

# CM6305

## EMI Filter with ESD Protection for SIM Card Applications

### Product Description

The CM6305 is a 3 x 3, 8-bump EMI filter with ESD protection device for SIM card applications in a 0.4 mm pitch CSP form factor. It is fully compliant with IEC 61000-4-2. The CM6305 is also RoHS II compliant.



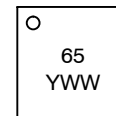
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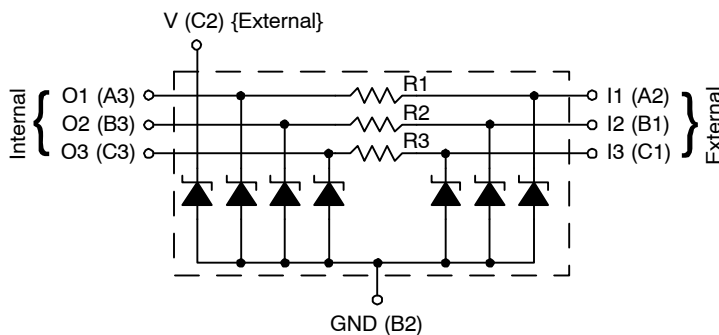
WLCSP8  
CASE 567CE

### MARKING DIAGRAM

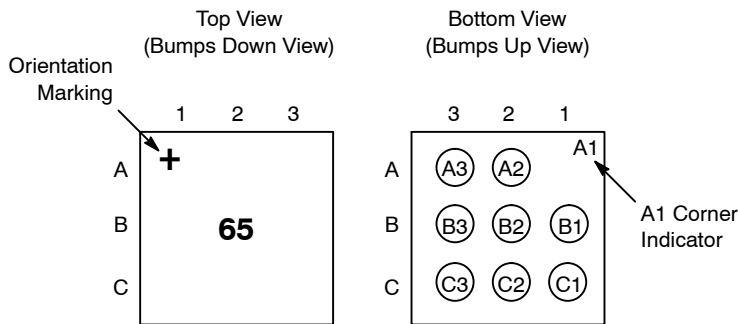


65 = CM6305  
YWW = Date Code

### ELECTRICAL SCHEMATIC



### PACKAGE / PINOUT DIAGRAMS



### ORDERING INFORMATION

Device	Package	Shipping†
CM6305	WLCSP-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.

Table 1. 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

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## 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 at 70°C per Channel	60	mW

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
R <sub>1</sub>	Resistance		80	100	120	Ω
R <sub>2</sub>	Resistance		37.6	47	56.4	Ω
R <sub>3</sub>	Resistance		80	100	120	Ω
I <sub>LEAK</sub>	Leakage Current per Channel	V <sub>IN</sub> = 3.0 V		10	100	nA
C	Capacitance on Filter Channels 1, 2 and 3	At 1 MHz, V <sub>IN</sub> = 0 V	8	10	12	pF
	Capacitance on Clamp Channel (pin C2)	At 1 MHz, V <sub>IN</sub> = 0 V	8	10	12	pF
V <sub>B</sub>	Breakdown Voltage (Positive)	I <sub>R</sub> = 1 mA	6	7	9	V
V <sub>ESD</sub>	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)	±8 ±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)	±2 ±2			kV

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

**Table 4. CSP TAPE AND REEL SPECIFICATIONS** †

Part Number	Chip Size (mm)	Pocket Size (mm) B <sub>0</sub> X A <sub>0</sub> X K <sub>0</sub>	Tape Width W	Reel Dia.	Qty Per Reel	P <sub>0</sub>	P <sub>1</sub>
CM6305	1.16 X 1.16 X 0.60	1.27 X 1.27 X 0.69	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.

