



**THE DATASHEET OF
PEMI6QFN/CE,132**



Important notice

Dear Customer,

On 7 February 2017 the former NXP Standard Product business became a new company with the tradename **Nexperia**. Nexperia is an industry leading supplier of Discrete, Logic and PowerMOS semiconductors with its focus on the automotive, industrial, computing, consumer and wearable application markets

In data sheets and application notes which still contain NXP or Philips Semiconductors references, use the references to Nexperia, as shown below.

Instead of <http://www.nxp.com>, <http://www.philips.com/> or <http://www.semiconductors.philips.com/>, use <http://www.nexperia.com>

Instead of sales.addresses@www.nxp.com or sales.addresses@www.semiconductors.philips.com, use salesaddresses@nexperia.com (email)

Replace the copyright notice at the bottom of each page or elsewhere in the document, depending on the version, as shown below:

- © NXP N.V. (year). All rights reserved or © Koninklijke Philips Electronics N.V. (year). All rights reserved

Should be replaced with:

- © **Nexperia B.V. (year). All rights reserved.**

If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

PEMIxQFN; PEMI2STD family

Integrated 1-, 2-, 4-, 6- and 8-channel passive filter network with ESD protection

Rev. 2 — 3 November 2011

Product data sheet

1. Product profile

1.1 General description

The devices are a family of RC low pass filters. They are designed to provide filtering of undesired RF signals on the I/O ports of portable communication or computing devices. The devices incorporate diodes to provide protection to downstream components from ElectroStatic Discharge (ESD) voltages up to ± 25 kV.

The devices are fabricated using monolithic silicon technology in lead-free plastic packages.

Table 1. Product overview

| Type number | Package | Number of channels | Package pitch (mm) | Package configuration |
|-------------|-----------|--------------------|--------------------|---------------------------------|
| PEMI1QFN | SOT883 | 1 | - | 3-pin MicroPak (QFN compatible) |
| PEMI2QFN | SOT886 | 2 | 0.5 | 6-pin MicroPak (QFN compatible) |
| PEMI2STD | SOT665 | 1 | - | 5-pin microlead |
| PEMI4QFN | SOT1157-1 | 4 | 0.4 | 8-pin extremely thin leadless |
| PEMI6QFN | SOT1158-1 | 6 | 0.4 | 12-pin extremely thin leadless |
| PEMI8QFN | SOT1159-1 | 8 | 0.4 | 16-pin extremely thin leadless |

1.2 Features and benefits

- Pb-free, Restriction of Hazardous Substances (RoHS) compliant and free of halogen and antimony (Dark Green compliant)
- Integrated 1-, 2-, 4-, 6- and 8-channel π -type RC filter network
- ESD protection up to ± 25 kV contact discharge according to IEC 61000-4-2, far exceeding level 4

1.3 Applications

General-purpose ElectroMagnetic Interference (EMI) and Radio-Frequency Interference (RFI) filtering and downstream ESD protection for:

- Cellular phone and Personal Communication Systems (PCS) mobile handsets
- Cordless telephones
- Wireless data (WAN/LAN) systems



1.4 Quick reference data

Table 2. Quick reference data

| Symbol | Parameter | Conditions | Typ | Unit |
|-------------|---------------------------|---|-----|----------|
| $R_{s(ch)}$ | channel series resistance | | | |
| | PEM1xxx/Cx | | 20 | Ω |
| | PEM1xxx/Hx | | 45 | Ω |
| | PEM1xxx/Lx | | 65 | Ω |
| | PEM1xxx/Rx | | 100 | Ω |
| | PEM1xxx/Wx | | 200 | Ω |
| C_{ch} | channel capacitance | for the total channel; $f = 100 \text{ kHz}; V_{bias(DC)} = 0 \text{ V}$ | | |
| | PEM1xxx/xE | | 15 | pF |
| | PEM1xxx/xG | | 19 | pF |
| | PEM1xxx/xK | | 23 | pF |
| | PEM1xxx/xM | | 28 | pF |
| | PEM1xxx/xP | | 32 | pF |
| | PEM1xxx/xR | | 36 | pF |
| | PEM1xxx/xT | | 40 | pF |

2. Pinning information

Table 3. Pinning

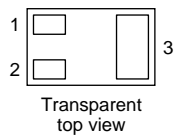
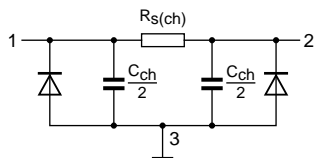
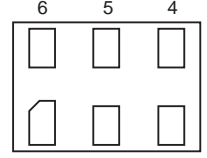
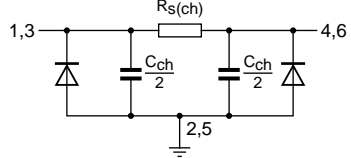
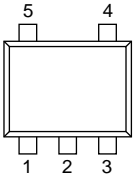
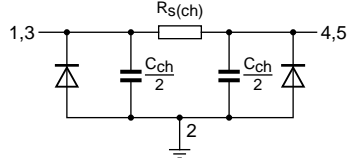
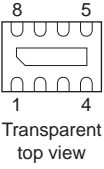
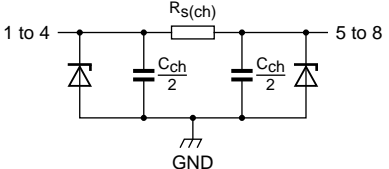
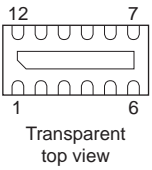
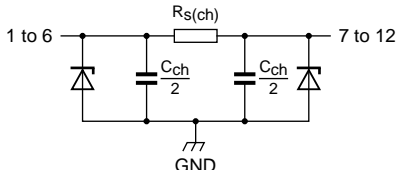
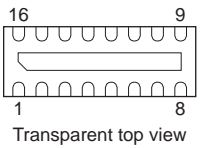
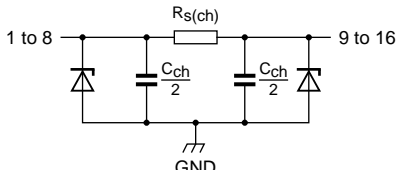
| Pin | Description | Simplified outline | Graphic symbol |
|-------------------------|------------------|---|--|
| PEM1QFN (SOT883) | | | |
| 1 and 2 | filter channel |  <p>Transparent top view</p> |  <p>018aaa042</p> |
| 3 | ground (GND) | | |
| PEM2QFN (SOT886) | | | |
| 1 and 6 | filter channel 1 |  <p>Transparent top view</p> |  <p>018aaa044</p> |
| 2 and 5 | ground (GND) | | |
| 3 and 4 | filter channel 2 | | |

Table 3. Pinning ...continued

| Pin | Description | Simplified outline | Graphic symbol |
|-----------------------------|------------------|--|---|
| PEMI2STD (SOT665) | | | |
| 1 and 5 | filter channel 1 |  |  <p style="text-align: right;">018aaa043</p> |
| 2 | ground (GND) | | |
| 3 and 4 | filter channel 2 | | |
| PEMI4QFN (SOT1157-1) | | | |
| 1 and 8 | filter channel 1 |  <p style="text-align: center;">Transparent top view</p> |  <p style="text-align: right;">018aaa071</p> |
| 2 and 7 | filter channel 2 | | |
| 3 and 6 | filter channel 3 | | |
| 4 and 5 | filter channel 4 | | |
| ground pad | ground (GND) | | |
| PEMI6QFN (SOT1158-1) | | | |
| 1 and 12 | filter channel 1 |  <p style="text-align: center;">Transparent top view</p> |  <p style="text-align: right;">018aaa072</p> |
| 2 and 11 | filter channel 2 | | |
| 3 and 10 | filter channel 3 | | |
| 4 and 9 | filter channel 4 | | |
| 5 and 8 | filter channel 5 | | |
| 6 and 7 | filter channel 6 | | |
| ground pad | ground (GND) | | |
| PEMI8QFN (SOT1159-1) | | | |
| 1 and 16 | filter channel 1 |  <p style="text-align: center;">Transparent top view</p> |  <p style="text-align: right;">018aaa073</p> |
| 2 and 15 | filter channel 2 | | |
| 3 and 14 | filter channel 3 | | |
| 4 and 13 | filter channel 4 | | |
| 5 and 12 | filter channel 5 | | |
| 6 and 11 | filter channel 6 | | |
| 7 and 10 | filter channel 7 | | |
| 8 and 9 | filter channel 8 | | |
| ground pad | ground (GND) | | |

3. Ordering information

Table 4. Ordering information

| Type number | Package | | Version |
|-------------|---------|--|-----------|
| | Name | Description | |
| PEMI1QFN | SC-101 | leadless ultra small plastic package; 3 solder lands; body 1.0 × 0.6 × 0.5 mm | SOT883 |
| PEMI2QFN | XSON6 | plastic extremely thin small outline package; no leads; 6 terminals; body 1 × 1.45 × 0.5 mm | SOT886 |
| PEMI2STD | - | plastic surface-mounted package; 5 leads | SOT665 |
| PEMI4QFN | HXSON8 | plastic thermal enhanced extremely thin small outline package; no leads; 8 terminals; body 1.2 × 1.7 × 0.5 mm | SOT1157-1 |
| PEMI6QFN | HXSON12 | plastic thermal enhanced extremely thin small outline package; no leads; 12 terminals; body 1.2 × 2.5 × 0.5 mm | SOT1158-1 |
| PEMI8QFN | HXSON16 | plastic thermal enhanced extremely thin small outline package; no leads; 16 terminals; body 1.2 × 3.3 × 0.5 mm | SOT1159-1 |

4. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---------------|---------------------------------|---|------|------|------|
| V_{CC} | supply voltage | | -0.5 | +5.6 | V |
| V_{ESD} | electrostatic discharge voltage | IEC 61000-4-2, level 4 all pins to ground | | | |
| | | contact discharge | - | ±15 | kV |
| | | air discharge | - | ±15 | kV |
| | PEMIxxxx/xM; PEMIxxxx/xP | contact discharge | - | ±20 | kV |
| | | air discharge | - | ±20 | kV |
| | PEMIxxxx/xR; PEMIxxxx/xT | contact discharge | - | ±25 | kV |
| air discharge | | - | ±25 | kV | |
| P_{ch} | channel power dissipation | continuous power; $T_{amb} = 85\text{ °C}$ | - | 60 | mW |
| P_{tot} | total power dissipation | continuous power; $T_{amb} = 85\text{ °C}$ | - | 120 | mW |
| T_{stg} | storage temperature | | -55 | +150 | °C |
| T_{amb} | ambient temperature | | -40 | +85 | °C |

