



EMIF04-2005QCF

IPAD™

EMI FILTER INCLUDING ESD PROTECTION

APPLICATIONS

Where EMI filtering in ESD sensitive equipment is required :

- Computers and printers
- Communication systems
- Mobile phones

DESCRIPTION

The EMIF04-2005QCF is a highly integrated device designed to suppress EMI/RFI noise in all systems subjected to electromagnetic interferences. Additionally, the EMIF04-2005QCF filter includes an ESD protection circuitry which prevents destruction when subjected to ESD discharge up to 15kV.

BENEFITS

- EMI symmetrical low-pass filter
- Low PCB space consuming: 4 mm²
- Very thin package < 1 mm
- High reliability offered by monolithic integration

COMPLIES WITH THE FOLLOWING STANDARDS:

IEC61000-4-2:

15kV (air discharge)
8kV (contact discharge)

MIL STD 883E -Method 3015-6 Class 3:

25kV (human body test)

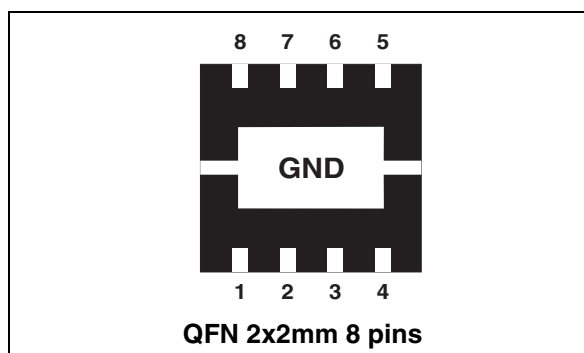


Table 1: Order Code

Part Number	Marking
EMIF04-2005QCF	E4

Figure 1: Pin Configuration

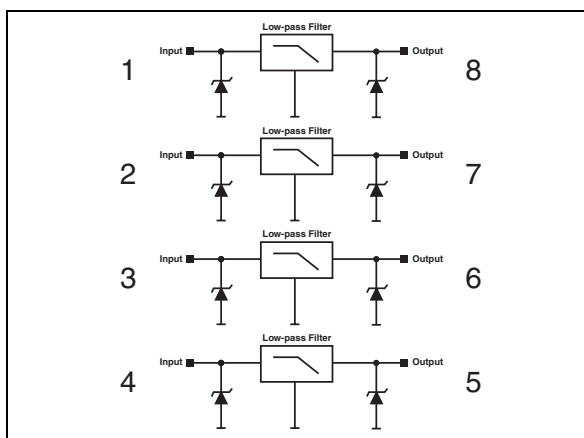
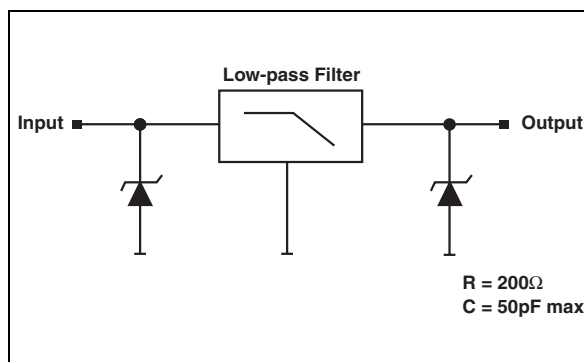


Figure 2: Basic Cell Configuration



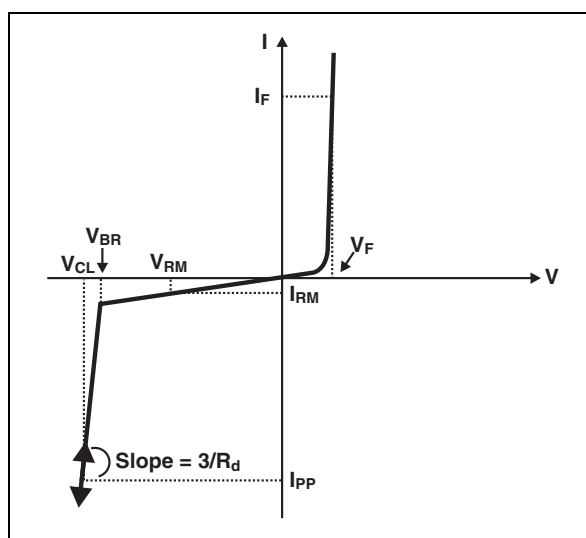
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Table 2: Absolute Ratings ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter and test conditions		Value	Unit
V_{PP}	ESD discharge	EC61000-4-2 air discharge IEC61000-4-2 contact discharge	± 45 ± 8	kV
T_j	Junction temperature		125	$^{\circ}\text{C}$
T_{stg}	Storage temperature range		- 55 +150	$^{\circ}\text{C}$
T_{op}	Operating temperature range		- 40 to + 85	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10s at 5mm from case		260	$^{\circ}\text{C}$

