



EMIF06-VID01C2

IPAD™

6 line low capacitance EMI filter and ESD protection

Main application

Where EMI filtering in ESD sensitive equipment is required:

- LCD and camera for mobile phones
- Computers and printers
- Communication systems
- MCU board

Description

The EMIF06-VID01C2 is a 6 line highly integrated device designed to suppress EMI/RFI noise in all systems subjected to electromagnetic interference. The Flip-Chip packaging means the package size is equal to the die size.

This filter includes ESD protection circuitry, which prevents damage to the application when it is subjected to ESD surges up to 15 kV.

Benefits

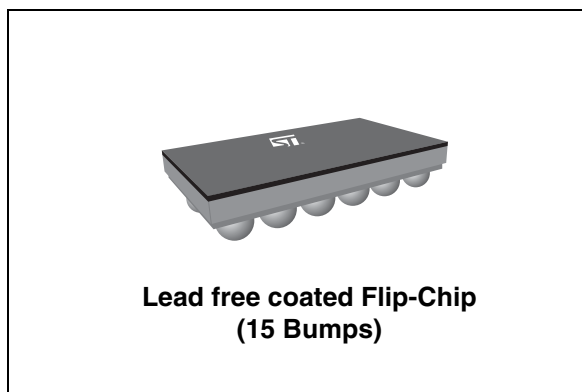
- High efficiency EMI filtering (-40db @ 900MHz)
- Low line capacitance suitable for high speed data bus
- Low serial resistance for camera impedance adaptation
- Optimized PCB space consuming: 2.92mm x 1.29mm
- Very thin package: 0.69 mm
- High efficiency in ESD suppression on inputs pins (IEC61000-4-2 level 4)
- High reliability offered by monolithic integration
- High reducing of parasitic elements through integration and wafer level packaging
- Lead free package

Complies with the following standards:

IEC 61000-4-2

level 4 input pins 15 kV (air discharge)
 8 kV (contact discharge)

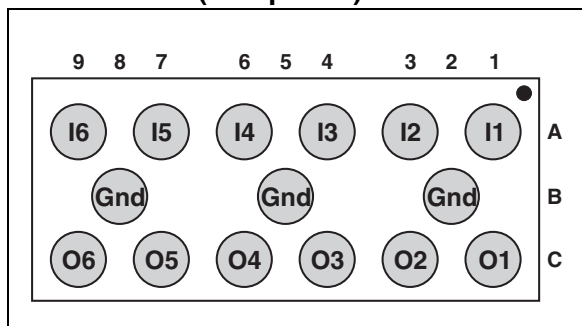
MIL STD 883E - Method 3015-6 Class 3



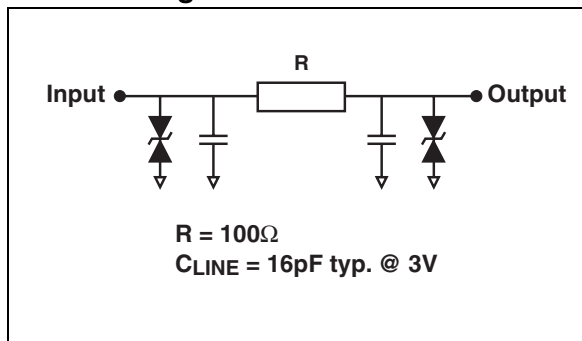
Order code

| Part Number | Marking |
|----------------|---------|
| EMIF06-VID01C2 | GR |

Pin identities (bump side)



Circuit configuration



1 Characteristics

Table 1. Absolute Ratings (limiting values)

| Symbol | Parameter and test conditions | Value | Unit |
|-----------|-------------------------------|---------------|------|
| T_j | Maximum junction temperature | 125 | °C |
| T_{op} | Operating temperature range | - 40 to + 85 | °C |
| T_{stg} | Storage temperature range | - 55 to + 150 | °C |

Table 2. Electrical Characteristics ($T_{amb} = 25^\circ C$)

| Symbol | Parameter |
|------------|--------------------------------------------|
| V_{BR} | Breakdown voltage |
| I_{RM} | Leakage current @ V_{RM} |
| V_{RM} | Stand-off voltage |
| R | Series resistance between Input and Output |
| C_{line} | Input capacitance per line |

The graph plots current I on the vertical axis against voltage V on the horizontal axis. The curve shows a sharp increase in current at the breakdown voltage V_{BR} . Key points on the graph include V_{BR} , V_{RM} , I_R , and I_{RM} .

| Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|------------|------------------------------------------------------------------|------|------|------|----------|
| V_{BR} | $I_R = 1 \text{ mA}$ | 6 | 8 | 10 | V |
| I_{RM} | $V_{RM} = 3 \text{ V per line}$ | | | 500 | nA |
| R | $I = 10 \text{ mA}$ | 80 | 100 | 120 | Ω |
| C_{line} | $V_R = 3 \text{ V DC}$ 1 MHz $V_{OSC} = 30 \text{ mV}$ | | 16 | 19 | pF |

Figure 1. S21 (db) attenuation measurement

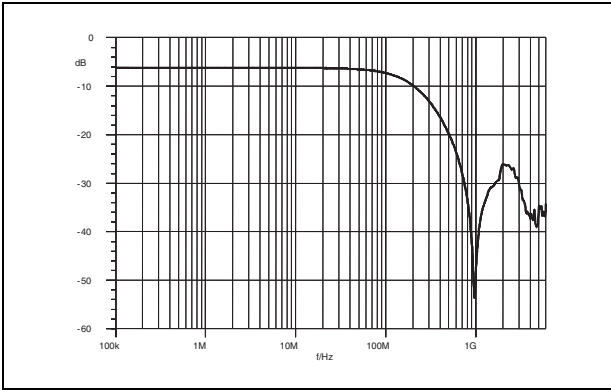


Figure 2. Analog crosstalk measurement

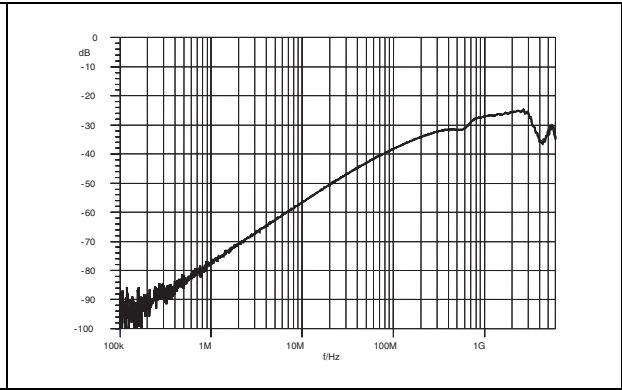


Figure 3. ESD response to IEC 61000-4-2 (+15kV air discharge) on one input (Vin) and on one output (Vout)

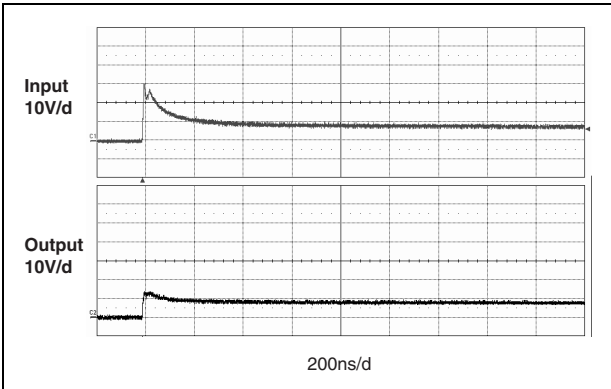


Figure 4. ESD response to IEC 61000-4-2 (-15kV air discharge) on one input (Vin) and on one output (Vout)