5. Characteristics

Table 6. Channel characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|-------------|---------------------------|--|-------------------------------------|------|-----|----------|---------------|
| $R_{s(ch)}$ | channel series resistance | | | | | | |
| | PEMIxxxx/Cx | | 18 | 20 | 22 | Ω | |
| | PEMIxxxx/Hx | | 40 | 45 | 50 | Ω | |
| | PEMIxxxx/Lx | | 58 | 65 | 72 | Ω | |
| | PEMIxxxx/Rx | | 90 | 100 | 110 | Ω | |
| | PEMIxxxx/Wx | | 180 | 200 | 220 | Ω | |
| C_{ch} | channel capacitance | for the total channel; $f = 100\text{ kHz}$ | | | | | |
| | PEMIxxxx/xE | $V_{bias(DC)} = 0\text{ V}$ | - | 15 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 8.5 | - | pF | |
| | PEMIxxxx/xG | $V_{bias(DC)} = 0\text{ V}$ | - | 19 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 11 | - | pF | |
| | PEMIxxxx/xK | $V_{bias(DC)} = 0\text{ V}$ | - | 23 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 13.5 | - | pF | |
| | PEMIxxxx/xM | $V_{bias(DC)} = 0\text{ V}$ | - | 28 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 16 | - | pF | |
| | PEMIxxxx/xP | $V_{bias(DC)} = 0\text{ V}$ | - | 32 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 18.5 | - | pF | |
| | PEMIxxxx/xR | $V_{bias(DC)} = 0\text{ V}$ | - | 36 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 21 | - | pF | |
| | PEMIxxxx/xT | $V_{bias(DC)} = 0\text{ V}$ | - | 40 | - | pF | |
| | | $V_{bias(DC)} = 2.5\text{ V}$ | - | 23 | - | pF | |
| | V_{BR} | breakdown voltage | positive clamp; $I_I = 1\text{ mA}$ | 5.8 | - | 9 | V |
| | V_F | forward voltage | negative clamp; $I_F = 1\text{ mA}$ | -1.5 | - | -0.4 | V |
| | I_{LR} | reverse leakage current | per channel; $V_I = 3.5\text{ V}$ | - | - | 0.1 | μA |

Table 7. Frequency characteristics $T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified; $R_{source} = 50\ \Omega$; $R_L = 50\ \Omega$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|---------------|----------------|---------------------------|-------------------------------------|-----|------|------|----|
| α_{ij} | insertion loss | $C_{ch} = 15\text{ pF}$ | | | | | |
| | PEMlxxxx/CE | $R_{S(ch)} = 20\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 7 | - | - | dB |
| | | | $f = 5\text{ GHz}$ | - | 30 | - | dB |
| | | | | | | | |
| | PEMlxxxx/HE | $R_{S(ch)} = 45\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 9 | - | - | dB |
| | | | $f = 4\text{ GHz}$ | - | 31 | - | dB |
| | | | | | | | |
| | PEMlxxxx/LE | $R_{S(ch)} = 65\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 11 | - | - | dB |
| | | | $f = 3.5\text{ GHz}$ | - | 32 | - | dB |
| | | | | | | | |
| | PEMlxxxx/RE | $R_{S(ch)} = 100\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 13 | - | - | dB |
| | | | $f = 3\text{ GHz}$ | - | 33 | - | dB |
| | | | | | | | |
| | PEMlxxxx/WE | $R_{S(ch)} = 200\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 18 | - | - | dB |
| | | | $f = 2.2\text{ GHz}$ | - | 34 | - | dB |
| | | | | | | | |
| α_{ij} | insertion loss | $C_{ch} = 19\text{ pF}$ | | | | | |
| | PEMlxxxx/CG | $R_{S(ch)} = 20\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 9 | - | - | dB |
| | | | $f = 4\text{ GHz}$ | - | 32 | - | dB |
| | | | | | | | |
| | PEMlxxxx/HG | $R_{S(ch)} = 45\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 11 | - | - | dB |
| | | | $f = 3.2\text{ GHz}$ | - | 33 | - | dB |
| | | | | | | | |
| | PEMlxxxx/LG | $R_{S(ch)} = 65\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 13 | - | - | dB |
| | | | $f = 2.8\text{ GHz}$ | - | 33.5 | - | dB |
| | | | | | | | |
| | PEMlxxxx/RG | $R_{S(ch)} = 100\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 15 | - | - | dB |
| | | | $f = 2.5\text{ GHz}$ | - | 34 | - | dB |
| | | | | | | | |
| | PEMlxxxx/WG | $R_{S(ch)} = 200\ \Omega$ | $800\text{ MHz} < f < 3\text{ GHz}$ | 21 | - | - | dB |
| | | | $f = 1.9\text{ GHz}$ | - | 35.5 | - | dB |
| | | | | | | | |

Table 7. Frequency characteristics ...continued

 $T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified; $R_{source} = 50\ \Omega$; $R_L = 50\ \Omega$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-----|------|--|
| α_{il} | insertion loss | $C_{ch} = 23\text{ pF}$ | | | | | |
| | | PEMlxxxx/CK | $R_{S(ch)} = 20\ \Omega$ | | | | |
| | $800\text{ MHz} < f < 3\text{ GHz}$ | | 10 | - | - | dB | |
| | $f = 3.6\text{ GHz}$ | | - | 33 | - | dB | |
| | PEMlxxxx/HK | $R_{S(ch)} = 45\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 13 | - | - | dB | |
| | | $f = 2.8\text{ GHz}$ | - | 34 | - | dB | |
| | PEMlxxxx/LK | $R_{S(ch)} = 65\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 15 | - | - | dB | |
| | | $f = 2.5\text{ GHz}$ | - | 35 | - | dB | |
| | PEMlxxxx/RK | $R_{S(ch)} = 100\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 18 | - | - | dB | |
| | | $f = 2.1\text{ GHz}$ | - | 36 | - | dB | |
| | PEMlxxxx/WK | $R_{S(ch)} = 200\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 24 | - | - | dB | |
| | | $f = 1.6\text{ GHz}$ | - | 37 | - | dB | |
| | α_{il} | insertion loss | $C_{ch} = 28\text{ pF}$ | | | | |
| | | | PEMlxxxx/CM | $R_{S(ch)} = 20\ \Omega$ | | | |
| $800\text{ MHz} < f < 3\text{ GHz}$ | | 12 | | - | - | dB | |
| $f = 3.2\text{ GHz}$ | | - | | 34 | - | dB | |
| PEMlxxxx/HM | | $R_{S(ch)} = 45\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 15 | - | - | dB | |
| | | $f = 2.5\text{ GHz}$ | - | 35 | - | dB | |
| PEMlxxxx/LM | | $R_{S(ch)} = 65\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 17 | - | - | dB | |
| | | $f = 2.1\text{ GHz}$ | - | 36 | - | dB | |
| PEMlxxxx/RM | | $R_{S(ch)} = 100\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 21 | - | - | dB | |
| | | $f = 1.8\text{ GHz}$ | - | 37 | - | dB | |
| PEMlxxxx/WM | | $R_{S(ch)} = 200\ \Omega$ | | | | | |
| | | $800\text{ MHz} < f < 3\text{ GHz}$ | 27 | - | - | dB | |
| | | $f = 1.4\text{ GHz}$ | - | 38 | - | dB | |

Table 7. Frequency characteristics ...continued

 $T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified; $R_{source} = 50\ \Omega$; $R_L = 50\ \Omega$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | | | | | |
|---------------|----------------|-------------------------|---------------------------|---------------------------|--------------------------|---------------------|--------------------------|--------------------------|---------------------|----|----|
| α_{il} | insertion loss | $C_{ch} = 32\text{ pF}$ | PEMlxxxx/CP | $R_{S(ch)} = 20\ \Omega$ | 800 MHz < f < 3 GHz | 13 | - | - | dB | | |
| | | | | | | f = 2.9 GHz | - | 36 | - | dB | |
| | | | | | | PEMlxxxx/HP | $R_{S(ch)} = 45\ \Omega$ | 800 MHz < f < 3 GHz | 17 | - | - |
| | | | | f = 2.2 GHz | - | 36 | - | dB | | | |
| | | PEMlxxxx/LP | $R_{S(ch)} = 65\ \Omega$ | 800 MHz < f < 3 GHz | 19 | - | - | dB | | | |
| | | | | f = 1.9 GHz | - | 37 | - | dB | | | |
| | | PEMlxxxx/RP | $R_{S(ch)} = 100\ \Omega$ | 800 MHz < f < 3 GHz | 23 | - | - | dB | | | |
| | | | | f = 1.6 GHz | - | 38 | - | dB | | | |
| | | PEMlxxxx/WP | $R_{S(ch)} = 200\ \Omega$ | 800 MHz < f < 3 GHz | 30 | - | - | dB | | | |
| | | | | f = 1.2 GHz | - | 39 | - | dB | | | |
| | α_{il} | insertion loss | $C_{ch} = 36\text{ pF}$ | PEMlxxxx/CR | $R_{S(ch)} = 20\ \Omega$ | 800 MHz < f < 3 GHz | 14 | - | - | dB | |
| | | | | | | | f = 2.6 GHz | - | 36 | - | dB |
| | | | | | | | PEMlxxxx/HR | $R_{S(ch)} = 45\ \Omega$ | 800 MHz < f < 3 GHz | 18 | - |
| | | | | | f = 2.0 GHz | - | 37 | - | dB | | |
| | | | PEMlxxxx/LR | $R_{S(ch)} = 65\ \Omega$ | 800 MHz < f < 3 GHz | 21 | - | - | dB | | |
| | | | | | f = 1.8 GHz | - | 38 | - | dB | | |
| | | | PEMlxxxx/RR | $R_{S(ch)} = 100\ \Omega$ | 800 MHz < f < 3 GHz | 25 | - | - | dB | | |
| | | | | | f = 1.6 GHz | - | 39 | - | dB | | |
| | | PEMlxxxx/WR | $R_{S(ch)} = 200\ \Omega$ | 800 MHz < f < 3 GHz | 32 | - | - | dB | | | |
| | | | | f = 1.2 GHz | - | 40 | - | dB | | | |

Table 7. Frequency characteristics ...continued
 $T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified; $R_{source} = 50\ \Omega$; $R_L = 50\ \Omega$.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | | | |
|---------------|----------------|-------------------------|---------------------------|---------------------|-------------|------|----|----|----|
| α_{ij} | insertion loss | $C_{ch} = 40\text{ pF}$ | $R_{S(ch)} = 20\ \Omega$ | 800 MHz < f < 3 GHz | 16 | - | - | dB | |
| | | | | | f = 2.5 GHz | - | 36 | - | dB |
| | | | | | | | | | |
| | | PEMlxxxx/CT | $R_{S(ch)} = 45\ \Omega$ | 800 MHz < f < 3 GHz | 20 | - | - | dB | |
| | | | | | f = 1.9 GHz | - | 38 | - | dB |
| | | | | | | | | | |
| | | PEMlxxxx/HT | $R_{S(ch)} = 65\ \Omega$ | 800 MHz < f < 3 GHz | 23 | - | - | dB | |
| | | | | | f = 1.6 GHz | - | 39 | - | dB |
| | | | | | | | | | |
| | | PEMlxxxx/LT | $R_{S(ch)} = 100\ \Omega$ | 800 MHz < f < 3 GHz | 27 | - | - | dB | |
| | | | | | f = 1.4 GHz | - | 40 | - | dB |
| | | | | | | | | | |
| | | PEMlxxxx/RT | $R_{S(ch)} = 200\ \Omega$ | 800 MHz < f < 3 GHz | 32 | - | - | dB | |
| | | | | | f = 1.0 GHz | - | 41 | - | dB |
| | | | | | | | | | |

6. Application information

6.1 Use cases

The selection of one of the filter devices has to be performed in dependence of the maximum clock frequency, the driver strength, the capacitive load of the sink and the maximum applicable rise and fall times.

