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Kind regards,

Team Nexperia

DATA SHEET

**PMEGX10BEA;
PMEGX10BEV**

1 A very low V_F MEGA Schottky
barrier rectifier

Product data sheet
Supersedes data of 2004 Apr 02

2004 Jun 14

1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA; PMEGXX10BEV

FEATURES

- Forward current: 1 A
- Reverse voltages: 20 V, 30 V, 40 V
- Very low forward voltage
- Ultra small and very small plastic SMD package
- Power dissipation comparable to SOT23.

APPLICATIONS

- High efficiency DC-to-DC conversion
- Voltage clamping
- Protection circuits
- Low voltage rectification
- Blocking diodes
- Low power consumption applications.

DESCRIPTION

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a very small SOD323 (SC-76) and ultra small SOT666 SMD plastic package.

MARKING

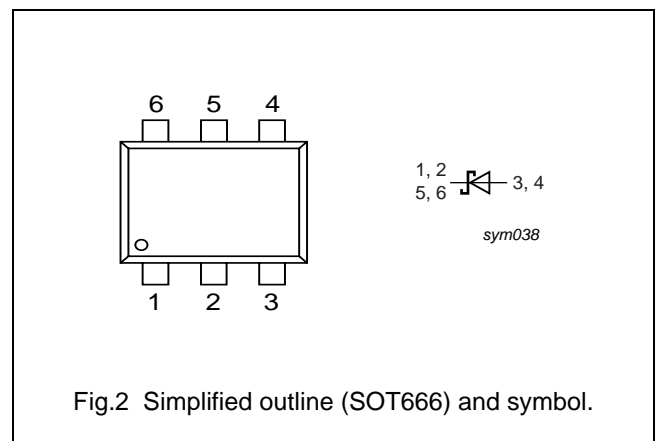
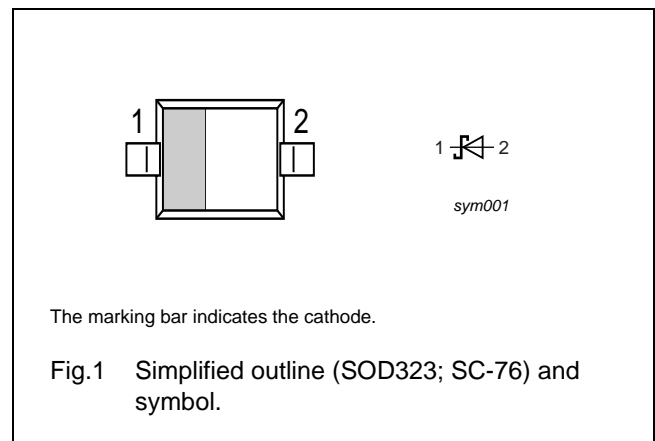
| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PMEG2010BEA | V1 |
| PMEG3010BEA | V2 |
| PMEG4010BEA | V3 |
| PMEG2010BEV | G6 |
| PMEG3010BEV | G5 |
| PMEG4010BEV | G4 |

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|--------|-----------------|------------|------|
| I_F | forward current | 1 | A |
| V_R | reverse voltage | 20; 30; 40 | V |

PINNING

| PIN | DESCRIPTION |
|--------------------------------|-------------|
| PMEGXX10BEA (see Fig.1) | |
| 1 | cathode |
| 2 | anode |
| PMEGXX10BEV (see Fig.2) | |
| 1, 2, 5, 6 | cathode |
| 3, 4 | anode |



1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV

ORDERING INFORMATION

| TYPE NUMBER | PACKAGE | | |
|-------------|---------|--|---------|
| | NAME | DESCRIPTION | VERSION |
| PMEGXX10BEA | – | plastic surface mounted package; 2 leads | SOD323 |
| PMEGXX10BEV | | plastic surface mounted package; 6 leads | SOT666 |

LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|---|---|------|----------------|-------------|
| V_R | continuous reverse voltage PMEG2010BEA/PMEG2010BEV PMEG3010BEA/PMEG3010BEV PMEG4010BEA/PMEG4010BEV | | – | 20 30 40 | V V V |
| I_F | continuous forward current | $T_s \leq 55\text{ °C}$; note 1 | – | 1 | A |
| I_{FRM} | repetitive peak forward current | $t_p \leq 1\text{ ms}$; $\delta \leq 0.5$; note 2 | – | 3.5 | A |
| I_{FSM} | non-repetitive peak forward current | $t_p = 8\text{ ms}$; square wave; note 2 | – | 10 | A |
| T_j | junction temperature | note 3 | – | 150 | °C |
| T_{amb} | operating ambient temperature | note 3 | –65 | +150 | °C |
| T_{stg} | storage temperature | | –65 | +150 | °C |

Notes

1. Refer to SOD323 (SC-76) and SOT666 standard mounting conditions.
2. Only valid if pins 3 and 4 are connected in parallel (SOT666 package).
3. For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses. Nomograms for determining the reverse power losses P_R and $I_{F(AV)}$ rating will be available on request.

1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------------------------|---|----------------------------|-------|------|
| PMEGXX10BEA (SOD323) | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air; notes 1 and 2 | 450 | K/W |
| | | in free air; notes 2 and 3 | 210 | K/W |
| $R_{th(j-s)}$ | thermal resistance from junction to soldering point | note 4 | 90 | K/W |
| PMEGXX10BEV (SOT666) | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air; notes 2 and 5 | 405 | K/W |
| | | in free air; notes 2 and 6 | 215 | K/W |
| $R_{th(j-s)}$ | thermal resistance from junction to soldering point | note 4 | 80 | K/W |

Notes

1. Refer to SOD323 (SC-76) standard mounting conditions.
2. For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses P_R are a significant part of the total power losses. Nomograms for determining the reverse power losses P_R and $I_{F(AV)}$ rating will be available on request.
3. Device mounted on an FR4 printed-circuit board with copper clad 10 × 10 mm.
4. Solder point of cathode tab.
5. Refer to SOT666 standard mounting conditions.
6. Only valid if pins 3 and 4 are connected in parallel (SOT666 package).

CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | PMEG2010BEA/ PMEG2010BEV | | PMEG3010BEA/ PMEG3010BEV | | PMEG4010BEA/ PMEG4010BEV | | UNIT |
|--------|----------------------------|---|-----------------------------|------|-----------------------------|------|-----------------------------|------|---------------|
| | | | TYP. | MAX. | TYP. | MAX. | TYP. | MAX. | |
| V_F | forward voltage | $I_F = 0.1\text{ mA}$ | 90 | 130 | 90 | 130 | 95 | 130 | mV |
| | | $I_F = 1\text{ mA}$ | 150 | 190 | 150 | 200 | 155 | 210 | mV |
| | | $I_F = 10\text{ mA}$ | 210 | 240 | 215 | 250 | 220 | 270 | mV |
| | | $I_F = 100\text{ mA}$ | 280 | 330 | 285 | 340 | 295 | 350 | mV |
| | | $I_F = 500\text{ mA}$ | 355 | 390 | 380 | 430 | 420 | 470 | mV |
| | | $I_F = 1000\text{ mA}$ | 420 | 500 | 450 | 560 | 540 | 640 | mV |
| I_R | continuous reverse current | $V_R = 10\text{ V}$; note 1 | 15 | 40 | 12 | 30 | 7 | 20 | μA |
| | | $V_R = 20\text{ V}$; note 1 | 40 | 200 | – | – | – | – | μA |
| | | $V_R = 30\text{ V}$; note 1 | – | – | 40 | 150 | – | – | μA |
| | | $V_R = 40\text{ V}$; note 1 | – | – | – | – | 30 | 100 | μA |
| C_d | diode capacitance | $V_R = 1\text{ V}$; $f = 1\text{ MHz}$ | 66 | 80 | 55 | 70 | 43 | 50 | pF |

