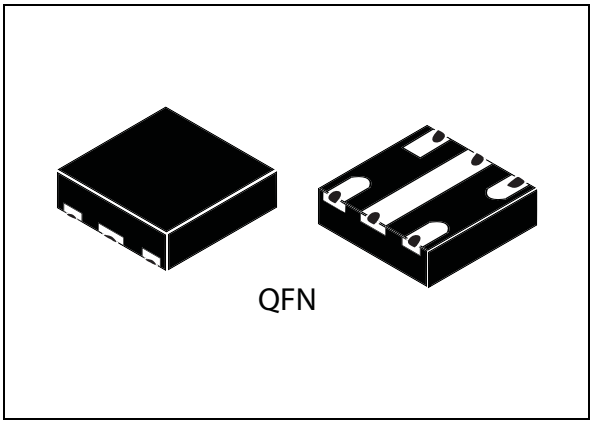
EMIF02-01OABRY

IPAD™ integrated low pass filter with ESD protection for BroadR Reach™ interface in automotive

Datasheet - production data



Features

- Attenuation profile compliant with BroadR Reach™ requirements from -40 °C to 125 °C
- Return loss (S_{dd11}) at 60 MHz: -20dB
- Components matching: 1% (between line 1 and 2)
- Package:
  - Dimensions: 3.0 x 3.0 mm
  - Pitch: 1.1 µm
  - Wettable flank QFN
- AEC-Q101 compliant

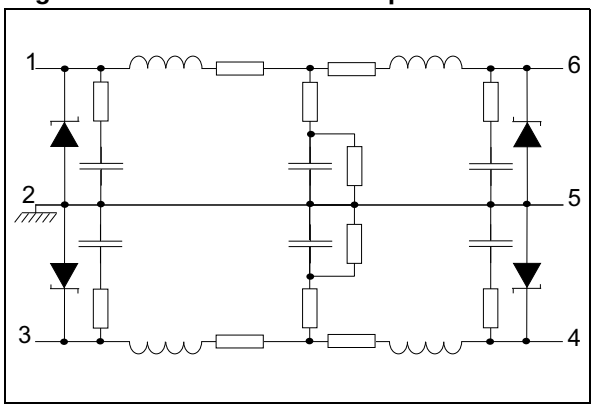
Complies with the following standards

- IEC 61000-4-2 exceeds level 4 (330 Ω / 150 pF):
  - 15 kV (air discharge)
  - 15 kV (contact discharge)
- ISO 10605 (330 Ω / 330 pF):
  - 15 kV (air discharge)
  - 15kV (contact discharge)
- ISO 7637-3:
  - Pulse 3a: -150 V
  - Pulse 3b: +100 V

Description

The EMIF02-01OABRY is a highly integrated solution designed to suppress EMI noise in BroadR Reach™ interfaces in automotive applications. This low pass filter includes a 15 kV ISO10605 protection and is housed in a 3 x 3 mm² wettable flanks QFN.

Figure 1. EMIF02-01OABRY equivalent circuit



TM: IPAD is a trademark of STMicroelectronics.

1 Characteristics

Table 1. Absolute ratings (T_{amb} = 25 °C)

Symbol	Parameter and test conditions	Value	Unit
V_{PP}	External pins (pin1 and pin3): IEC 61000-4-2 (330 Ω / 150 pF) air discharge contact discharge	 15 15	kV
	External pins (pin1 and pin3): ISO 10605 (330 Ω / 330 pF) air discharge contact discharge	 15 15	
V_{PP}	Transceiver side pins: HBM (pin4 and pin6)	2	kV
T_L	Maximum lead temperature for soldering 10 s	260	°C
T_{op}	Operating junction temperature range	- 40 to + 125	°C
T_{stg}	Storage temperature range	- 55 to + 150	°C

Table 2. Electrical characteristics (T_{amb} = 25 °C)

Symbol	Conditions	Min.	Typ.	Max.	Unit
V_{BR}	Internal protection avalanche	6			V
S_{dd11}	From 10 MHz to 60 MHz, T_j = -40 °C to 125 °C			-20	dB