6.2 LCD interfaces, medium-speed interfaces

For digital interfaces such as Liquid Crystal Display (LCD) interfaces running at clock speeds between 10 MHz and 25 MHz or more, the devices can be used in dependence of the sink load, the clock speed, the driver strength and the rise and fall time requirements. The minimum EMI filter requirements may be an important factor, too.

6.3 Keypad, low-speed interfaces

Especially for lower-speed interfaces such as keypads, low-speed serial interfaces and low-speed control signals, the devices offer a very robust ESD protection and strong suppression of unwanted frequencies (EMI filtering). Due to their small size the devices can easily be spread on a Printed-Circuit Board (PCB) in order to move the ESD and EMI protection close to the part of the design which shall be protected.

6.4 Insertion loss

The devices are designed as EMI/RFI filters for multichannel interfaces.

All measurements were performed in a typical 50 Ω NetWork Analyzer (NWA) setup as shown in [Figure 1](#). The insertion loss was measured with a test Printed-Circuit Board (PCB) utilizing laser-drilled micro-via holes which connect the PCB ground plane to the devices ground pins.

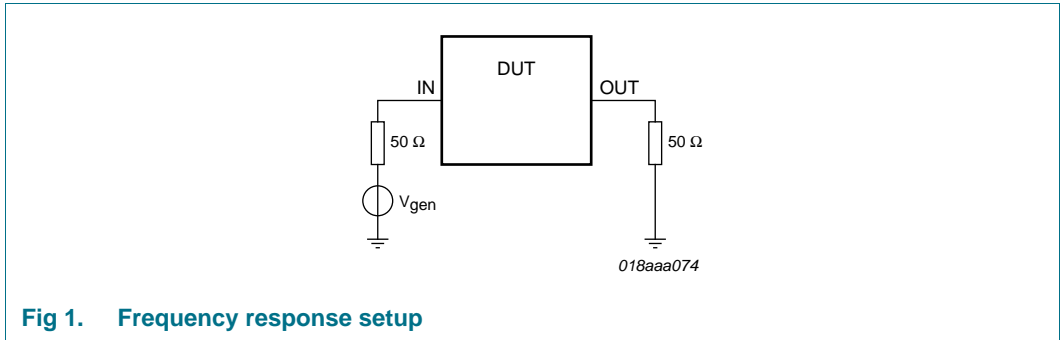
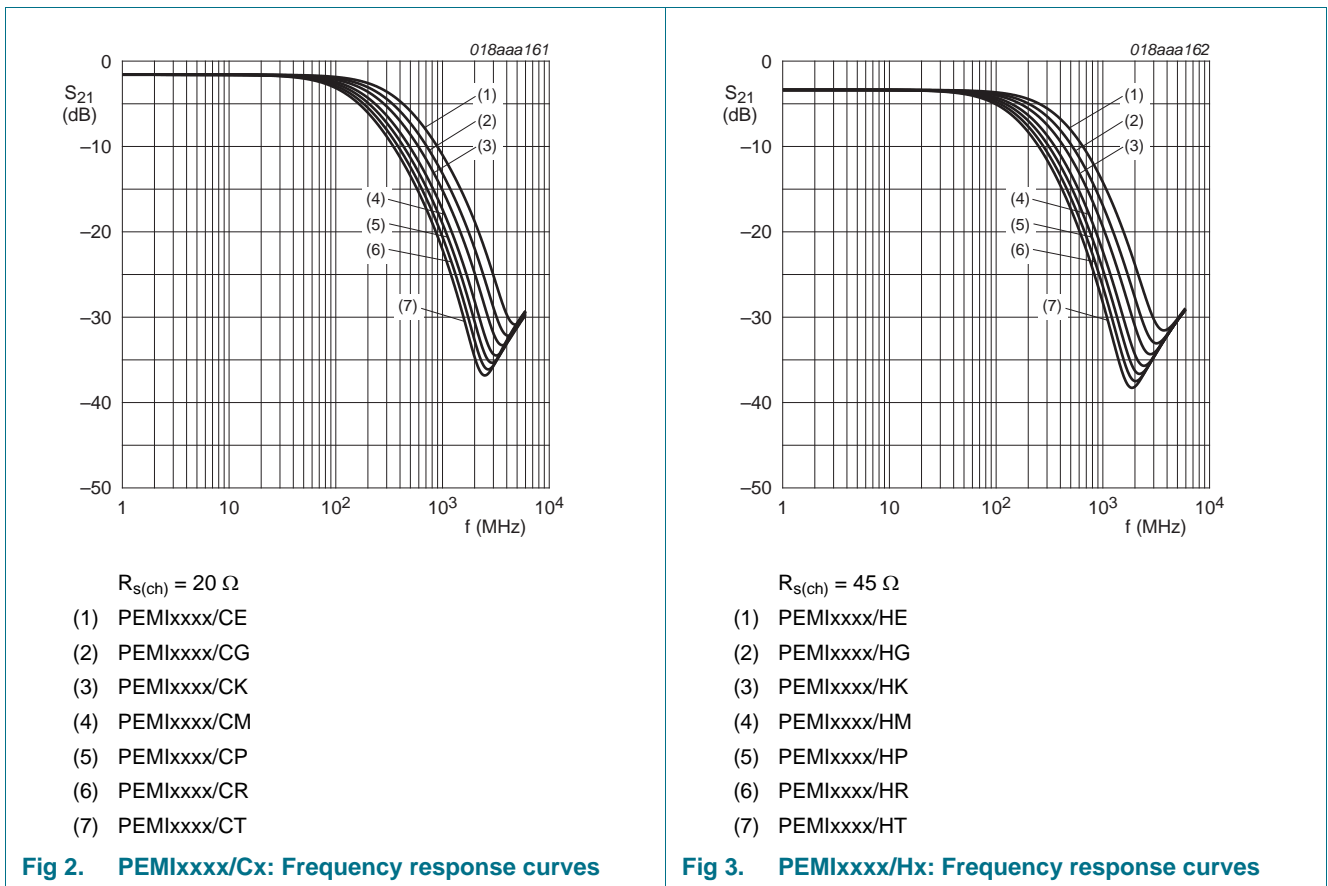
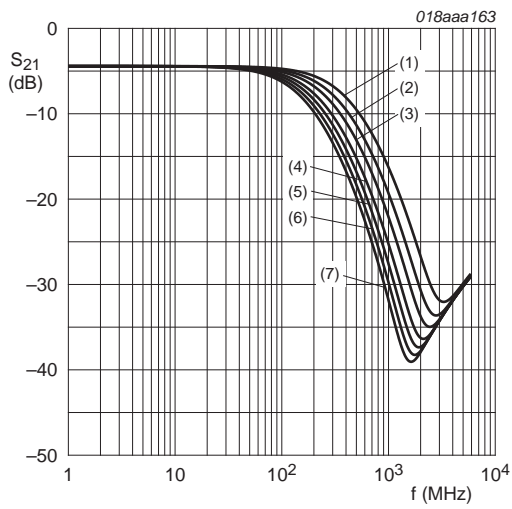


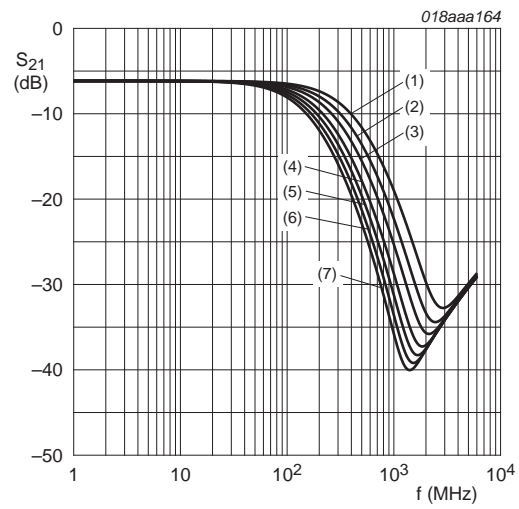
Fig 1. Frequency response setup





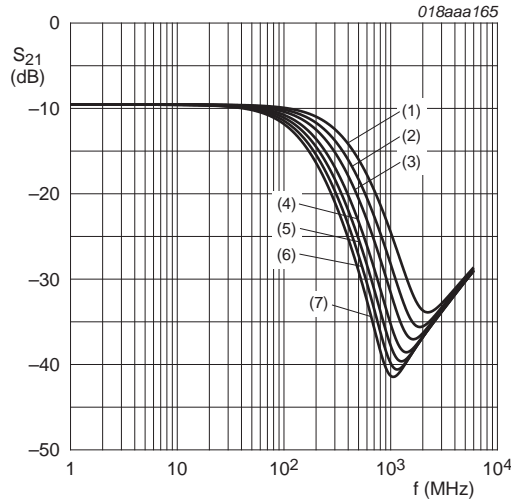
- $R_{s(ch)} = 65 \Omega$
- (1) PEMIxxx/LE
 - (2) PEMIxxx/LG
 - (3) PEMIxxx/LK
 - (4) PEMIxxx/LM
 - (5) PEMIxxx/LP
 - (6) PEMIxxx/LR
 - (7) PEMIxxx/LT

Fig 4. PEMIxxx/Lx: Frequency response curves



- $R_{s(ch)} = 100 \Omega$
- (1) PEMIxxx/RE
 - (2) PEMIxxx/RG
 - (3) PEMIxxx/RK
 - (4) PEMIxxx/RM
 - (5) PEMIxxx/RP
 - (6) PEMIxxx/RR
 - (7) PEMIxxx/RT

Fig 5. PEMIxxx/Rx: Frequency response curves



- $R_{s(ch)} = 200 \Omega$
- (1) PEMIxxx/WE
 - (2) PEMIxxx/WG
 - (3) PEMIxxx/WK
 - (4) PEMIxxx/WM
 - (5) PEMIxxx/WP
 - (6) PEMIxxx/WR
 - (7) PEMIxxx/WT

Fig 6. PEMIxxx/Wx: Frequency response curves

All important values of the RF behavior such as relative -3dB frequency, insertion loss at 800 MHz and above and also the DC attenuation in an NWA environment can be derived from the insertion loss response curves depicted in [Figure 2](#) to [6](#).

Note: insertion loss at low frequencies (1 MHz) is nearly independent from the channel capacitance values available within the PEMI family.