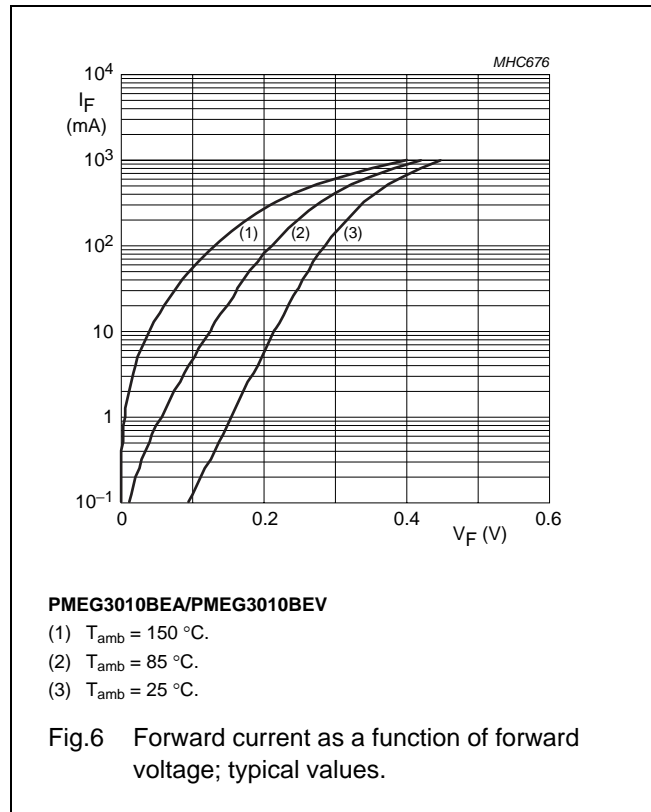
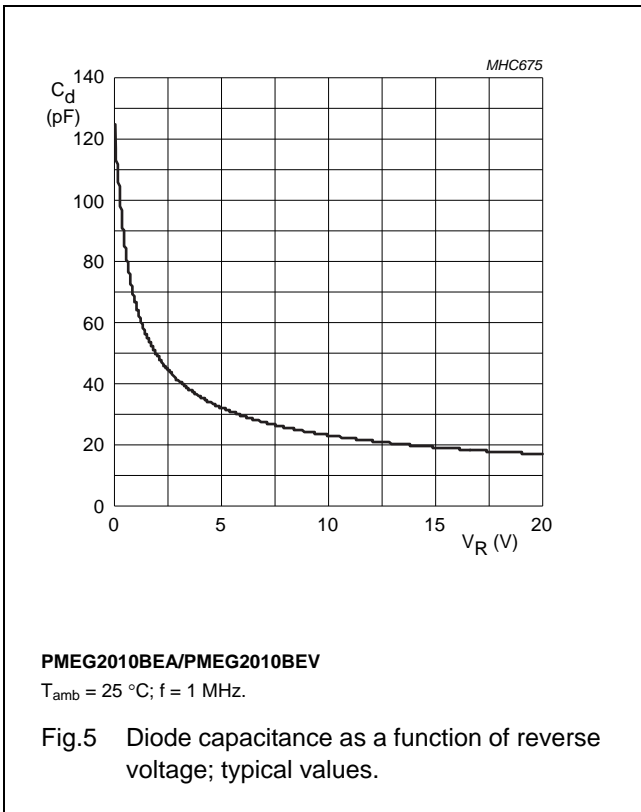
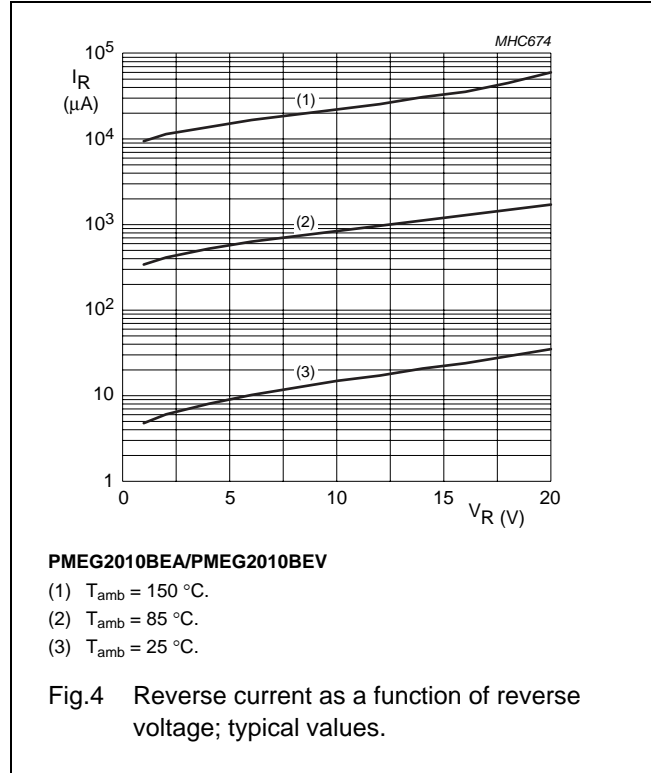
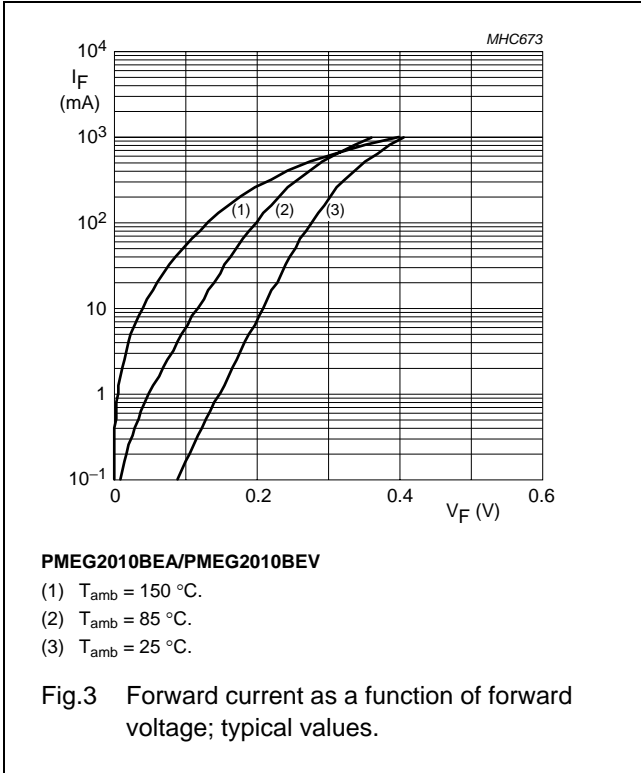
Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

