

8 line low capacitance EMI filter and ESD protection

Main product characteristics

Where EMI filtering in ESD sensitive equipment is required:

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

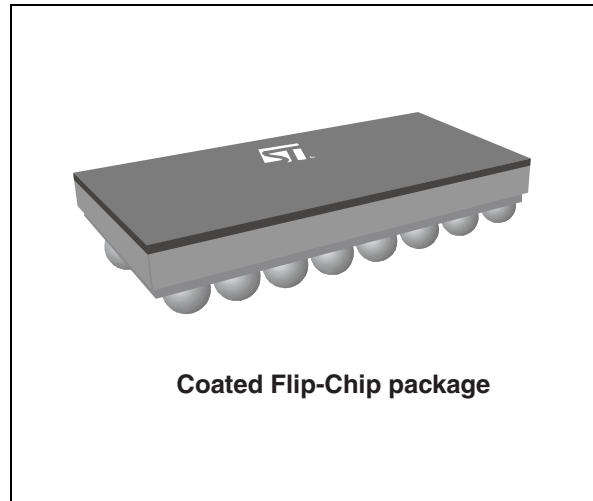
Description

The EMIF08-VID01C2 is an 8 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.

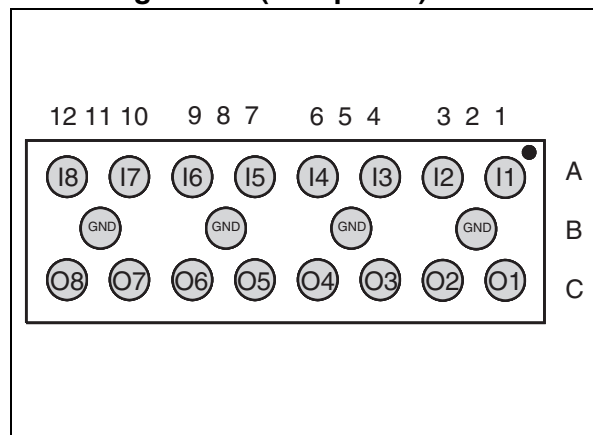
This filter includes ESD protection circuitry, which prevents damage to the application when it is subjected to ESD surges up to 15 kV.

Benefits

- High efficiency EMI filter (-33 dB @ 900 MHz)
- Low line capacitance suitable for high speed data bus
- Low serial resistance for camera impedance adaptation
- Optimized PCB space consuming:
1.29 mm x 3.92 mm
- Very thin package: 0.695 mm
- Coating resin on back side and lead free package
- High efficiency in ESD suppression on inputs pins (IEC 61000-4-2 level 4).
- High reliability offered by monolithic integration
- High reducing of parasitic elements through integration & wafer level packaging.



Pin configuration (Bump side)



Complies with following standards:

IEC 61000-4-2

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

level 1 output pins	2 kV	(air discharge)
---------------------	------	-----------------

	2 kV	(contact discharge)
--	------	---------------------

MIL STD 883E - Method 3015-6 Class 3

1 Characteristics

Figure 1. Basic cell configuration

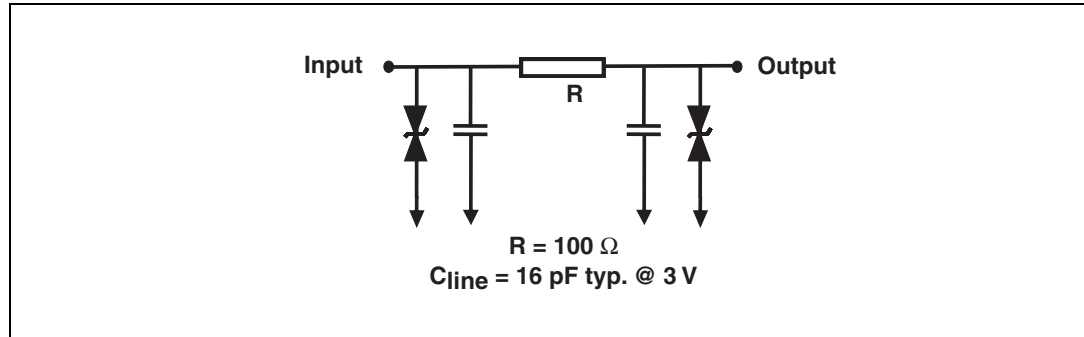


Table 1. Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V_{pp}	ESD discharge IEC 61000-4-2 air discharge	15	kV
	ESD discharge IEC 61000-4-2 contact discharge	8	kV
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	Parameters
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