Table 3: Electrical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter
V_{BR}	Breakdown voltage
I_{RM}	Leakage current @ V_{RM}
V_{RM}	Stand-off voltage
V_{CL}	Clamping voltage
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
V_F	Forward voltage drop
$R_{I/O}$	Series resistance between Input & Output
C_{line}	Input capacitance per line



Symbol	Test conditions	Min.	Typ.	Max.	Unit
V_{BR}	$I_R = 1\text{ mA}$	6	8	10	V
I_{RM}	$V_{RM} = 3\text{ V per line}$			500	nA
R_d	$I_{PP} = 10\text{ A}$, $t_p = 2.5\mu\text{s}$		1		Ω
$R_{I/O}$		180	200	220	Ω
C_{in}	@ 0V bias		45	50	pF

Figure 3: Filtering behavior

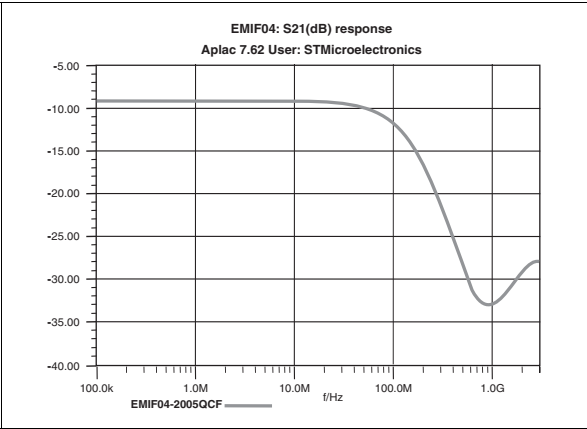


Figure 4: Capacitance versus reverse applied voltage

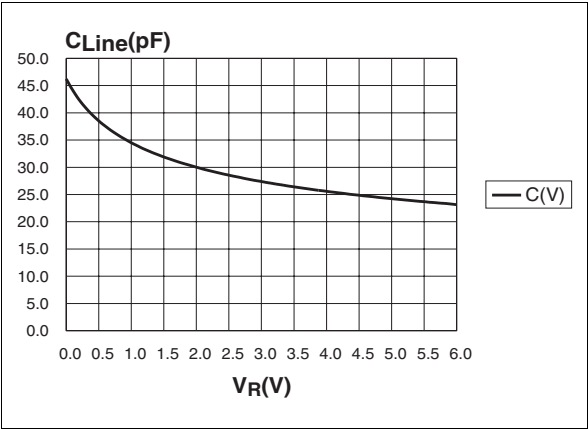


Figure 5: Ordering Information Scheme

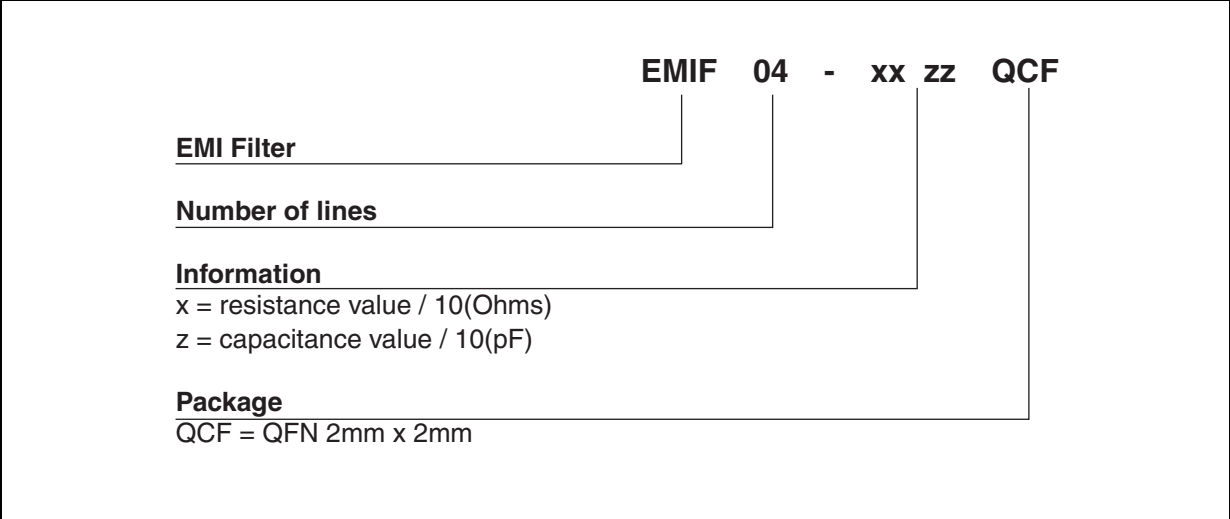