6.4.1 Relative -3dB frequency (π -filter structure)

Table 8. Relative -3dB frequency (MHz) per RC combination; typical values

$T_{amb} = 25 \text{ }^\circ\text{C}$; unless otherwise specified.

| PEMIxxx/ | xE | xG | xK | xM | xP | xR | xT | |
|----------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| C_{ch} (pF) | 15 | 19 | 23 | 28 | 32 | 36 | 40 | |
| PEMIxxx/ | R _{s(ch)} | | | | | | | |
| Cx | 20 | 397 MHz | 317 MHz | 264 MHz | 218 MHz | 194 MHz | 170 MHz | 153 MHz |
| Hx | 45 | 376 MHz | 300 MHz | 249 MHz | 206 MHz | 185 MHz | 161 MHz | 145 MHz |
| Lx | 65 | 361 MHz | 288 MHz | 239 MHz | 197 MHz | 176 MHz | 155 MHz | 139 MHz |
| Rx | 100 | 343 MHz | 272 MHz | 227 MHz | 187 MHz | 166 MHz | 145 MHz | 131 MHz |
| Wx | 200 | 311 MHz | 247 MHz | 205 MHz | 169 MHz | 150 MHz | 132 MHz | 119 MHz |

6.4.2 Insertion loss (dB) at 800 MHz (π -filter structure)

Table 9. Insertion loss (dB) at 800 MHz per RC combination; typical values

$T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified.

| PEMIxxx/ | | xE | xG | xK | xM | xP | xR | xT |
|----------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|
| C _{ch} (pF) | | 15 | 19 | 23 | 28 | 32 | 36 | 40 |
| PEMIxxx/ | R _{s(ch)} | | | | | | | |
| Cx | 20 | -9 dB | -11 dB | -13 dB | -15 dB | -16 dB | -18 dB | -19 dB |
| Hx | 45 | -12 dB | -14 dB | -17 dB | -19 dB | -21 dB | -23 dB | -25 dB |
| Lx | 65 | -14 dB | -17 dB | -19 dB | -22 dB | -25 dB | -27 dB | -29 dB |
| Rx | 100 | -17 dB | -20 dB | -23 dB | -26 dB | -29 dB | -32 dB | -35 dB |
| Wx | 200 | -22 dB | -26 dB | -29 dB | -34 dB | -36 dB | -39 dB | -41 dB |

6.4.3 Insertion loss (dB) at frequencies lower than 1 MHz (π -filter structure)

Table 10. Insertion loss (dB) at ≤ 1 MHz per RC combination; typical values

$T_{amb} = 25\text{ }^{\circ}\text{C}$; unless otherwise specified.

| PEMIxxx/ | | xE | xG | xK | xM | xP | xR | xT |
|----------------------|--------------------|---------|---------|---------|---------|---------|---------|---------|
| C _{ch} (pF) | | 15 | 19 | 23 | 28 | 32 | 36 | 40 |
| PEMIxxx/ | R _{s(ch)} | | | | | | | |
| Cx | 20 | -1.6 dB | -1.6 dB | -1.6 dB | -1.6 dB | -1.6 dB | -1.6 dB | -1.6 dB |
| Hx | 45 | -3.2 dB | -3.2 dB | -3.2 dB | -3.2 dB | -3.2 dB | -3.2 dB | -3.2 dB |
| Lx | 65 | -4.3 dB | -4.3 dB | -4.3 dB | -4.3 dB | -4.3 dB | -4.3 dB | -4.3 dB |
| Rx | 100 | -6.0 dB | -6.0 dB | -6.0 dB | -6.0 dB | -6.0 dB | -6.0 dB | -6.0 dB |
| Wx | 200 | -9.5 dB | -9.5 dB | -9.5 dB | -9.5 dB | -9.5 dB | -9.5 dB | -9.5 dB |

7. Marking

Table 11. Marking codes

| Type number | Marking code | Type number | Marking code | Type number | Marking code | Type number | Marking code |
|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|
| PEMI1QFN/CE | CE | PEMI2QFN/LP | LP | PEMI4QFN/CE | CE | PEMI6QFN/LP | LP |
| PEMI1QFN/CG | CG | PEMI2QFN/LR | LR | PEMI4QFN/CG | CG | PEMI6QFN/LR | LR |
| PEMI1QFN/CK | CK | PEMI2QFN/LT | LT | PEMI4QFN/CK | CK | PEMI6QFN/LT | LT |
| PEMI1QFN/CM | CM | PEMI2QFN/RE | RE | PEMI4QFN/CM | CM | PEMI6QFN/RE | RE |
| PEMI1QFN/CP | CP | PEMI2QFN/RG | RG | PEMI4QFN/CP | CP | PEMI6QFN/RG | RG |
| PEMI1QFN/CR | CR | PEMI2QFN/RK | RK | PEMI4QFN/CR | CR | PEMI6QFN/RK | RK |
| PEMI1QFN/CT | CT | PEMI2QFN/RM | RM | PEMI4QFN/CT | CT | PEMI6QFN/RM | RM |
| PEMI1QFN/HE | HE | PEMI2QFN/RP | RP | PEMI4QFN/HE | HE | PEMI6QFN/RP | RP |
| PEMI1QFN/HG | HG | PEMI2QFN/RR | RR | PEMI4QFN/HG | HG | PEMI6QFN/RR | RR |
| PEMI1QFN/HK | HK | PEMI2QFN/RT | RT | PEMI4QFN/HK | HK | PEMI6QFN/RT | RT |
| PEMI1QFN/HM | HM | PEMI2QFN/WE | WE | PEMI4QFN/HM | HM | PEMI6QFN/WE | WE |
| PEMI1QFN/HP | HP | PEMI2QFN/WG | WG | PEMI4QFN/HP | HP | PEMI6QFN/WG | WG |
| PEMI1QFN/HR | HR | PEMI2QFN/WK | WK | PEMI4QFN/HR | HR | PEMI6QFN/WK | WK |
| PEMI1QFN/HT | HT | PEMI2QFN/WM | WM | PEMI4QFN/HT | HT | PEMI6QFN/WM | WM |

Table 11. Marking codes ...continued

| Type number | Marking code | Type number | Marking code | Type number | Marking code | Type number | Marking code |
|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|
| PEMI1QFN/LE | LE | PEMI2QFN/WP | WP | PEMI4QFN/LE | LE | PEMI6QFN/WP | WP |
| PEMI1QFN/LG | LG | PEMI2QFN/WR | WR | PEMI4QFN/LG | LG | PEMI6QFN/WR | WR |
| PEMI1QFN/LK | LK | PEMI2QFN/WT | WT | PEMI4QFN/LK | LK | PEMI6QFN/WT | WT |
| PEMI1QFN/LM | LM | PEMI2STD/CE | CE | PEMI4QFN/LM | LM | PEMI8QFN/CE | CE |
| PEMI1QFN/LP | LP | PEMI2STD/CG | CG | PEMI4QFN/LP | LP | PEMI8QFN/CG | CG |
| PEMI1QFN/LR | LR | PEMI2STD/CK | CK | PEMI4QFN/LR | LR | PEMI8QFN/CK | CK |
| PEMI1QFN/LT | LT | PEMI2STD/CM | CM | PEMI4QFN/LT | LT | PEMI8QFN/CM | CM |
| PEMI1QFN/RE | RE | PEMI2STD/CP | CP | PEMI4QFN/RE | RE | PEMI8QFN/CP | CP |
| PEMI1QFN/RG | RG | PEMI2STD/CR | CR | PEMI4QFN/RG | RG | PEMI8QFN/CR | CR |
| PEMI1QFN/RK | RK | PEMI2STD/CT | CT | PEMI4QFN/RK | RK | PEMI8QFN/CT | CT |
| PEMI1QFN/RM | RM | PEMI2STD/HE | HE | PEMI4QFN/RM | RM | PEMI8QFN/HE | HE |
| PEMI1QFN/RP | RP | PEMI2STD/HG | HG | PEMI4QFN/RP | RP | PEMI8QFN/HG | HG |
| PEMI1QFN/RR | RR | PEMI2STD/HK | HK | PEMI4QFN/RR | RR | PEMI8QFN/HK | HK |
| PEMI1QFN/RT | RT | PEMI2STD/HM | HM | PEMI4QFN/RT | RT | PEMI8QFN/HM | HM |
| PEMI1QFN/WE | WE | PEMI2STD/HP | HP | PEMI4QFN/WE | WE | PEMI8QFN/HP | HP |
| PEMI1QFN/WG | WG | PEMI2STD/HR | HR | PEMI4QFN/WG | WG | PEMI8QFN/HR | HR |
| PEMI1QFN/WK | WK | PEMI2STD/HT | HT | PEMI4QFN/WK | WK | PEMI8QFN/HT | HT |
| PEMI1QFN/WM | WM | PEMI2STD/LE | LE | PEMI4QFN/WM | WM | PEMI8QFN/LE | LE |
| PEMI1QFN/WP | WP | PEMI2STD/LG | LG | PEMI4QFN/WP | WP | PEMI8QFN/LG | LG |
| PEMI1QFN/WR | WR | PEMI2STD/LK | LK | PEMI4QFN/WR | WR | PEMI8QFN/LK | LK |
| PEMI1QFN/WT | WT | PEMI2STD/LM | LM | PEMI4QFN/WT | WT | PEMI8QFN/LM | LM |
| PEMI2QFN/CE | CE | PEMI2STD/LP | LP | PEMI6QFN/CE | CE | PEMI8QFN/LP | LP |
| PEMI2QFN/CG | CG | PEMI2STD/LR | LR | PEMI6QFN/CG | CG | PEMI8QFN/LR | LR |
| PEMI2QFN/CK | CK | PEMI2STD/LT | LT | PEMI6QFN/CK | CK | PEMI8QFN/LT | LT |
| PEMI2QFN/CM | CM | PEMI2STD/RE | RE | PEMI6QFN/CM | CM | PEMI8QFN/RE | RE |
| PEMI2QFN/CP | CP | PEMI2STD/RG | RG | PEMI6QFN/CP | CP | PEMI8QFN/RG | RG |
| PEMI2QFN/CR | CR | PEMI2STD/RK | RK | PEMI6QFN/CR | CR | PEMI8QFN/RK | RK |
| PEMI2QFN/CT | CT | PEMI2STD/RM | RM | PEMI6QFN/CT | CT | PEMI8QFN/RM | RM |
| PEMI2QFN/HE | HE | PEMI2STD/RP | RP | PEMI6QFN/HE | HE | PEMI8QFN/RP | RP |
| PEMI2QFN/HG | HG | PEMI2STD/RR | RR | PEMI6QFN/HG | HG | PEMI8QFN/RR | RR |
| PEMI2QFN/HK | HK | PEMI2STD/RT | RT | PEMI6QFN/HK | HK | PEMI8QFN/RT | RT |
| PEMI2QFN/HM | HM | PEMI2STD/WE | WE | PEMI6QFN/HM | HM | PEMI8QFN/WE | WE |
| PEMI2QFN/HP | HP | PEMI2STD/WG | WG | PEMI6QFN/HP | HP | PEMI8QFN/WG | WG |
| PEMI2QFN/HR | HR | PEMI2STD/WK | WK | PEMI6QFN/HR | HR | PEMI8QFN/WK | WK |
| PEMI2QFN/HT | HT | PEMI2STD/WM | WM | PEMI6QFN/HT | HT | PEMI8QFN/WM | WM |
| PEMI2QFN/LE | LE | PEMI2STD/WP | WP | PEMI6QFN/LE | LE | PEMI8QFN/WP | WP |
| PEMI2QFN/LG | LG | PEMI2STD/WR | WR | PEMI6QFN/LG | LG | PEMI8QFN/WR | WR |
| PEMI2QFN/LK | LK | PEMI2STD/WT | WT | PEMI6QFN/LK | LK | PEMI8QFN/WT | WT |
| PEMI2QFN/LM | LM | - | - | PEMI6QFN/LM | LM | - | - |

