



EMIF08-1502M16

IPAD™

8 line low capacitance EMI filter and ESD protection in Micro QFN package

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 EMIF08-1502M16 is an 8 line highly integrated device designed to suppress EMI/RFI noise in all systems exposed to electromagnetic interference.

This filter includes an ESD protection circuitry, which prevents damage to the application when subjected to ESD surges up to 15 kV on the input or output pins.

Benefits

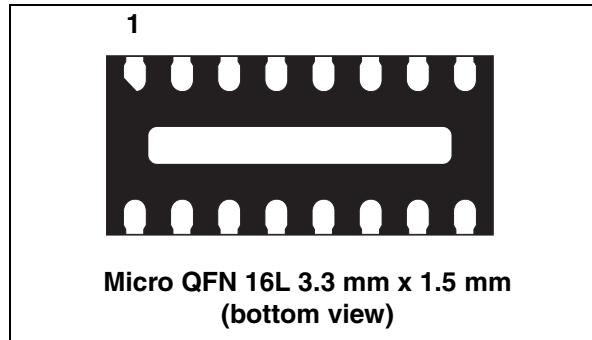
- EMI (I/O) low-pass filter
- High efficiency in EMI filtering:
 - Greater than 30 dB attenuation at frequencies from 900 MHz to 1.8 GHz
- Cut_off frequency: 300 MHz
- Very low PCB space consuming: 3.3 mm x 1.5 mm
- Very thin package: 0.6 mm max.
- High efficiency in ESD suppression on inputs pins (IEC 61000-4-2 level 4).
- High reliability offered by monolithic integration
- High reduction of parasitic elements through integration
- Lead free package

Complies with following standards:

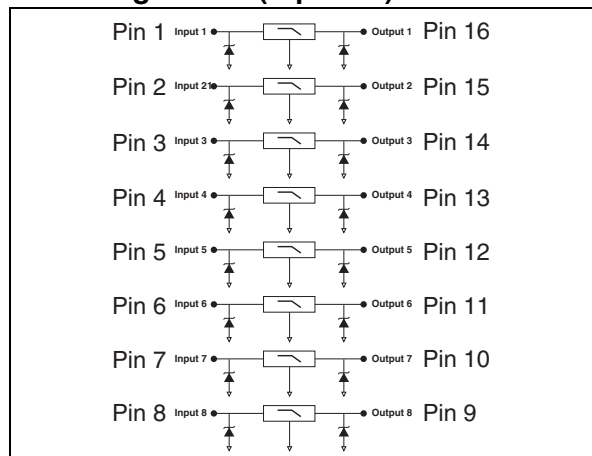
IEC 61000-4-2

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

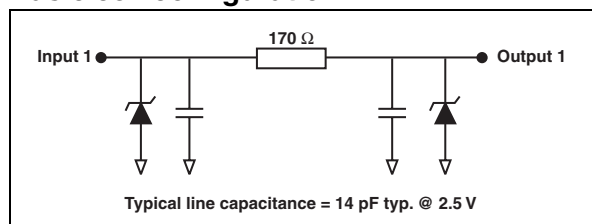
MIL STD 883E - Method 3015-6 Class 3 (all pins)



Pin configuration (top view)



Basic cell configuration

**Order code**

Part number	Marking
EMIF08-1502M16	G8

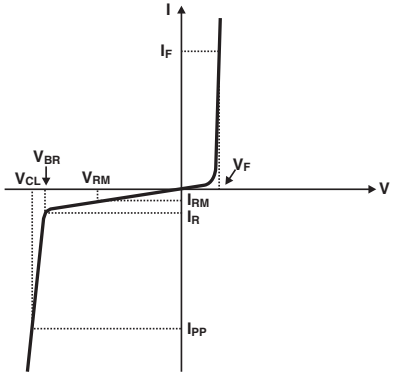
TM: IPAD is a trademark of STMicroelectronics

1 Characteristics

Table 1. Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V _{PP}	ESD discharge IEC 61000-4-2 contact discharge on input and output pins	15	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° C)

