LCD and Camera EMI Filter Array with ESD Protection

CM1450

Features

- High bandwidth, high RF rejection filter array
- Six and eight channels of EMI filtering
- Utilizes *Praetorian*® inductor-based design technology for true L-C filter implementation
- *OptiGuard*™ coating for improved reliability
- ±15kV ESD protection on each channel (IEC 61000-4-2 Level 4, contact discharge)
- ±30kV ESD protection on each channel (HBM)
- Better than 40dB of attenuation at 1GHz
- Maintains signal integrity for signals that have a risetime and falltime as fast as 2ns
- Chip Scale Package features extremely low lead inductance for optimum filter and ESD performance
- 15-bump, 3.006mm x 1.376mm footprint Chip Scale Package (CM1450-06CS/CP)
- 20-bump, 4.006mm x 1.376mm footprint Chip Scale Package (CM1450-08CS/CP)
- RoHS-compliant, lead-free finishing

Applications

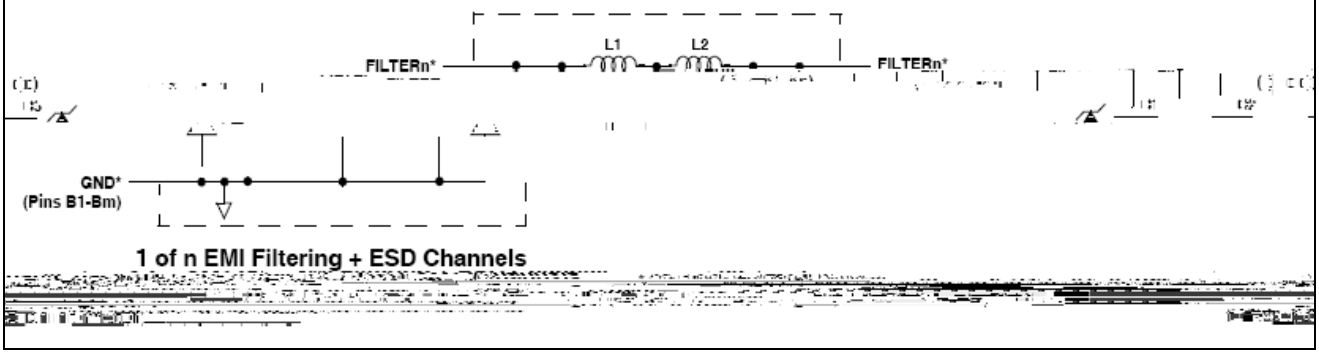
- LCD and Camera data lines in mobile handsets
- I/O port protection for mobile handsets, notebook computers, PDAs, etc.
- EMI filtering for data phones in cell phones, PDAs or notebook computers
- Wireless handsets / cell phones
- Handheld PCs/PDAs
- LCD and camera modules