8. Package outline

Leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm

SOT883

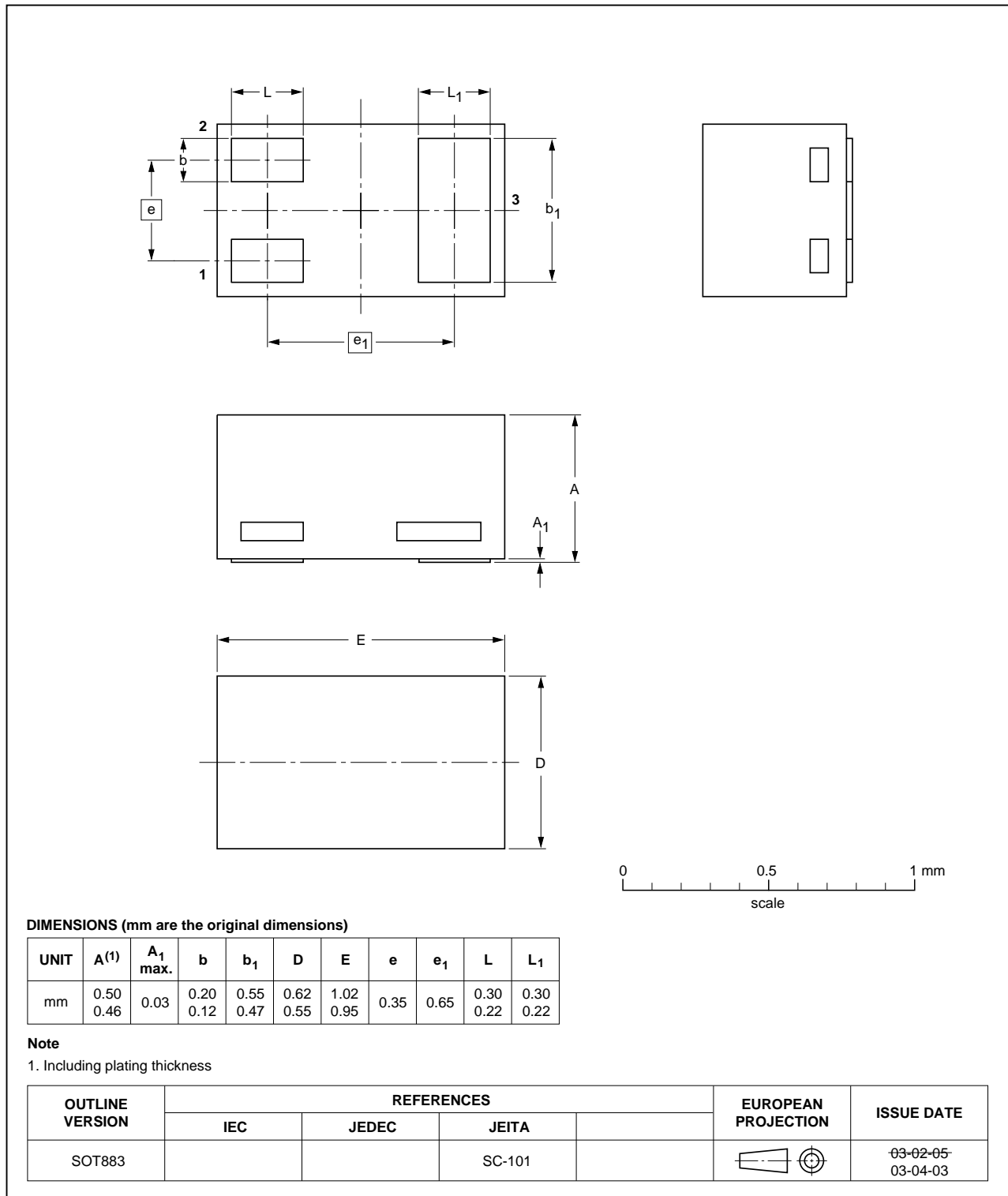


Fig 7. Package outline PEMI1QFN (SOT883/SC-101)

XSON6: plastic extremely thin small outline package; no leads; 6 terminals; body 1 x 1.45 x 0.5 mm

SOT886

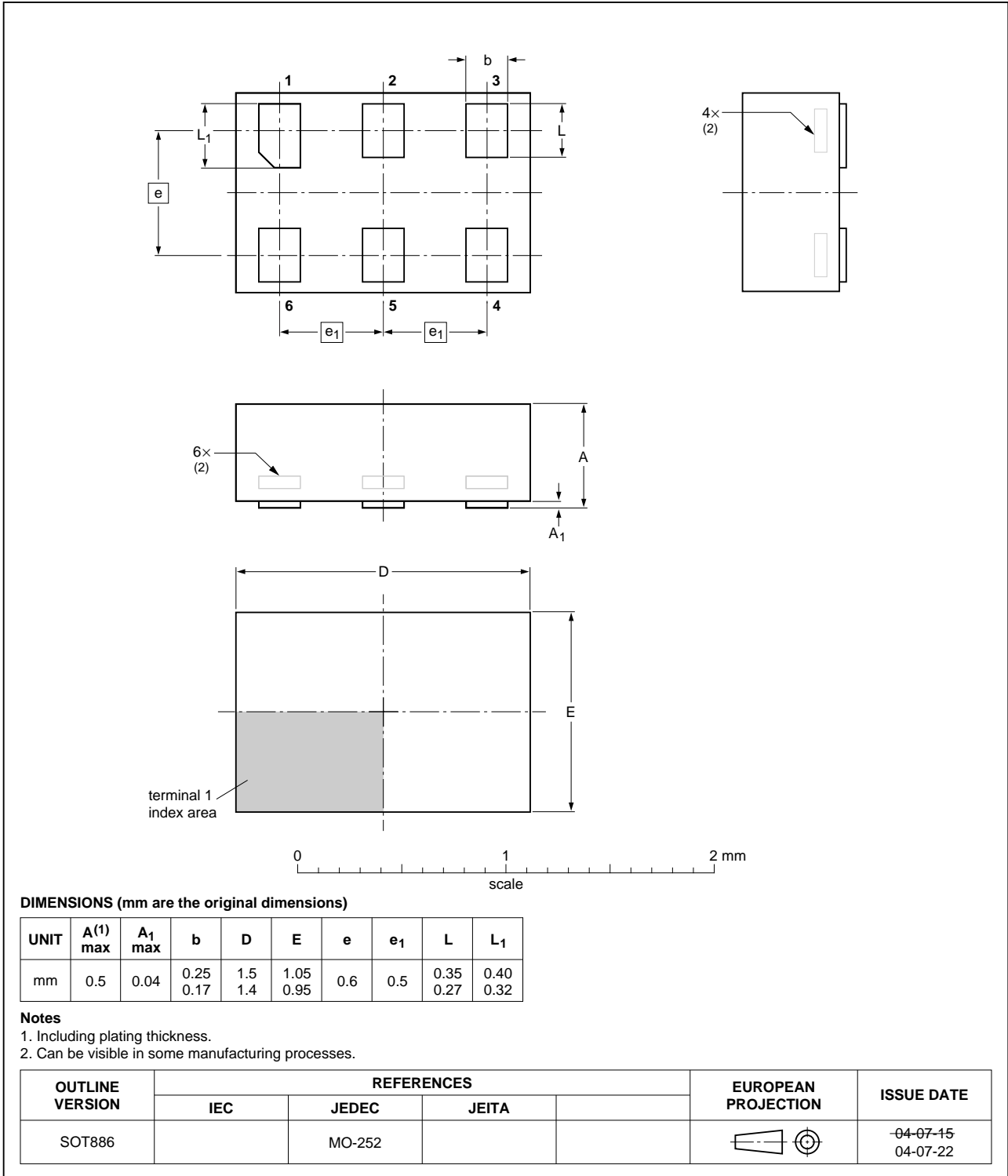


Fig 8. Package outline PEMI2QFN (SOT886/XSON6)

Plastic surface-mounted package; 5 leads

SOT665

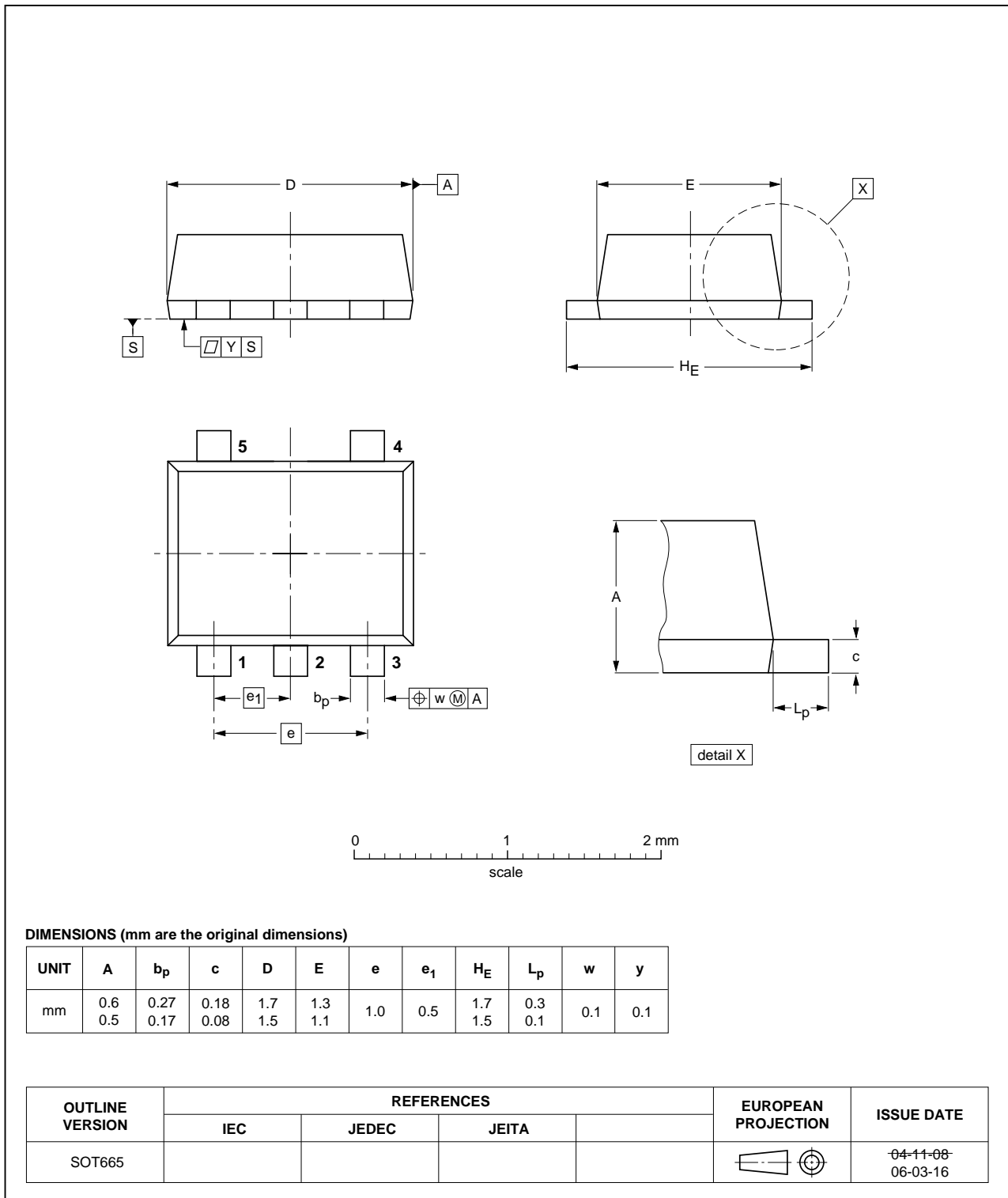


Fig 9. Package outline PEMI2STD (SOT665)