Figure 2. BroadR Reach application schematic

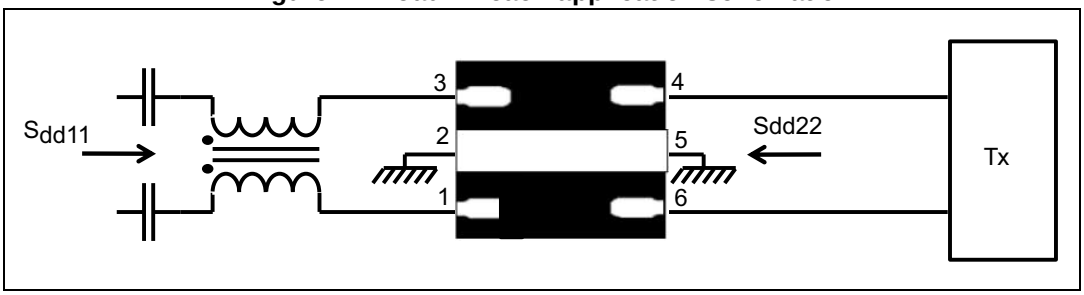


Figure 3. S_{dd11} attenuation curve (typical values)-external pins

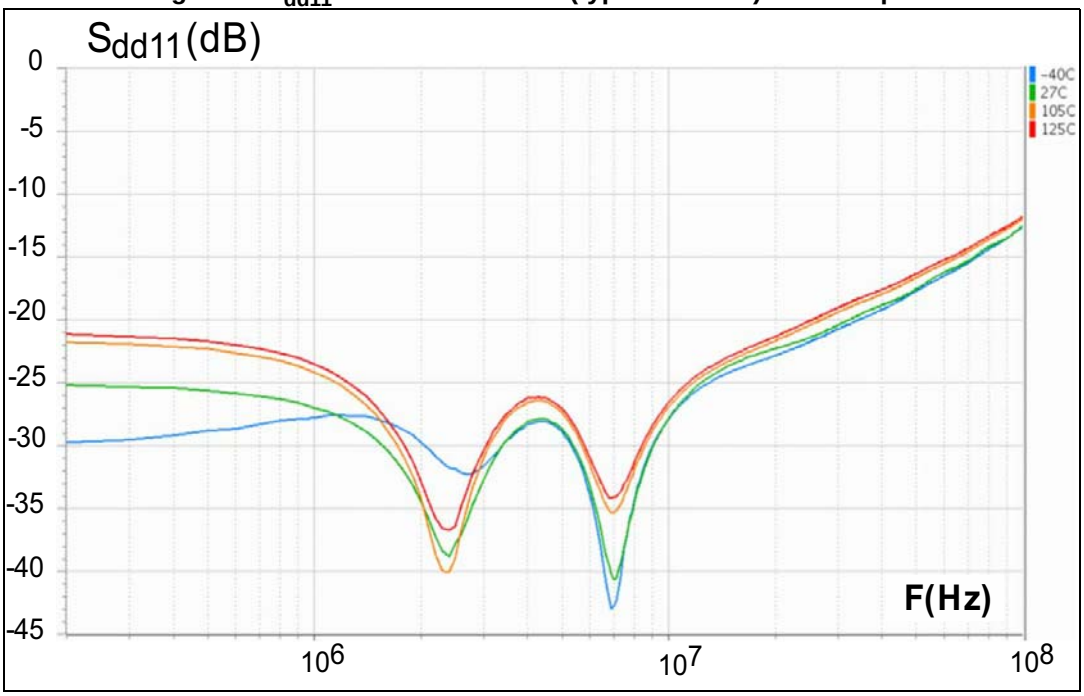
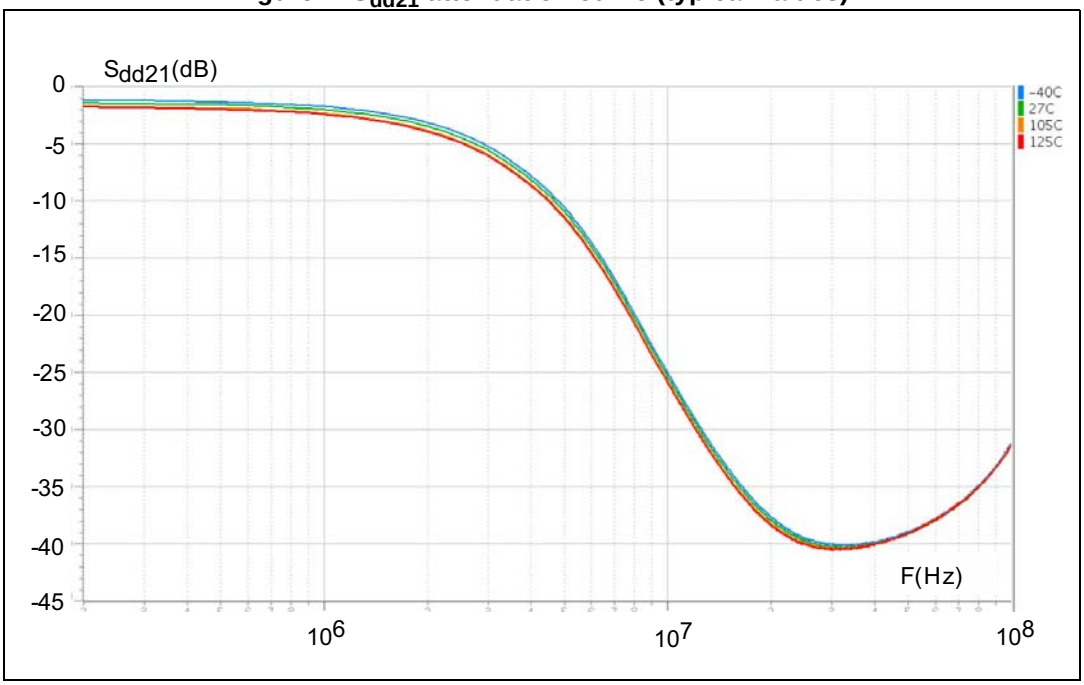