Product Description

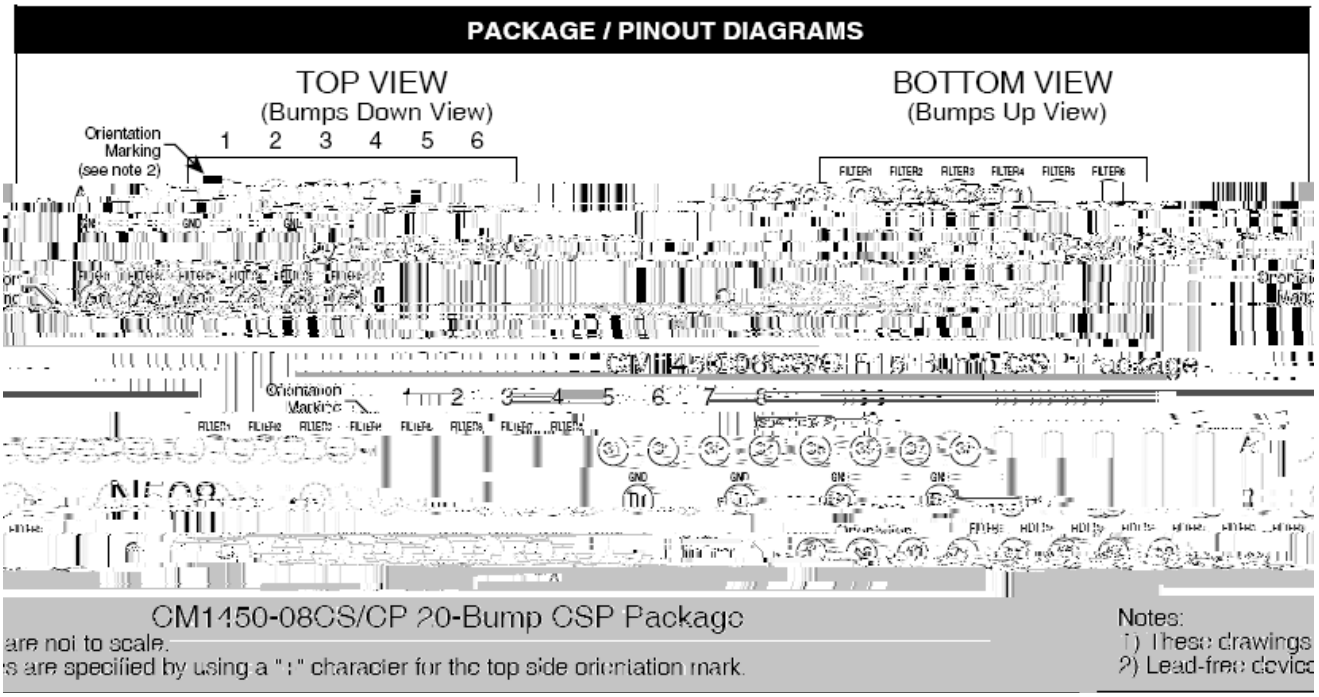
April 2010 Rev. 2

Publication Order Number:
CM1450/D

Electrical Schematic



PACKAGE / PINOUT DIAGRAMS



CM1450-08CS/CP 20-Bump CSP Package

are not to scale.
s are specified by using a "•" character for the top side orientation mark.

Notes:
1) These drawings
2) Lead-free device

PIN DESCRIPTIONS

CM1450-06	CM1450-08	

Specifications

ABSOLUTE MAXIMUM RATINGS		
PARAMETER	**RATING**	**UNITS**
Storage Temperature Range	-65 to +150	°C
Current per Inductor	30	mA
DC Package Power Rating	500	mW

STANDARD OPERATING CONDITIONS		
PARAMETER	**RATING**	**UNITS**
Operating Temperature Range	-40 to +85	°C

ELECTRICAL OPERATING CHARACTERISTICS

Performance Information

Typical Filter Performance (T_A=25°C, DC Bias=0V, 50 Ohm Environment)

Figure 1. Insertion Loss vs. Frequency (A1-C1 to GND B1)

Figure 2. Insertion Loss vs. Frequency (A2-C2 to GND B1)

Performance Information (cont'd)

Typical Filter Performance (T_A=25°C, DC Bias=0V, 50 Ohm Environment)

Figure 3. Insertion Loss vs. Frequency (A3-C3 to GND B2)

Figure 4. Insertion Loss vs. Frequency (A4-C4 to GND B2)

Performance Information (cont'd)

Typical Filter Performance (T_A=25°C, DC Bias=0V, 50 Ohm Environment)

Figure 5. Insertion Loss vs. Frequency (A5-C5 to GND B3)

Figure 6. Insertion Loss vs. Frequency (A6-C6 to GND B3)

Performance Information (cont'd)

Typical Filter Performance (T_A=25°C, DC Bias=0V, 50 Ohm Environment)