HXSON8: plastic thermal enhanced extremely thin small outline package; no leads;
8 terminals; body 1.2 x 1.7 x 0.5 mm

SOT1157-1

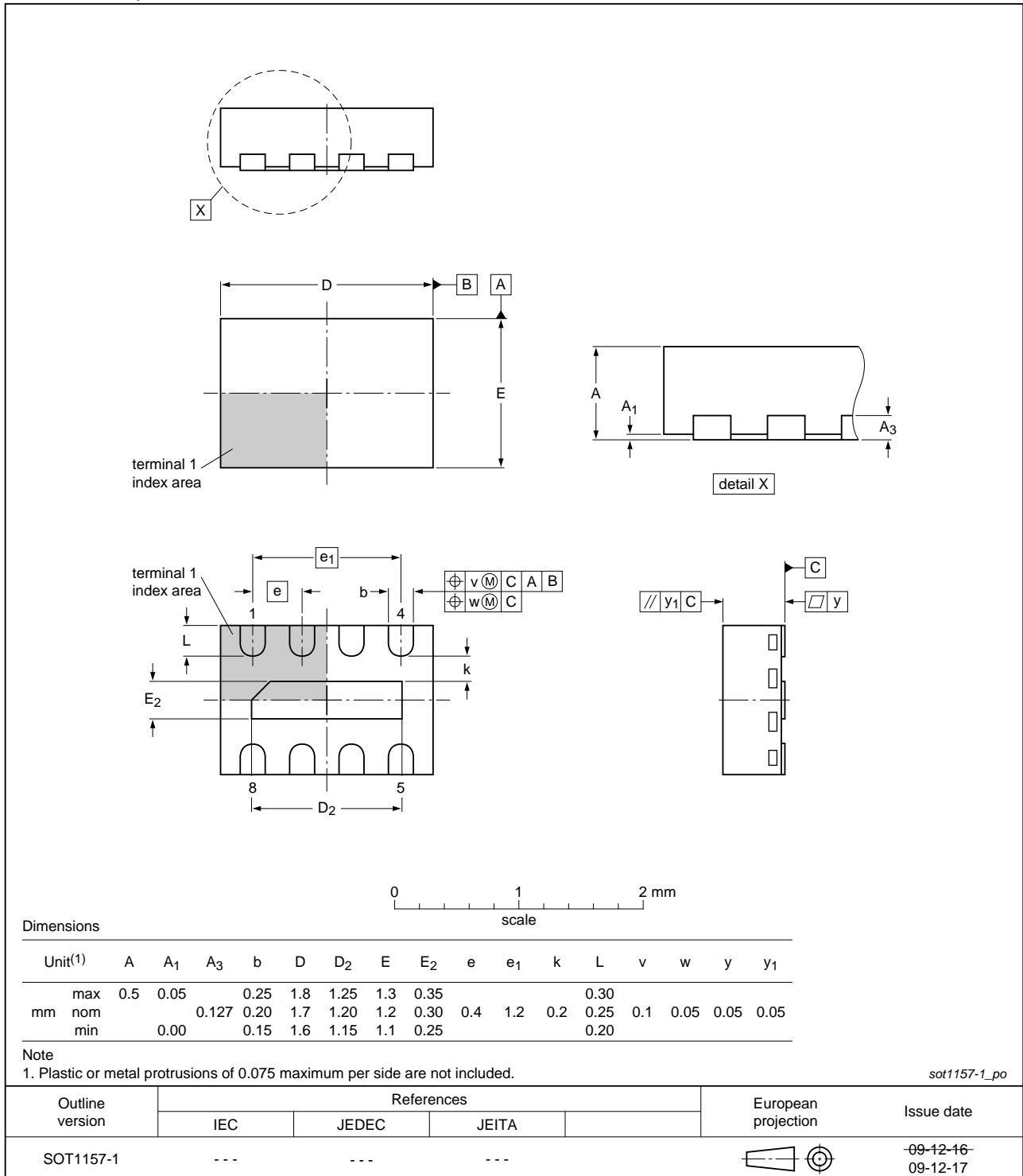


Fig 10. Package outline PEMI4QFN (SOT1157-1/HXSON8)

HXSON12: plastic thermal enhanced extremely thin small outline package; no leads;
12 terminals; body 1.2 x 2.5 x 0.5 mm

SOT1158-1

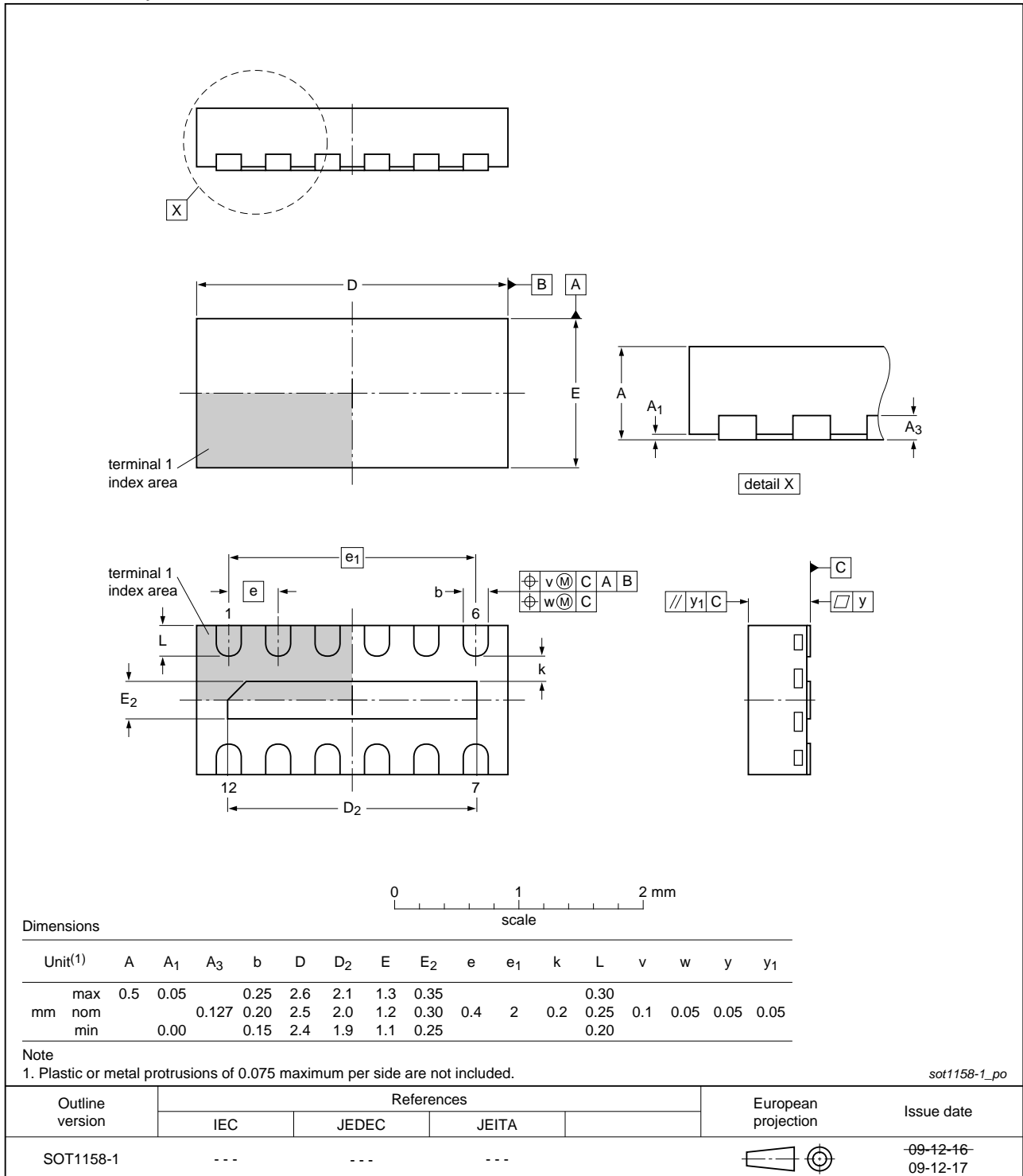


Fig 11. Package outline PEMI6QFN (SOT1158-1/HXSON12)

HXSON16: plastic thermal enhanced extremely thin small outline package; no leads;
16 terminals; body 1.2 x 3.3 x 0.5 mm