Figure 4. S_{dd21} attenuation curve (typical values)



2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

2.1 QFN package information

Figure 5. QFN package outline

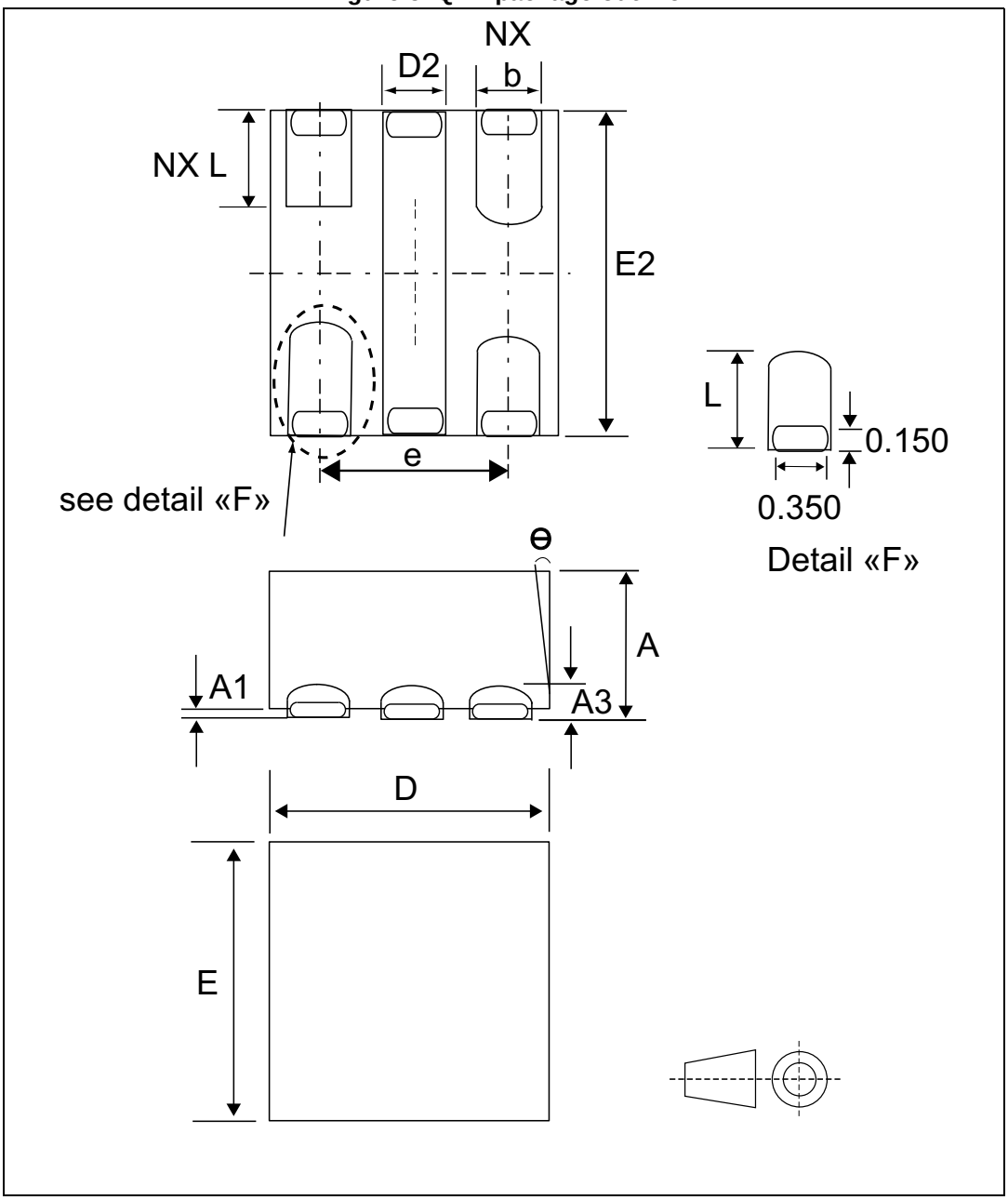


Table 3. QFN package mechanical data

Ref.	Dimensions					
	Millimeters			Inches[1]		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	0.80		0.90	0.031		0.035
A1	0.00		0.05	0.000		0.002
A3		0.203			0.008	
ϴ	0°		12°	0°		12°
b	0.45		0.55	0.018		0.022
D	2.95		3.05	0.116		0.120
E	2.95		3.05	0.116		0.120
e		2.21			0.88	
L	0.85		0.95	0.33		0.37
N		6			0.236	
D2	0.60		0.80	0.024		0.031
E2	2.90		3.10	0.114		0.122

1. Values in inches are converted from mm and rounded to 4 decimal digits.

Figure 6. Footprint recommendations (in mm)

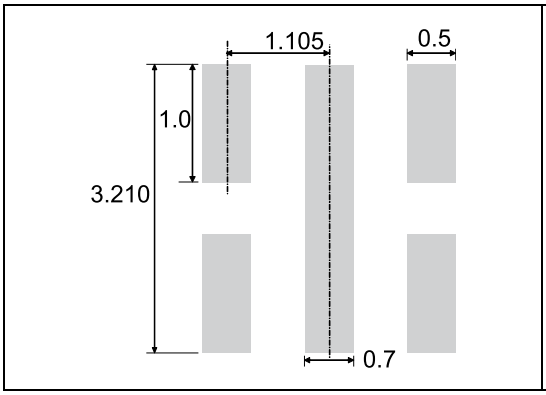
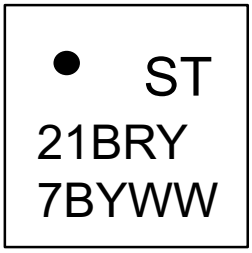