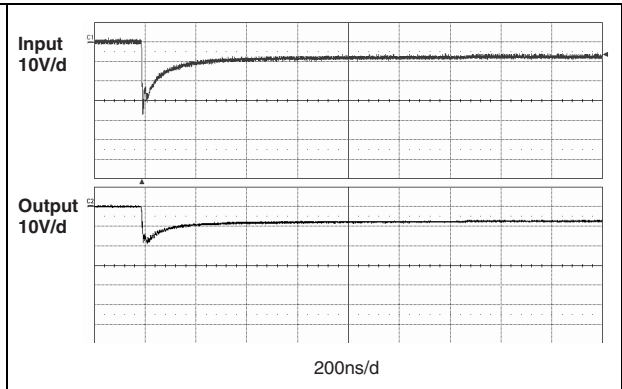
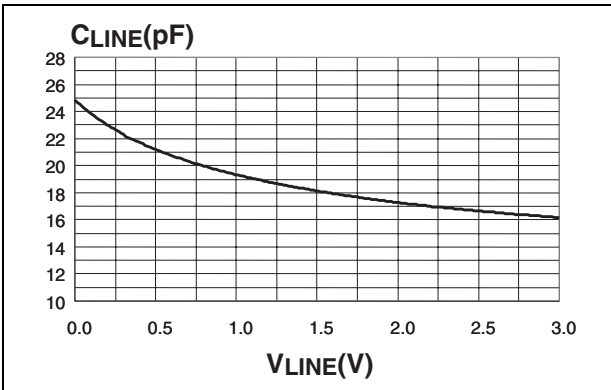
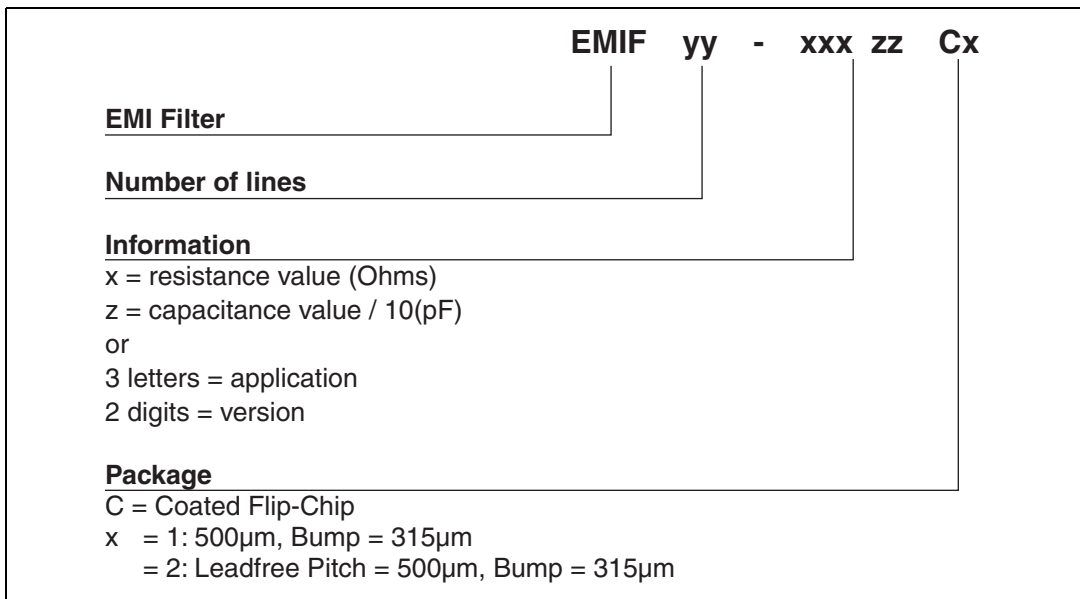


Figure 5. Junction capacitance versus reverse voltage applied (typical values)