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
$R_{I/O}$	$I = 10 \text{ mA}$	80	100	120	Ω
C_{line}	$V_R = 3 \text{ V DC}, 1 \text{ MHz}$		16	19	pF

Figure 2. S21 (dB) attenuation measurement

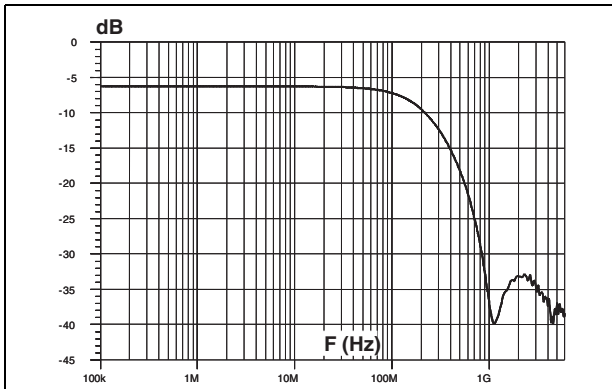


Figure 3. Analog crosstalk measurement

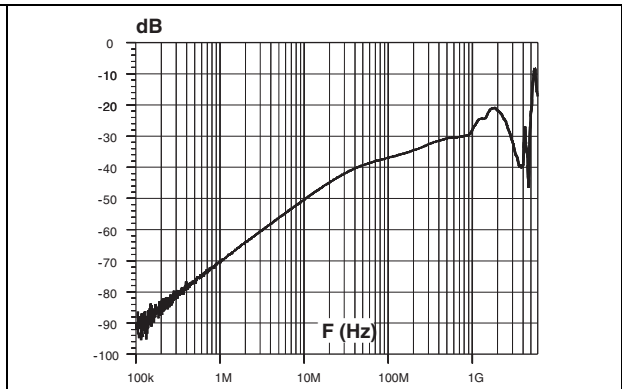


Figure 4. ESD response to IEC 61000-4-2 (+15 kV air discharge) on one input V_{in} and one output V_{out}

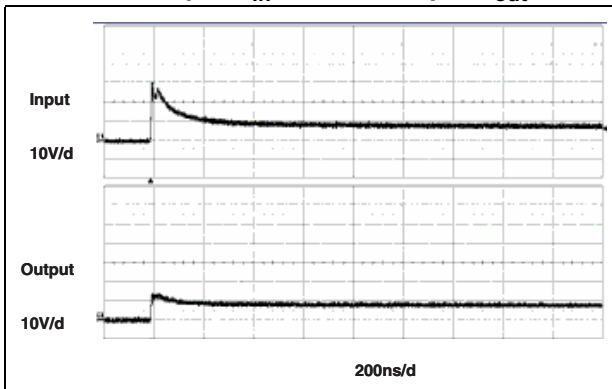


Figure 5. ESD response to IEC 61000-4-2 (-15 kV air discharge) on one input V_{in} and one output V_{out}