Symbol	Parameter	
V _{BR}	Breakdown voltage	
I _{RM}	Leakage current @ V _{RM}	
V _{RM}	Stand-off voltage	
V _{CL}	Clamping voltage	
R _d	Dynamic resistance	
I _{PP}	Peak pulse current	
R _{I/O}	Series resistance between Input & Output	
C _{line}	Input capacitance per line	

Symbol	Test conditions	Min.	Typ.	Max.	Unit
V _{BR}	I _R = 1 mA	6	8	10	V
V _F	I = 10 mA	0.5	1.0	1.5	V
I _{RM}	V _{RM} = 3 V per line			100	nA
R _{I/O}	Tolerance ± 10%	153	170	187	Ω
C _{line}	V _R = 2.5 V DC, V _{OSC} = 30 mV, F = 1 MHz	12	14	16.5	pF

Figure 1. S21(dB) attenuation measurement Figure 2. Analog cross talk measurements

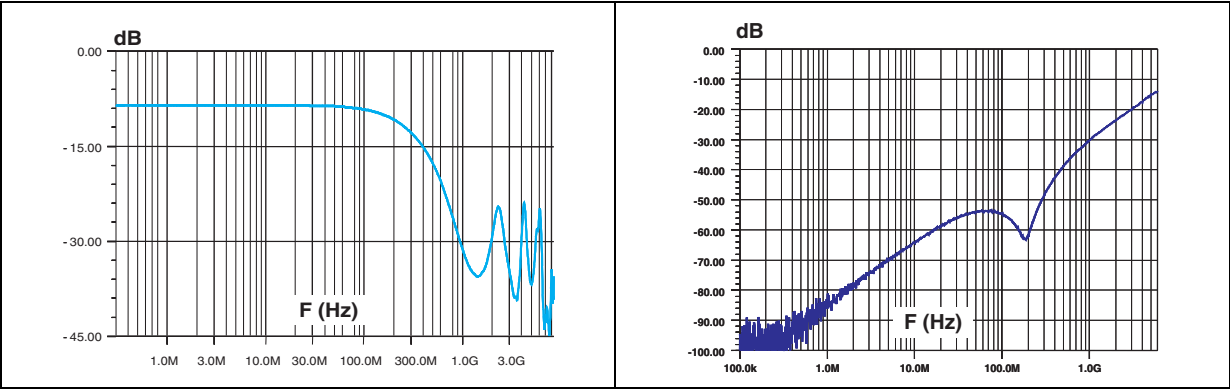


Figure 3. ESD response to IEC 61000-4-2 (+15 kV air discharge) on one input (V_{in}) and on one output (V_{out})

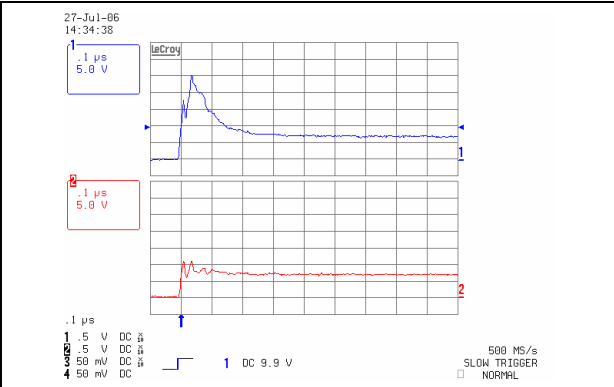


Figure 4. ESD response to IEC 61000-4-2 (-15 kV air discharge) on one input (V_{in}) and on one output (V_{out})