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## RF CHARACTERISTICS

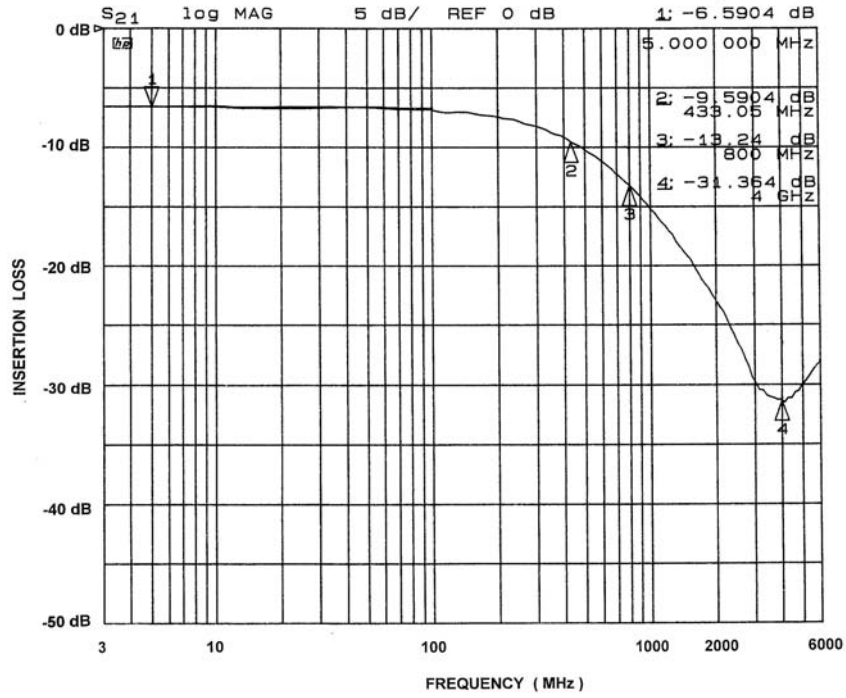


Figure 1. Insertion Loss, Filter 1 (pins A2, A3) and Filter 3 (pins C1, C3) (Bias = 0 V,  $T_A = 25^\circ\text{C}$ )

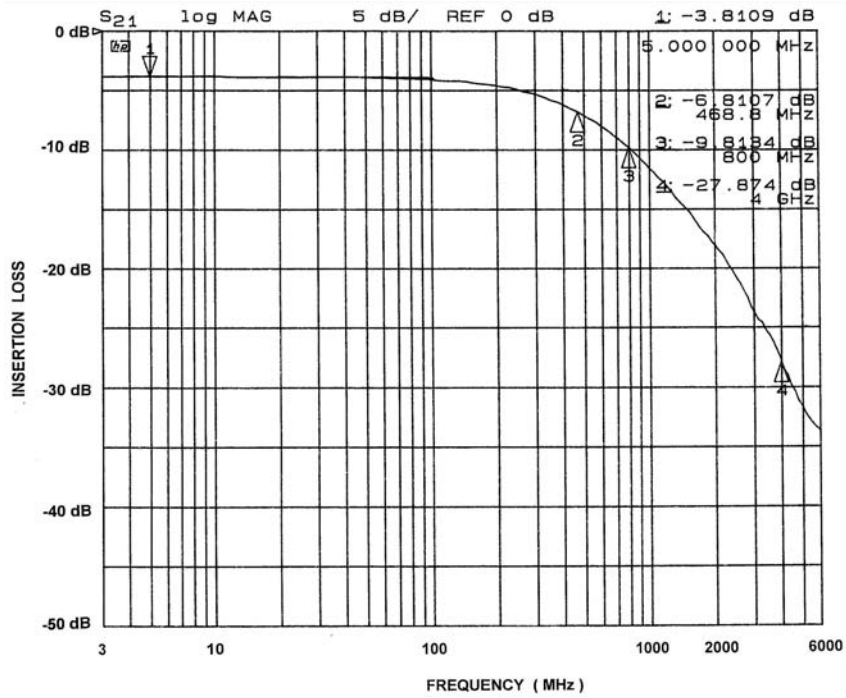
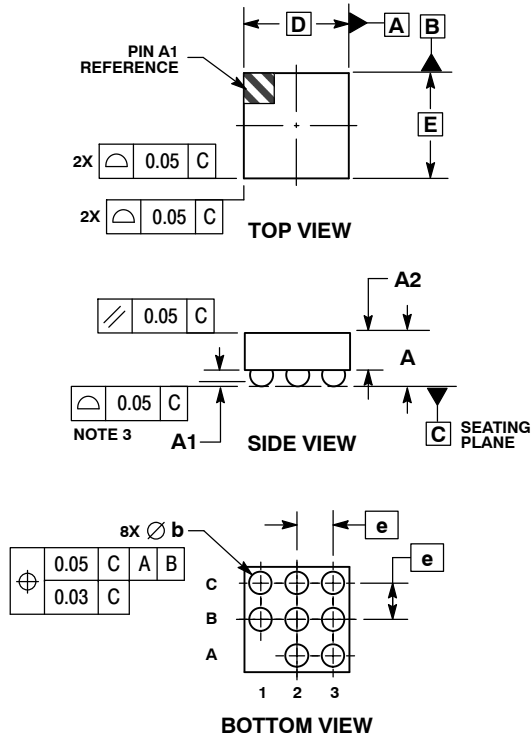


Figure 2. Insertion Loss, Filter 2 (pins B1, B3) (Bias = 0 V,  $T_A = 25^\circ\text{C}$ )

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## PACKAGE DIMENSIONS

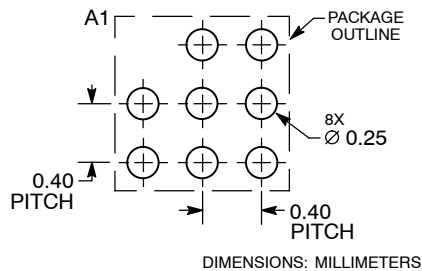
WLCSP8, 1.16x1.16  
CASE 567CE  
ISSUE O



- 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	1.16	BSC
E	1.16	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.

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