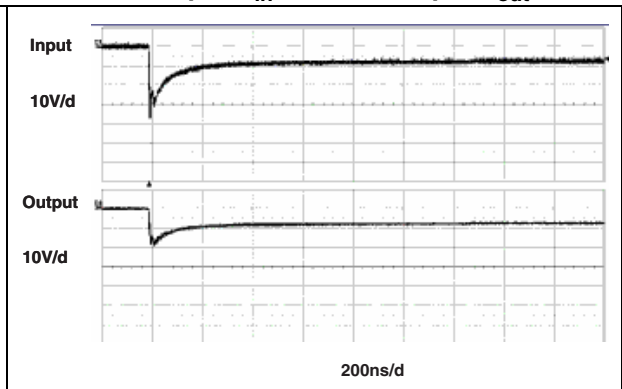
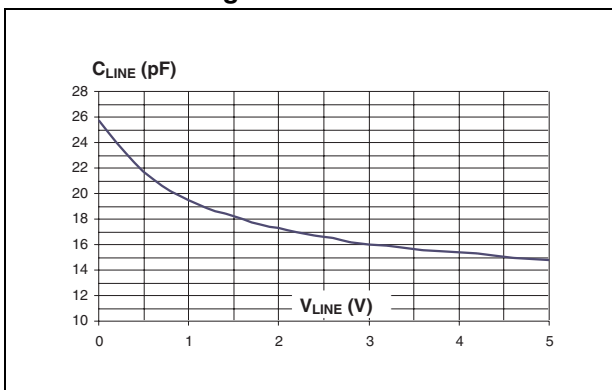
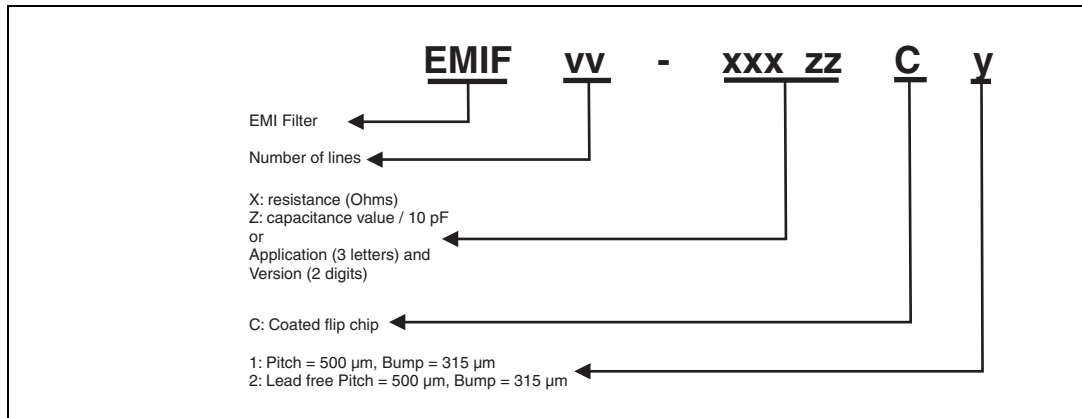


