

CM6304

EMI Filters with ESD Protection for SIM Card Applications

Product Description

The CM6304 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 CM6304 is also 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 |



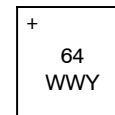
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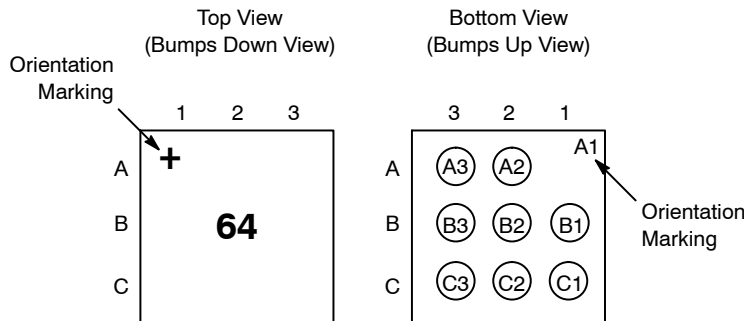
WLCSP8
CASE 567CF

MARKING DIAGRAM

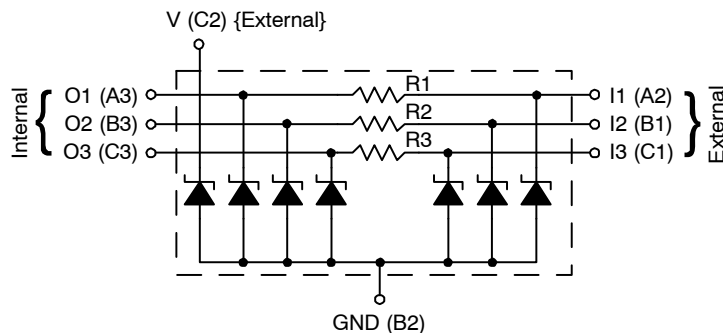


64 = CM6304
WWY = Date Code

PACKAGE / PINOUT DIAGRAMS



ELECTRICAL SCHEMATIC



ORDERING INFORMATION

| Device | Package | Shipping† |
|--------|--------------------|------------------|
| CM6304 | 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.

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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 |

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.

CM6304

RF CHARACTERISTICS

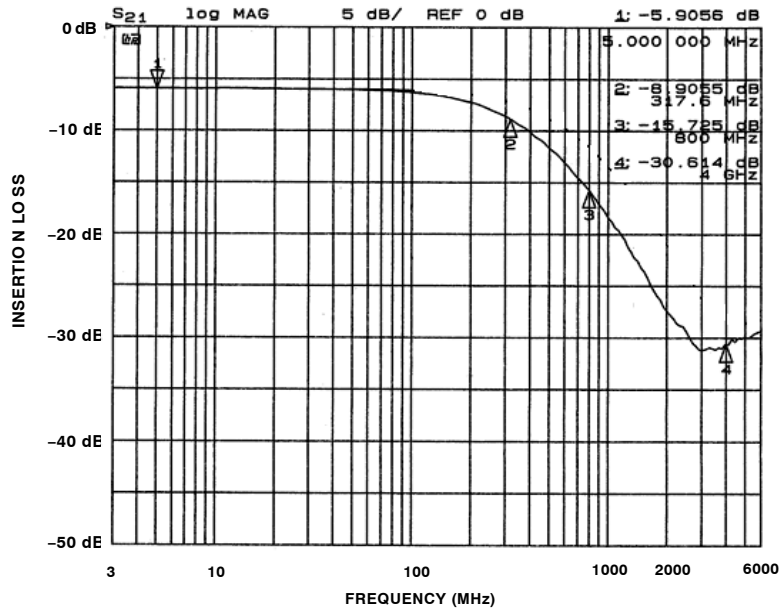


Figure 1. Insertion Loss, Filter 1 (pins A2, A3) and Filter 3 (pins C1, C3) (Bias = 0 V, $T_A = 25^\circ\text{C}$)

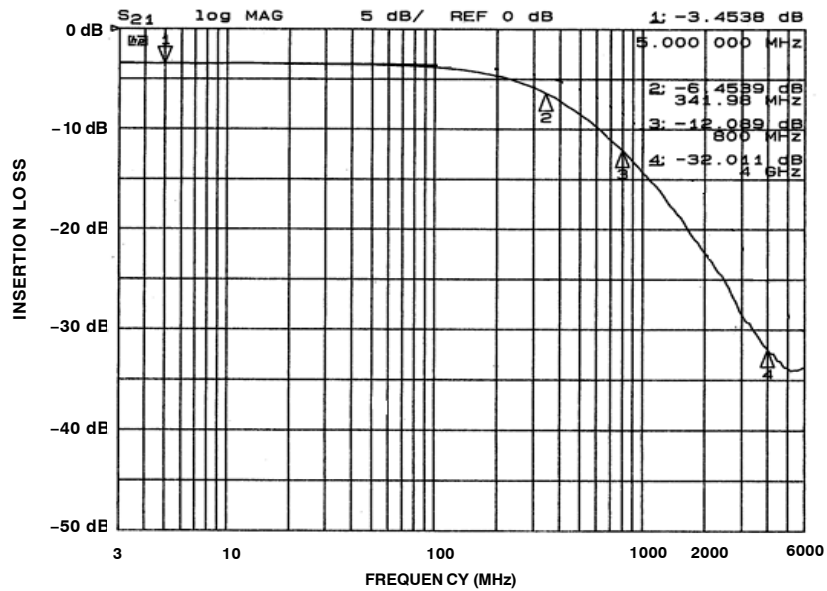
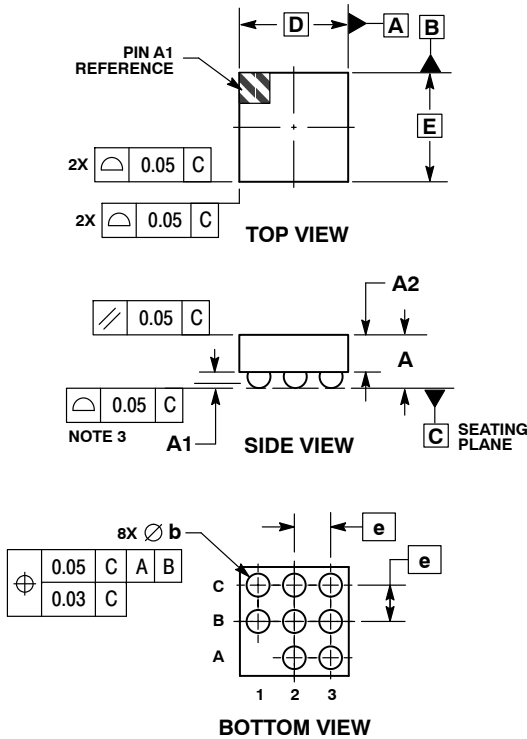


Figure 2. Insertion Loss, Filter 2 (pins B1, B3) (Bias = 0 V, $T_A = 25^\circ\text{C}$)

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PACKAGE DIMENSIONS

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

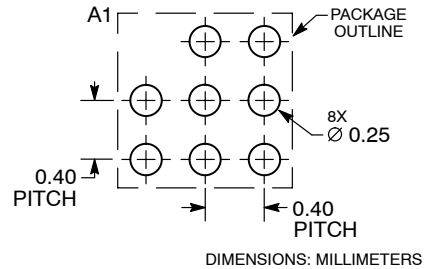


NOTES:

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

| MILLIMETERS | | |
|-------------|----------|------|
| DIM | 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, SOLDERRM/D.

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