SOT1159-1

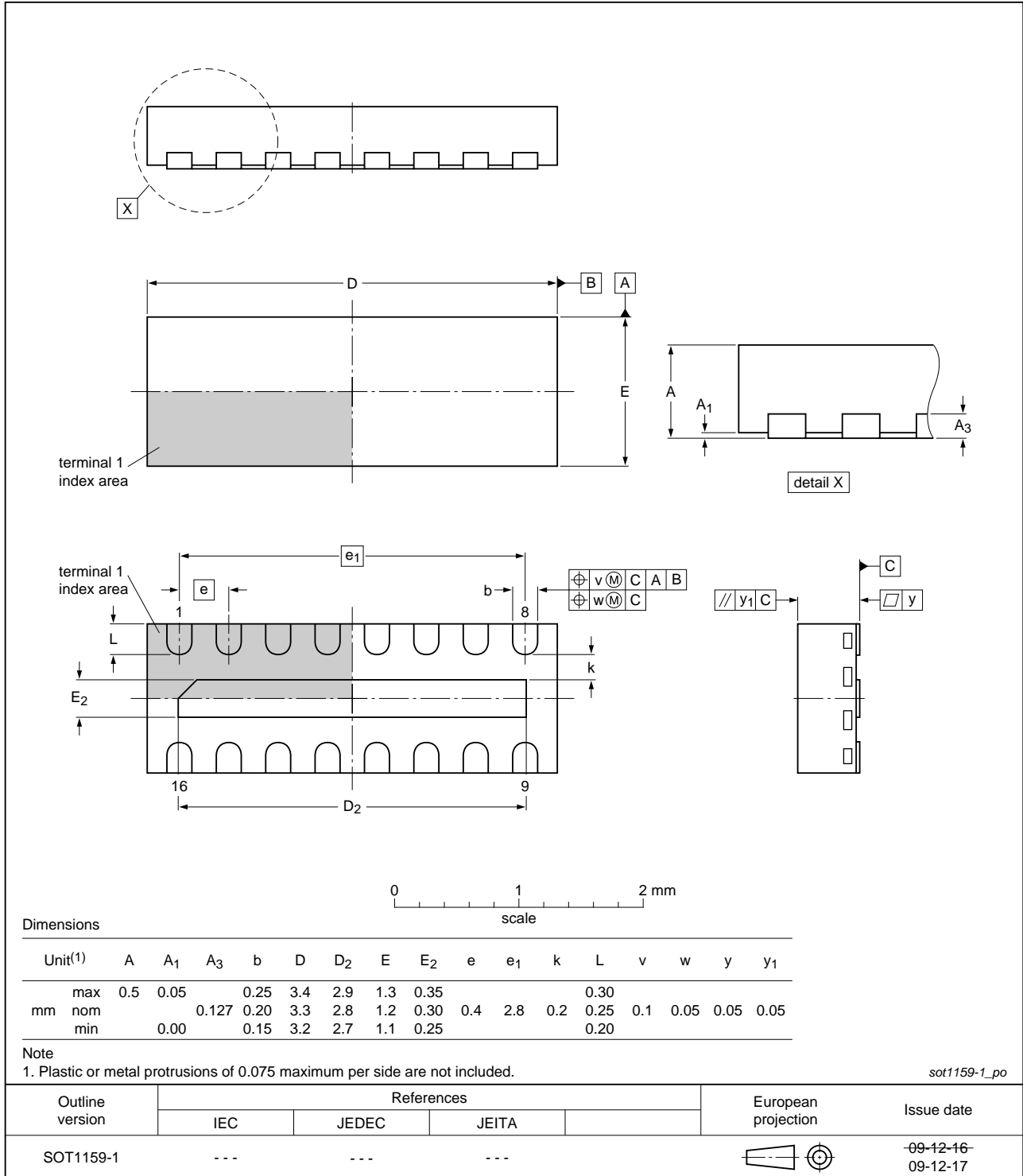
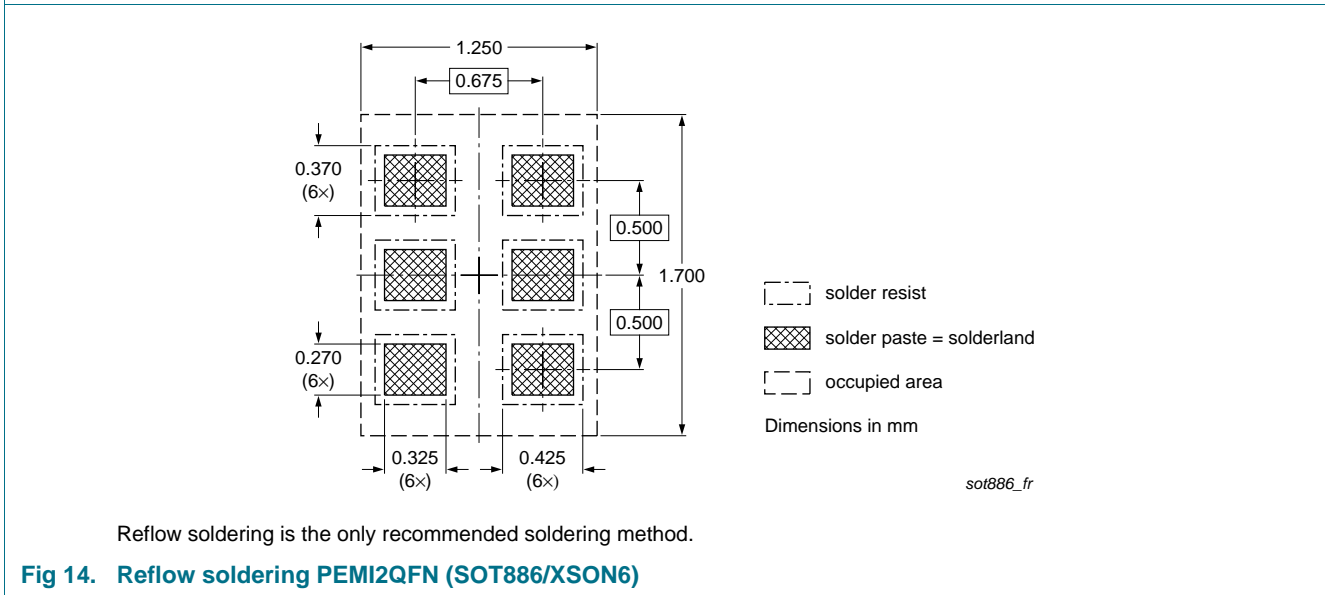
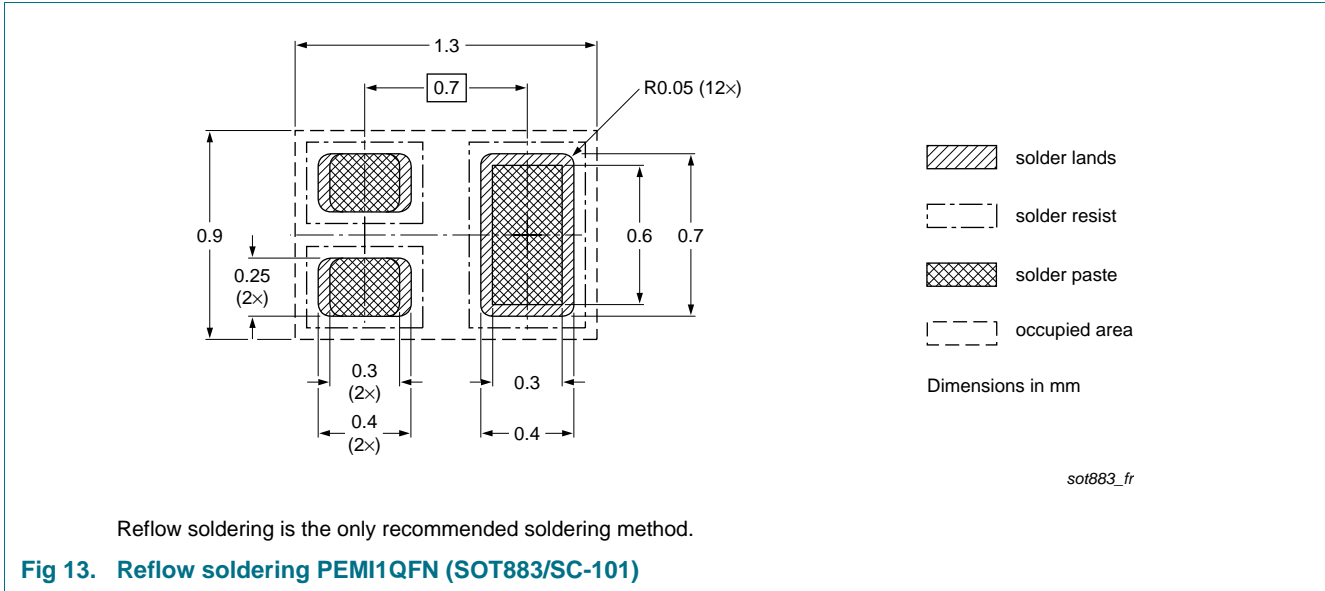
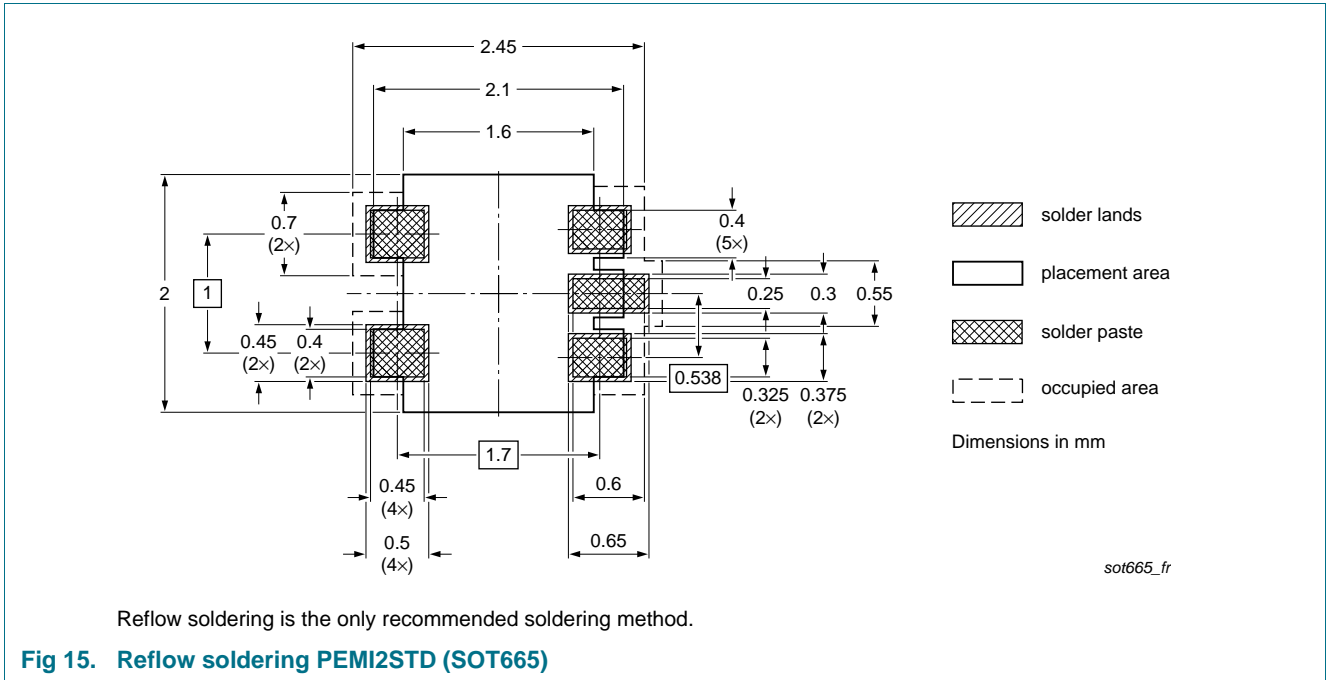


Fig 12. Package outline PEMI8QFN (SOT1159-1/HXSON16)