Figure 6. Line capacitance versus applied voltage



2 Ordering information scheme



3 Package information

Figure 7. Flip-Chip Dimensions

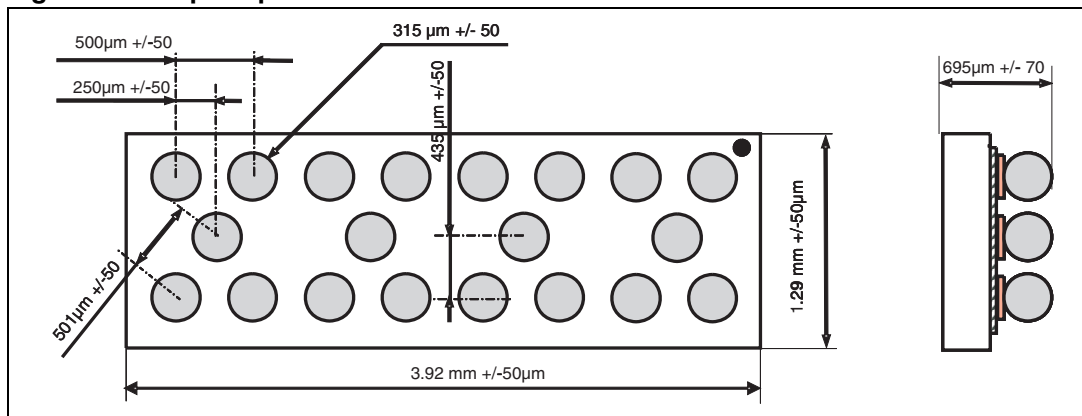


Figure 8. Marking

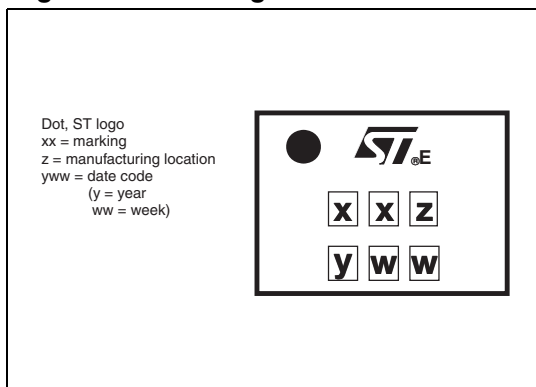


Figure 9. Footprint recommendation

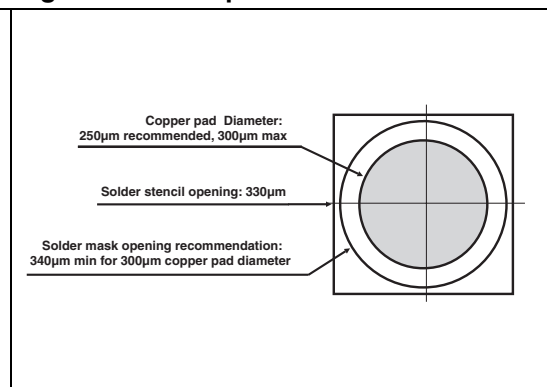
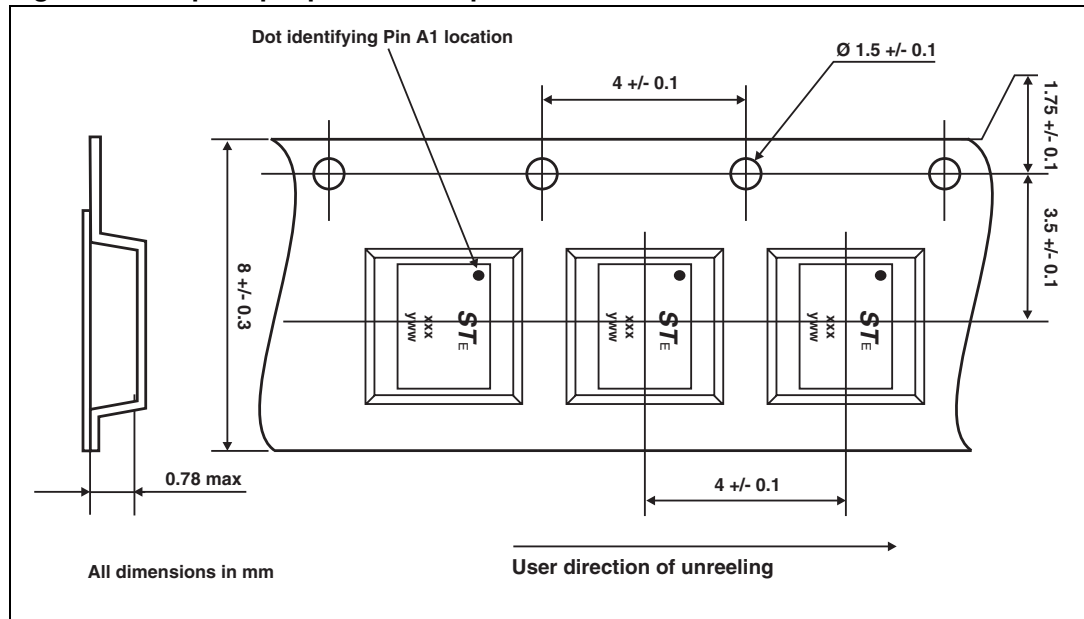


Figure 10. Flip-Chip tape and reel specification



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.

4 Ordering information

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
EMIF08-VID01C2	GS	Flip-Chip	7.4mg	4000	7" Tape and reel

5 Revision history

Date	Revision	Changes
13-Jul-2005	1	Initial release.
11-Aug-2005	2	Fonts changed in Figures 7, 8, and 9.
31-May-2006	3	Reformatted to current standards. Depth dimension changed in Figure 10.
26-Oct-2006	4	Base quantity changed to 4000 in Ordering information

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2006 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com