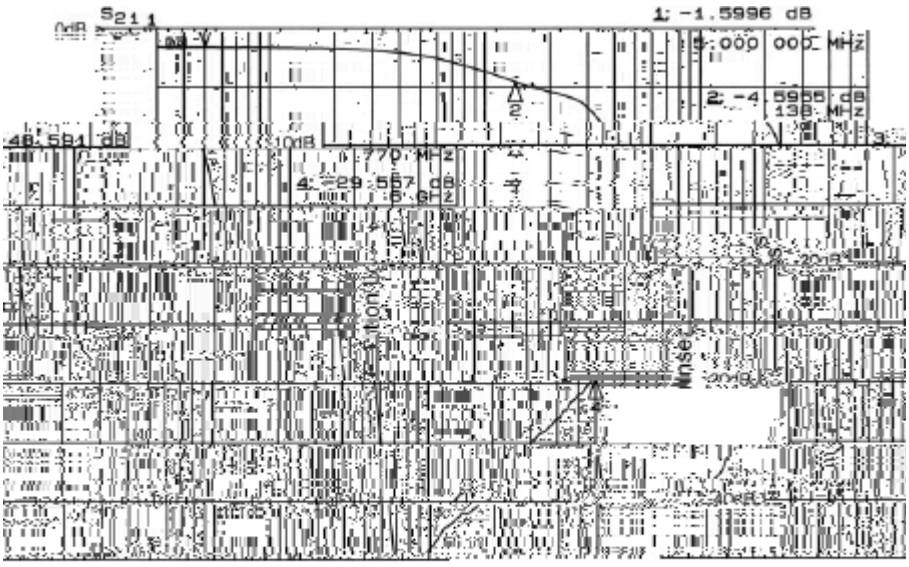


Figure 7. Insertion Loss vs. Frequency (A7-C7 to GND B4)

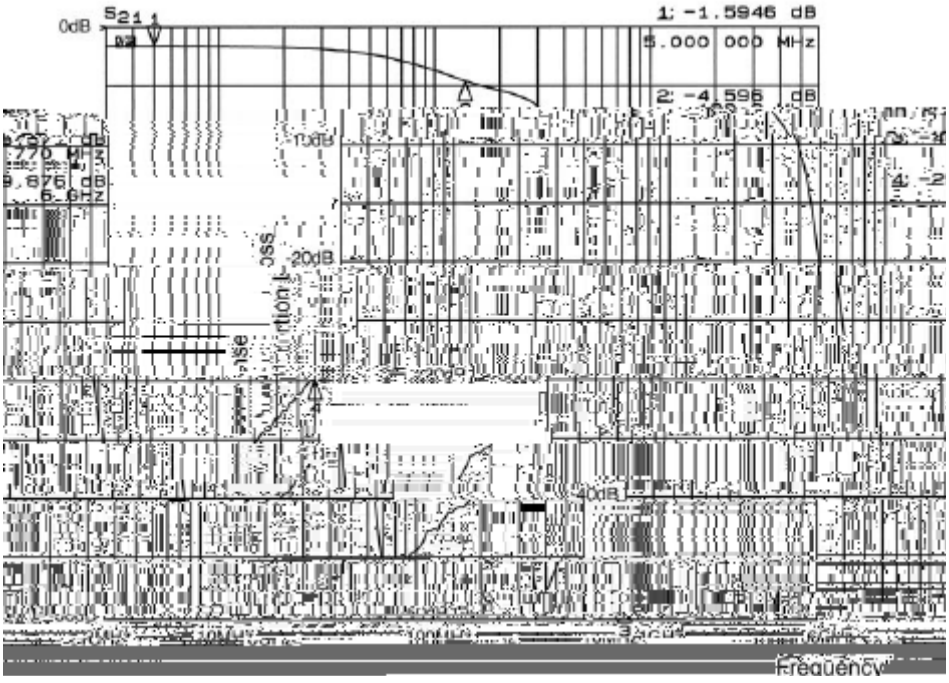


Figure 8. Insertion Loss vs. Frequency (A8-C8 to GND B4)

Performance Information (cont'd)

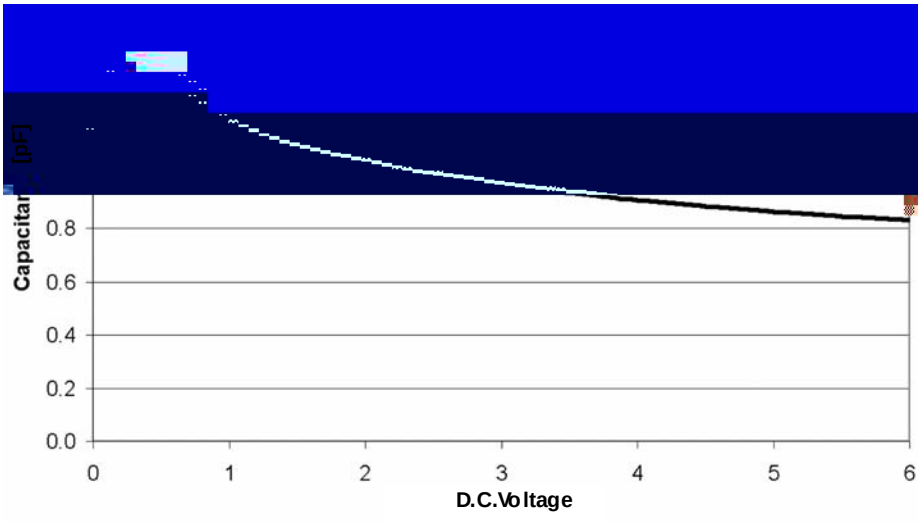


Figure 9. Filter Capacitance vs. Input Voltage over Temperature (normalized to capacitance at 2.5VDC and 25°C)

