.406mm
D1	Finished Thickness		0.600mm

Mechanical Specification (cont'd)

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
CM6304	1.20 X 1.20 X 0.600	1.346 X 1.346 X 0.729	8mm	178mm (7")	5000	4mm	4mm

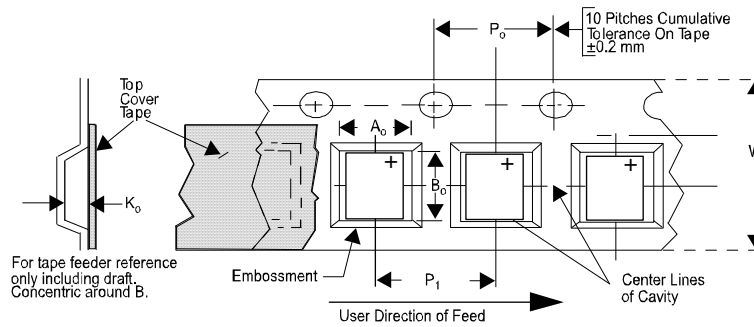


Figure 4. Tape and Reel Mechanical Data

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