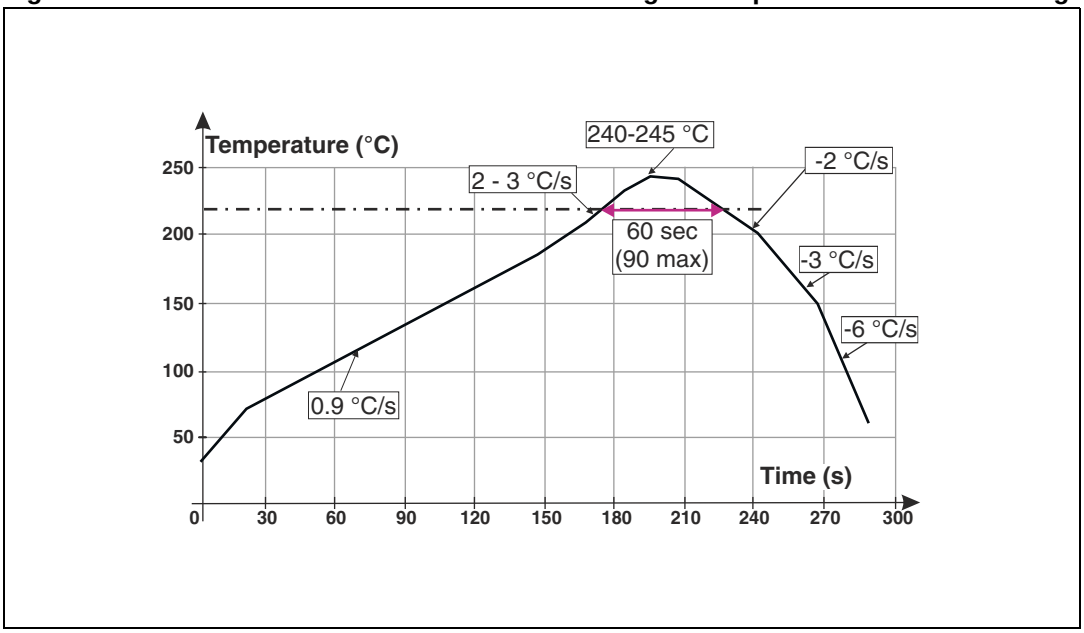
Figure 7. Marking



3 Recommendation on PCB assembly

3.1 Reflow profile

Figure 8. ST ECOPACK® recommended soldering reflow profile for PCB mounting



Note: Minimize air convection currents in the reflow oven to avoid component movement.

4 Ordering information

Figure 9. Ordering information scheme

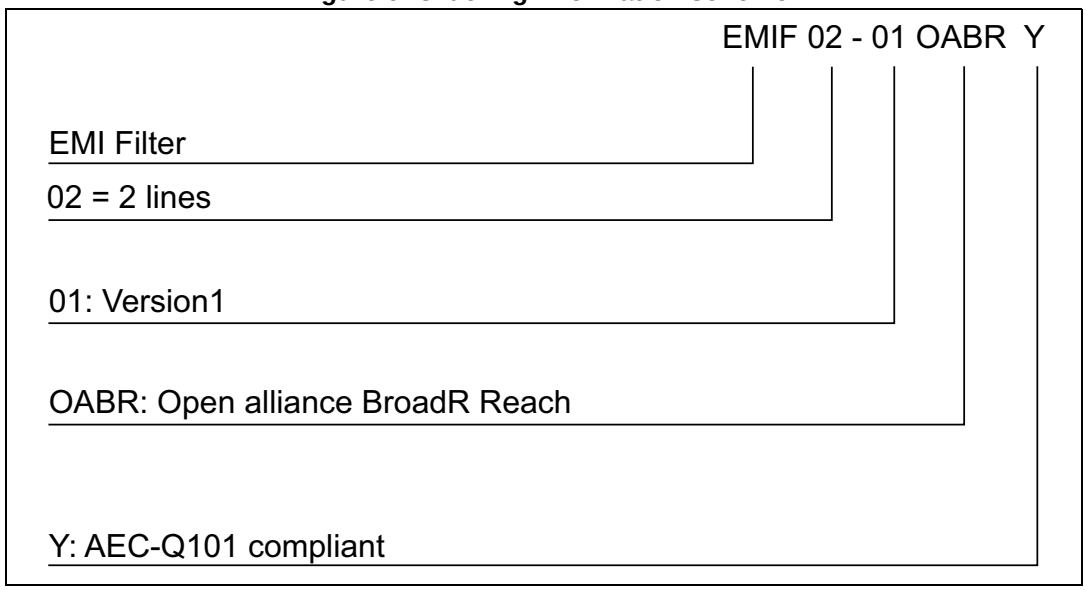


Table 4. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
EMIF02-01OABRY	21BRY	QFN-(wettable flank)	1.935 mg	3000	Tape and reel

5 Revision history

Table 5. Document revision history

Date	Revision	Changes
01-Sep-2015	1	Initial release