Transient Response Characteristics

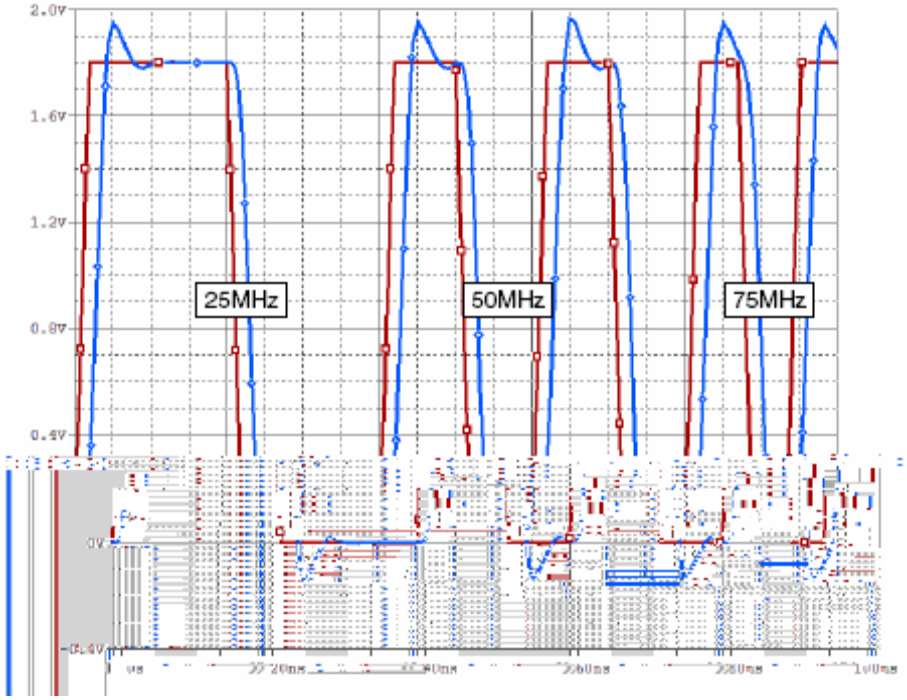


Figure 10. Simulated Transient Response (input signal risetime and falltime= 2ns, clocked at 25, 50 and 75 MHz, 15Ω Source Resistance, 5pF Load)

Application Information

PARAMETER	VALUE
Pad Size on PCB	0.240mm
Pad Shape	Round
Pad Definition	Non-Solder Mask defined pads
Solder Mask Opening	0.290mm Round
Solder Stencil Thickness	0.125mm - 0.150mm
Solder Stencil Aperture Opening (laser cut, 5% tapered walls)	0.300mm Round
Solder Flux Ratio	

Mechanical Details

CM1450-06 CSP Mechanical Specifications

The CM1450-06CS/CP is supplied in a custom Chip Scale Package (CSP). Dimensions are presented below. For complete information, see the California Micro Devices CSP Package Information document.

Mechanical Package Diagrams

PACKAGE DIMENSIONS						
Package	Custom CSP					
Bumps	15					
Dim	**Millimeters**			**Inches**		
	Min	**Nom**	**Max**	**Min**	**Nom**	**Max**
A1	2.961	3.006	3.051	0.1166	0.1183	0.1201
A2	1.331	1.376	1.421	0.0524	0.0542	0.0559
B1	0.495	0.500	0.505	0.0195	0.0197	0.0199
B2	0.245	0.250	0.255	0.0096	0.0098	0.0100
B3	0.430	0.435	0.440	0.0169	0.0171	0.0173
B4	0.430	0.435	0.440	0.0169	0.0171	0.0173
C1	0.203	0.253	0.303	0.0080	0.0100	0.0119
C2	0.203	0.253	0.303	0.0080	0.0100	0.0119
D1	0.575	0.644	0.714	0.0226	0.0254	0.0281
D2	0.368	0.419	0.470	0.0145	0.0165	0.0185
# per tape and reel	3500 pieces					
Controlling dimension: millimeters						

Package Dimensions for
CM1450-06CS/CP Chip Scale Package

ER L	P_0	P_1
0	4mm	4mm

ON Semiconductor and