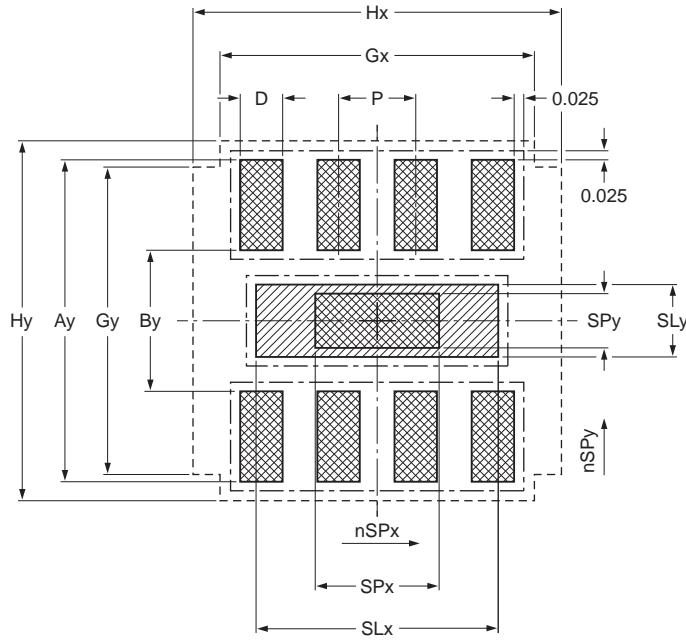
9. Soldering








Footprint information for reflow soldering of HXSON8 package

SOT1157-1



Generic footprint pattern
Refer to the package outline drawing for actual layout

-  solder land
-  solder paste deposit
-  solder land plus solder paste
- occupied area
- solder resist

DIMENSIONS in mm

| P | Ay | By | D | SLx | SLy | SPx | SPy | Gx | Gy | Hx | Hy |
|------|------|------|------|------|------|-----|-----|------|------|------|-----|
| 0.40 | 1.75 | 0.75 | 0.22 | 1.25 | 0.35 | 0.6 | 0.2 | 1.65 | 1.45 | 1.95 | 2.0 |

Issue date ~~11-06-27~~
11-07-06

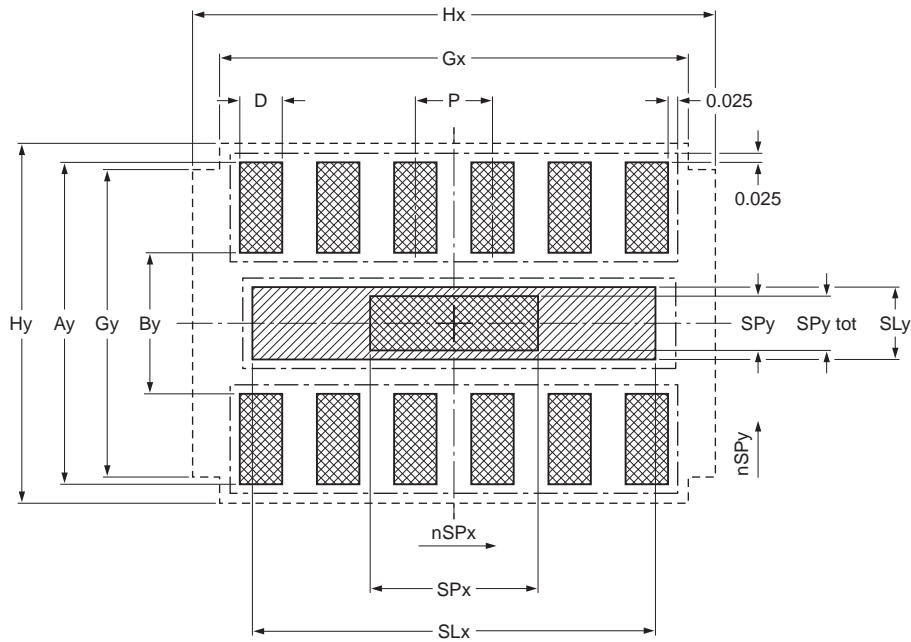
sot1157-1_fr

Reflow soldering is the only recommended soldering method.

Fig 16. Reflow soldering PEMI4QFN (SOT1157-1/HXSON8)

Footprint information for reflow soldering of HXSON12 package

SOT1158-1



Generic footprint pattern
Refer to the package outline drawing for actual layout

- solder land
- solder paste deposit
- solder land plus solder paste
- occupied area
- solder resist

DIMENSIONS in mm

| P | Ay | By | D | SLx | SLy | SPx | SPy | Gx | Gy | Hx | Hy |
|------|------|------|------|-----|------|-----|-----|------|------|------|-----|
| 0.40 | 1.75 | 0.75 | 0.22 | 2.1 | 0.35 | 0.9 | 0.2 | 2.45 | 1.45 | 2.75 | 2.0 |

Issue date ~~11-06-27~~
11-07-06

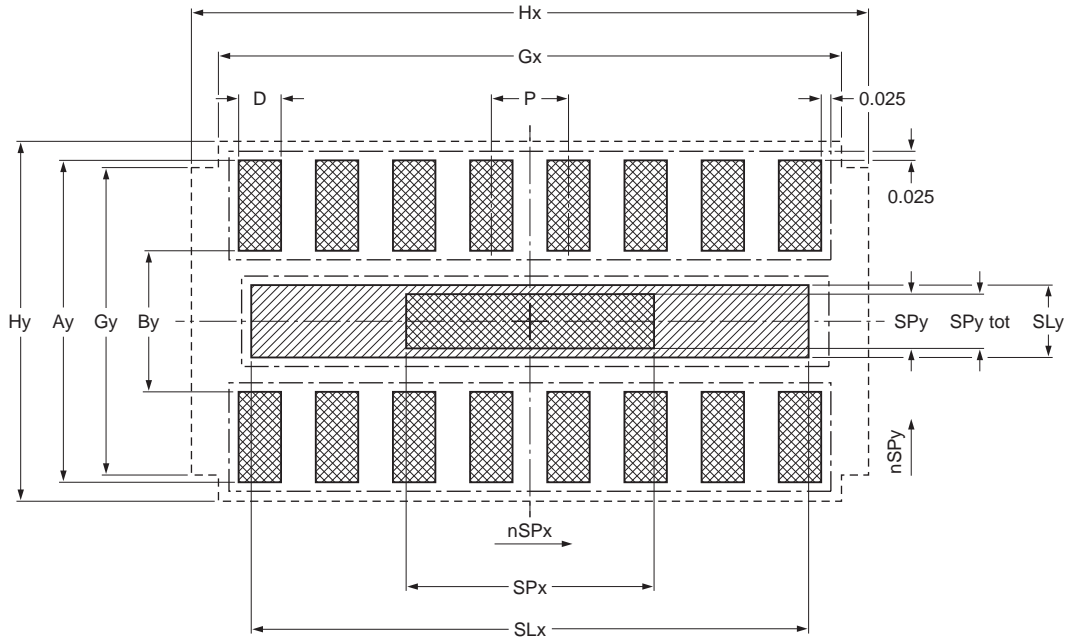
sot1158-1_fr

Reflow soldering is the only recommended soldering method.

Fig 17. Reflow soldering PEMI6QFN (SOT1158-1/HXSON12)

Footprint information for reflow soldering of HXSON16 package

SOT1159-1



Generic footprint pattern
Refer to the package outline drawing for actual layout

- solder land
- solder paste deposit
- solder land plus solder paste
- occupied area
- solder resist

DIMENSIONS in mm

| P | Ay | By | D | SLx | SLy | SPx | SPy | Gx | Gy | Hx | Hy |
|------|------|------|------|-----|------|-----|-----|------|------|------|-----|
| 0.40 | 2.15 | 0.75 | 0.21 | 2.9 | 0.35 | 1.3 | 0.2 | 3.25 | 1.45 | 3.55 | 2.4 |

Issue date ~~11-06-27~~
11-07-06

sot1159-1_fr

Reflow soldering is the only recommended soldering method.

Fig 18. Reflow soldering PEMI8QFN (SOT1159-1/HXSON16)

10. Revision history

Table 12. Revision history

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---------------------------|--|--------------------|---------------|---------------------------|
| PEMIXQFN_PEMI2STD_FAM v.2 | 20111103 | Product data sheet | - | PEMIXQFN_PEMI2STD_FAM v.1 |
| Modifications: | <ul style="list-style-type: none"> • Table 3 "Pinning": corrected pinning description for PEMI8QFN (SOT1159-1); updated simplified outline of SOT886 • Section 11 "Legal information": updated | | | |
| PEMIXQFN_PEMI2STD_FAM v.1 | 20110729 | Product data sheet | - | - |

11. Legal information

11.1 Data sheet status

| Document status ^{[1][2]} | Product status ^[3] | Definition |
|-----------------------------------|-------------------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

11.2 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local NXP Semiconductors sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

Product specification — The information and data provided in a Product data sheet shall define the specification of the product as agreed between NXP Semiconductors and its customer, unless NXP Semiconductors and customer have explicitly agreed otherwise in writing. In no event however, shall an agreement be valid in which the NXP Semiconductors product is deemed to offer functions and qualities beyond those described in the Product data sheet.

11.3 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the *Terms and conditions of commercial sale* of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or

malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors accepts no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) will cause permanent damage to the device. Limiting values are stress ratings only and (proper) operation of the device at these or any other conditions above those given in the Recommended operating conditions section (if present) or the Characteristics sections of this document is not warranted. Constant or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the device.

Terms and conditions of commercial sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at <http://www.nxp.com/profile/terms>, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

Non-automotive qualified products — Unless this data sheet expressly states that this specific NXP Semiconductors product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. NXP Semiconductors accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without NXP Semiconductors' warranty of the

product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond NXP Semiconductors' specifications such use shall be solely at customer's own risk, and (c) customer fully indemnifies NXP Semiconductors for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond NXP Semiconductors' standard warranty and NXP Semiconductors' product specifications.

11.4 Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

12. Contact information

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

13. Contents

| | | |
|-----------|--|-----------|
| 1 | Product profile | 1 |
| 1.1 | General description | 1 |
| 1.2 | Features and benefits | 1 |
| 1.3 | Applications | 1 |
| 1.4 | Quick reference data | 2 |
| 2 | Pinning information | 2 |
| 3 | Ordering information | 4 |
| 4 | Limiting values | 4 |
| 5 | Characteristics | 5 |
| 6 | Application information | 9 |
| 6.1 | Use cases | 9 |
| 6.2 | LCD interfaces, medium-speed interfaces | 9 |
| 6.3 | Keypad, low-speed interfaces | 9 |
| 6.4 | Insertion loss | 10 |
| 6.4.1 | Relative -3dB frequency (p-filter structure) | 12 |
| 6.4.2 | Insertion loss (dB) at 800 MHz (p-filter structure) | 13 |
| 6.4.3 | Insertion loss (dB) at frequencies lower than 1 MHz (p-filter structure) | 13 |
| 7 | Marking | 13 |
| 8 | Package outline | 15 |
| 9 | Soldering | 21 |
| 10 | Revision history | 26 |
| 11 | Legal information | 27 |
| 11.1 | Data sheet status | 27 |
| 11.2 | Definitions | 27 |
| 11.3 | Disclaimers | 27 |
| 11.4 | Trademarks | 28 |
| 12 | Contact information | 28 |
| 13 | Contents | 29 |

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

© NXP B.V. 2011.

All rights reserved.

For more information, please visit: <http://www.nxp.com>

For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 3 November 2011

Document identifier: PEMIXQFN_PEMI2STD_FAM

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View PEMI6QFN/CE,132 on WIN SOURCE](#)
- ⊖ [NXP / Nexperia Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management