Figure 6: QFN Package Mechanical Data

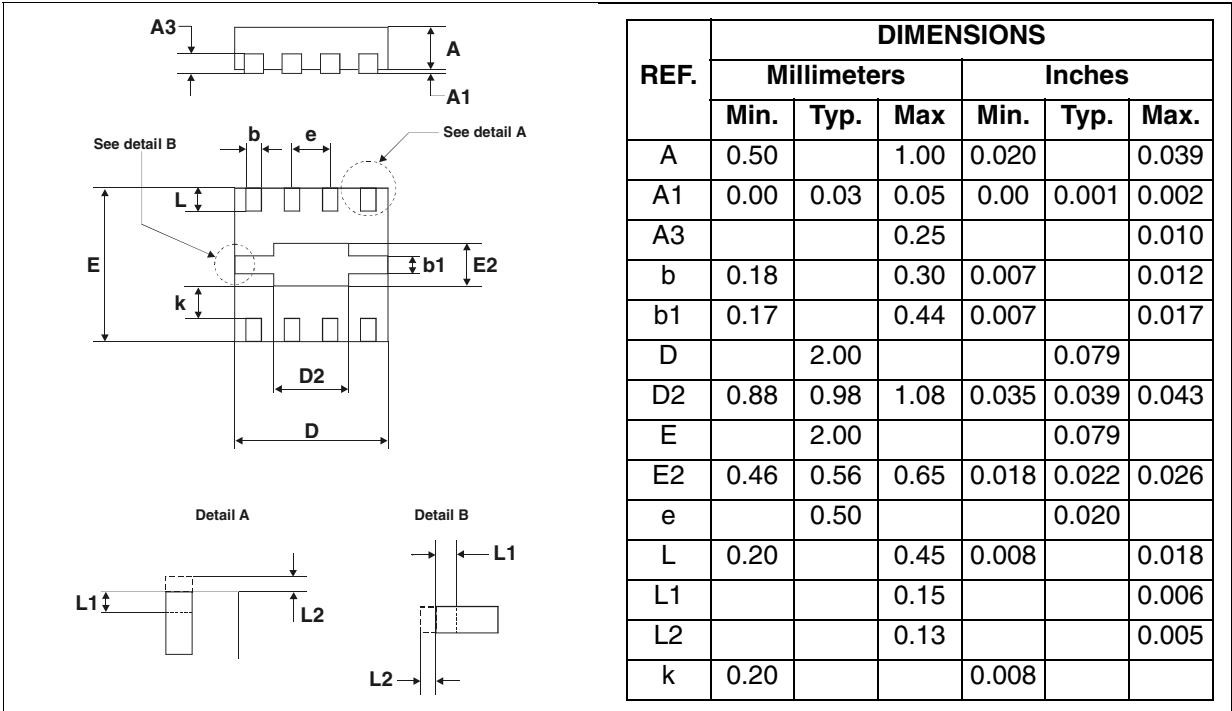


Figure 7: Foot Print Dimensions (in millimeters)

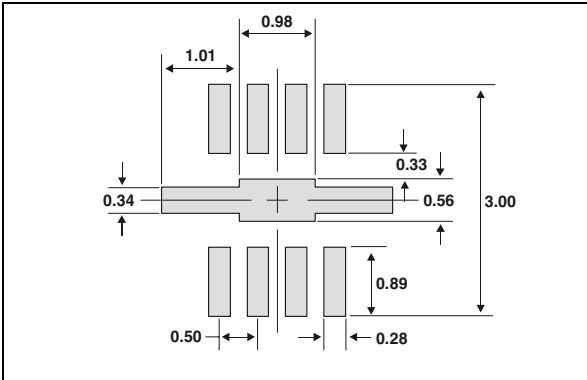


Table 4: Ordering Information

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
EMIF04-2005QCF	E4	QFN 2x2 8 pins	8.4 mg	3000	Tape & reel

Note: Further packing information available in the application note
- AN1751: "EMI Filters: Recommendations and measurements"

Table 5: Revision History

Date	Revision	Description of Changes
Oct-2002	1A	First issue.
03-Jan-2005	2	Minor template update. No content change.
16-Mar-2005	3	QFN package mechanical data update: 1/ A min: 0.50 mm instead of 0.80 2/ A typ: deleted 3/ b1 max: 0.44 mm instead of 0.30
01-Apr-2005	4	QFN package mechanical data update: 1/ Reference Details A and B added

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