EMIF08-1005M16

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 EMIF08-1005M16 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 symmetrical (I/O) low-pass filter
- High efficiency in EMI filtering:
  - Greater than 34 dB attenuation at frequencies from 900 MHz to 1.8 GHz
- Cut-off frequency: 100 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:

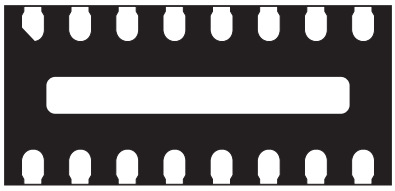
IEC 61000-4-2

level 4 input and output pins 15 kV (air discharge)

8 kV (contact discharge)

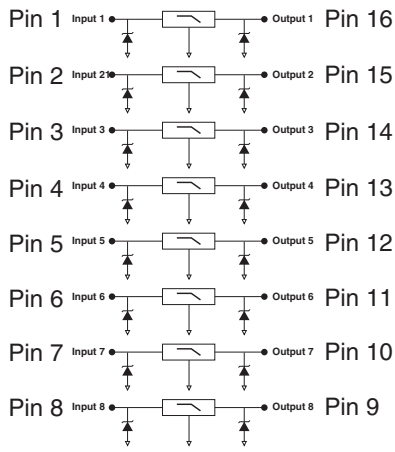
MIL STD 883E - Method 3015-6 Class 3 (all pins)

1

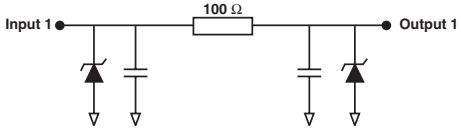


Micro QFN 16L 3.3 mm x 1.5 mm (bottom view)

Pin configuration (top view)



Basic cell configuration



Typical line capacitance = 45 pF typ. @ 0 V

Order code

Part number	Marking
EMIF08-1005M16	H8

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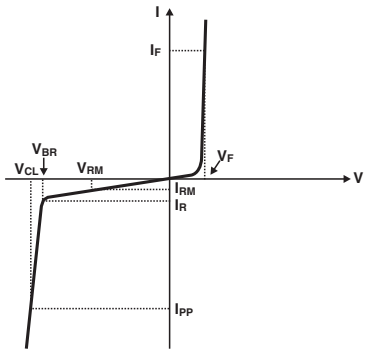
1 Characteristics

Table 1. Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V_{PP}	ESD discharge IEC 61000-4-2 air discharge on input pins 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%	90	100	110	Ω
C_{line}	V_R= 0 V DC, V_{OSC} = 30 mV, F = 1 MHz	38	45	52	pF

Figure 1. S21(dB) attenuation measurement

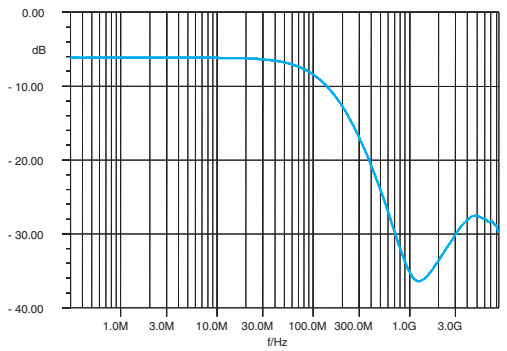


Figure 2. Analog cross talk measurements

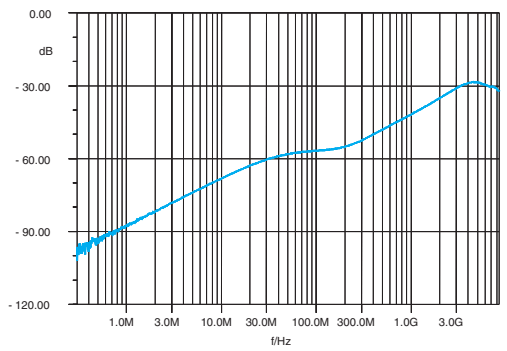


Figure 3. ESD response to IEC 61000-4-2 (+15 kV air discharge) on one input (V_{in}) and on one output (V_{out})

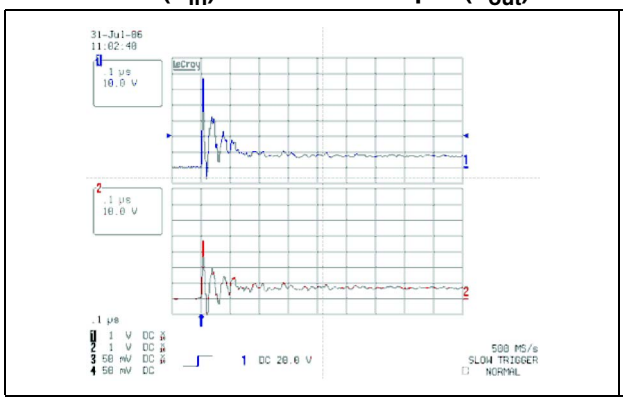


Figure 4. ESD response to IEC 61000-4-2 (- 15 kV air discharge) on one input (V_{in}) and on one output (V_{out})