2 Ordering information scheme



3 Package information

Figure 6. Flip-Chip Dimensions

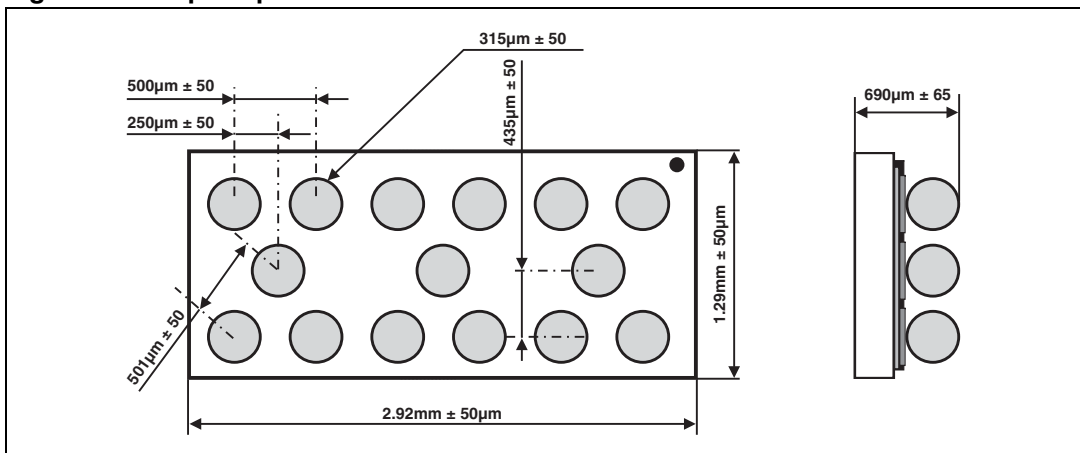


Figure 7. Footprint recommendations **Figure 8. Marking**

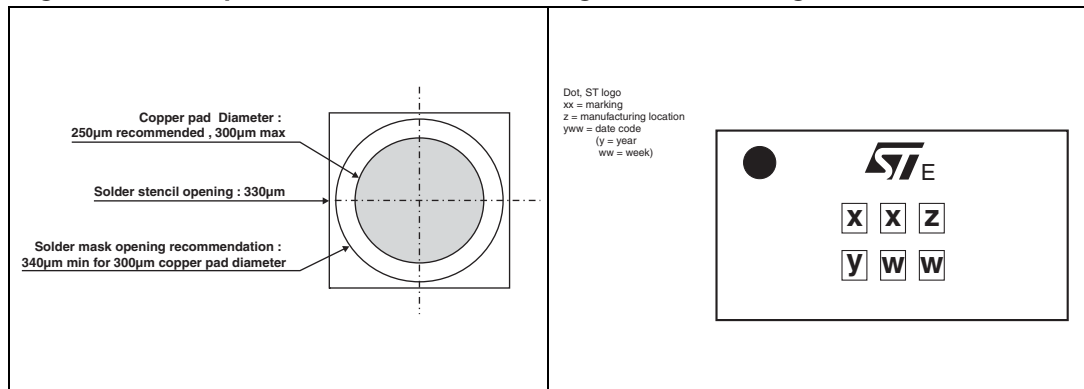
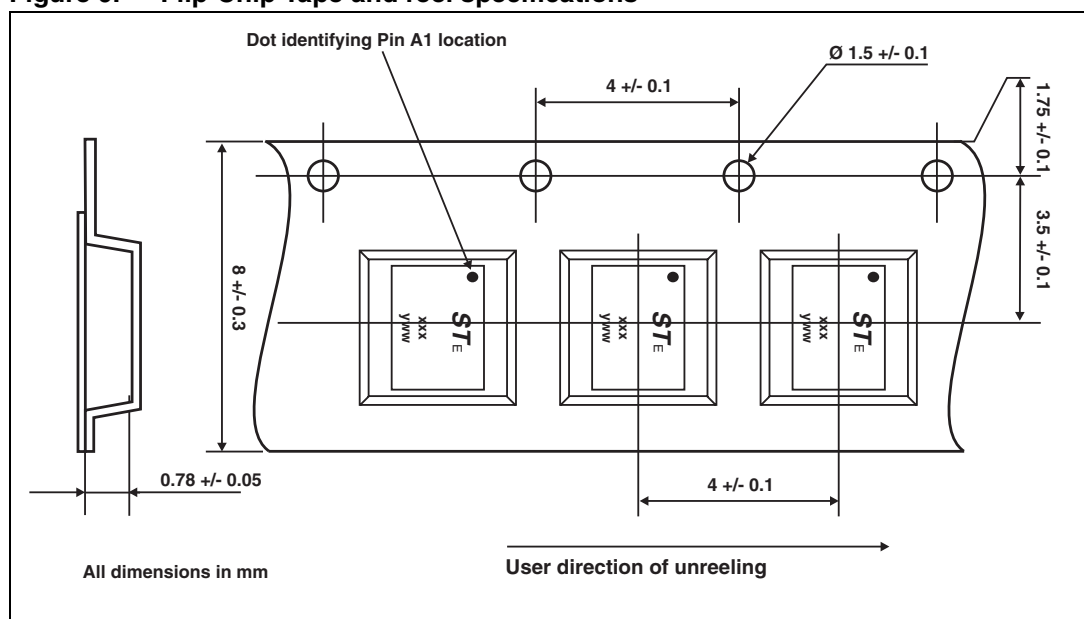


Figure 9. Flip-Chip Tape and reel specifications



In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.

Note: More packing informations are available in the application note
 AN1235: “Flip-Chip: Package description and recommendations for use”
 AN1751: “EMI Filters: Recommendations and measurements”

4 Ordering information

| Ordering code | Marking | Package | Weight | Base qty | Delivery mode |
|----------------|---------|-----------|--------|----------|------------------|
| EMIF06-VID01C2 | GR | Flip-Chip | 5.9 mg | 5000 | Tape and reel 7" |

5 Revision history

| Date | Revision | Changes |
|-------------|----------|----------------------------------------------------------------------------------------------------------------------------|
| 12-Aug-2005 | 1 | First issue. |
| 01-Jun-2006 | 2 | Reformatted to current standards. Modified marking illustration to remove dimensions. Depth dimension changed in Figure 9. |

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