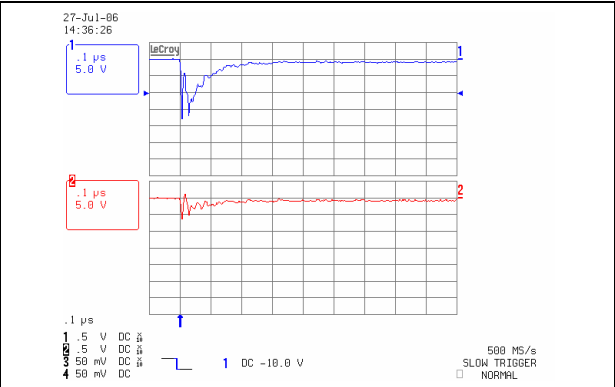
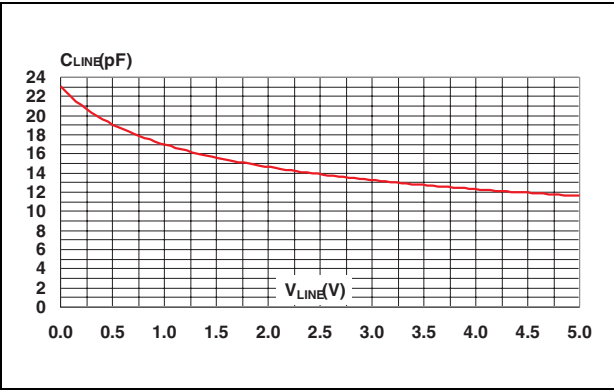


Figure 5. Line capacitance versus reverse voltage applied (typical value)



2 Ordering information scheme

	EMIF	yy	-	xxx	z	Mx
EMI Filter						
Number of lines						
Information						
x = resistance value (Ohms)						
z = capacitance value / 10 (pF)						
Package						
Mx = Micro QFN x leads						

3 Package information

Table 3. Micro QFN 3.3x1.5 16L dimensions

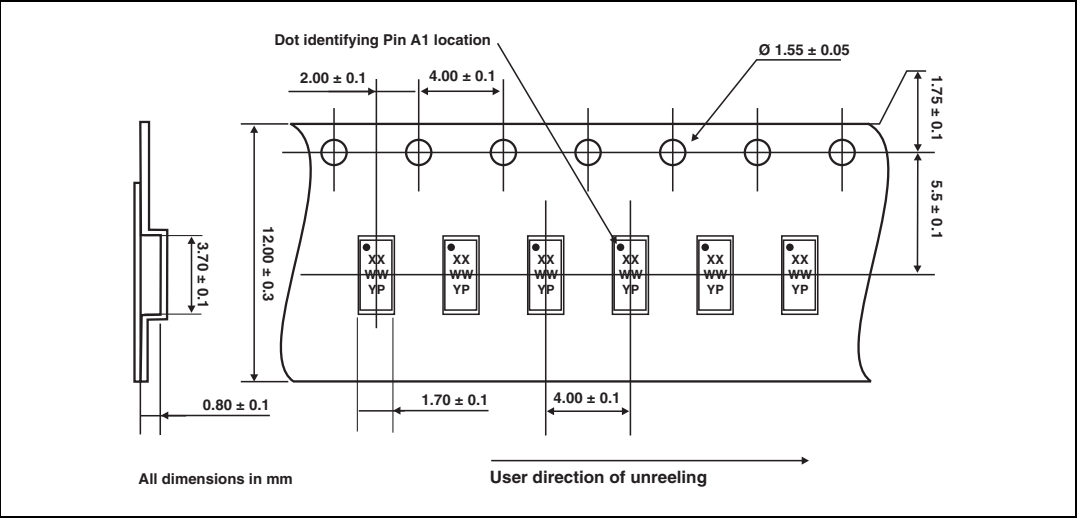
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.50	0.55	0.60	0.020	0.022	0.024
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
D	3.20	3.30	3.40	0.126	0.130	0.134
D2	2.45	2.60	2.70	0.096	0.102	0.106
E	1.40	1.50	1.60	0.055	0.059	0.063
E2	0.20	0.35	0.45	0.008	0.014	0.018
e		0.40			0.016	
K	0.20			0.008		
L	0.20	0.30	0.40	0.008	0.012	0.016

Figure 6. Micro QFN 3.3x1.5 16L footprint (dimensions in mm)

Figure 7. Marking

Dot : Pin 1 Identification
X X= Marking
WW= DataCode (week)
Y=Data code(Year)
P=Assembly plant

Figure 8. 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

Part number	Marking	Package	Weight	Base qty	Delivery mode
EMIF08-1502M16	G8	Micro QFN	7.2 mg	3000	Tape and reel (7")

5 Revision history

Date	Revision	Changes
24-Oct-2006	1	Initial release.

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