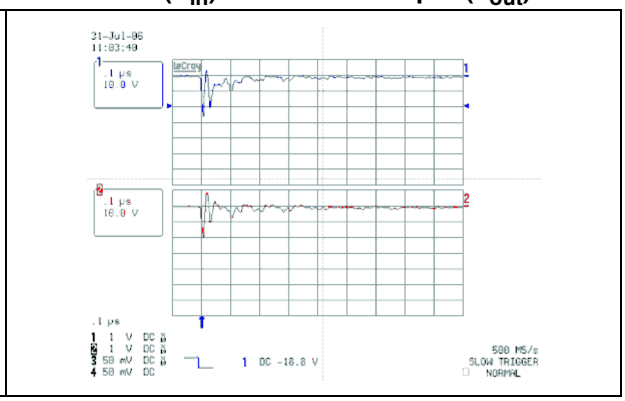
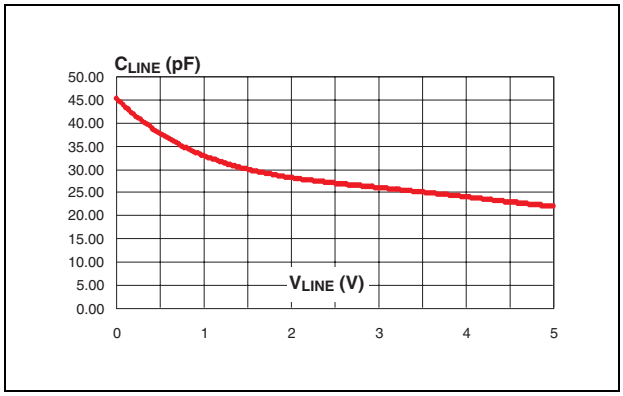


Figure 5. Line capacitance versus reverse voltage applied (typical value)



2 Ordering information scheme

EMIF yy - xxx z Mx

EMI Filter

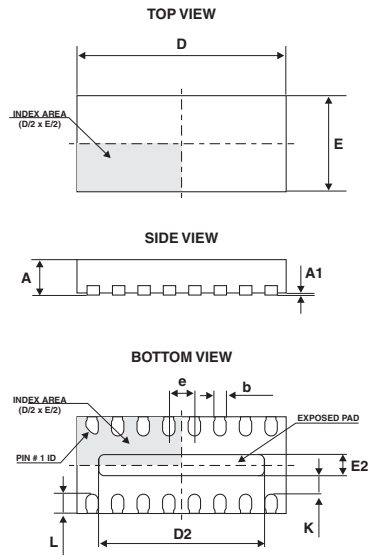
Number of lines

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)

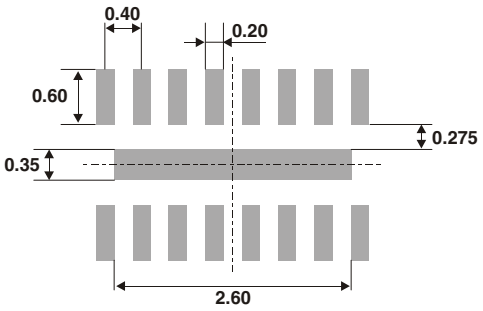


Figure 7. Marking

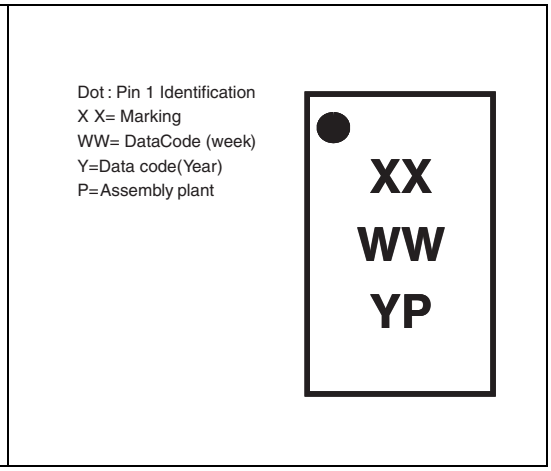
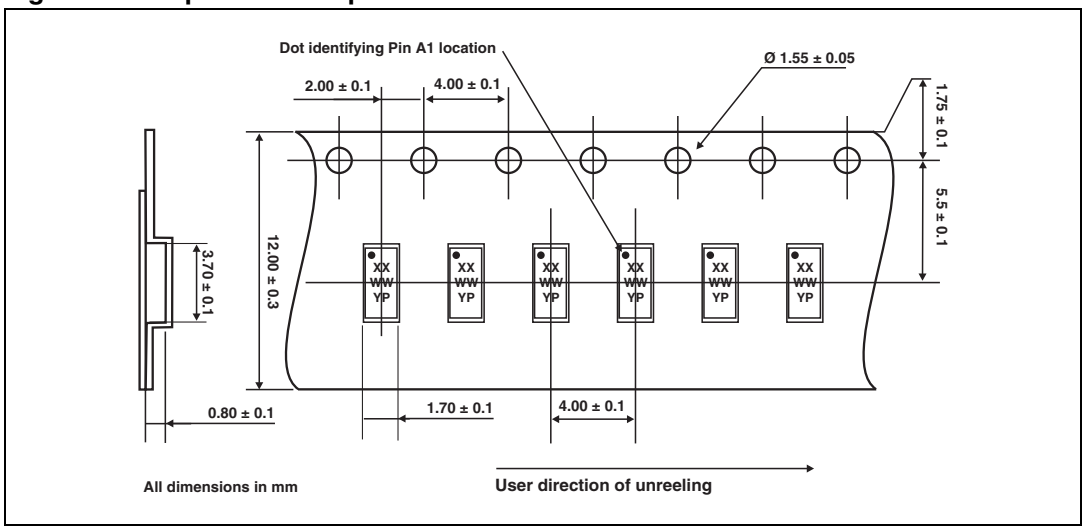


Figure 8. Tape and reel specification



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
EMIF08-1005M16	H8	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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