1 A very low V_F MEGA Schottky barrier rectifier

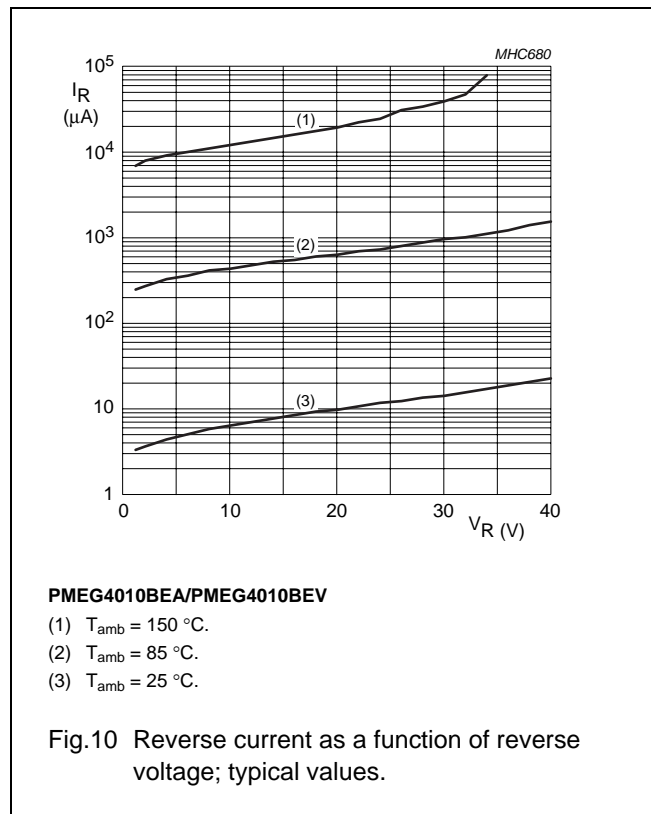
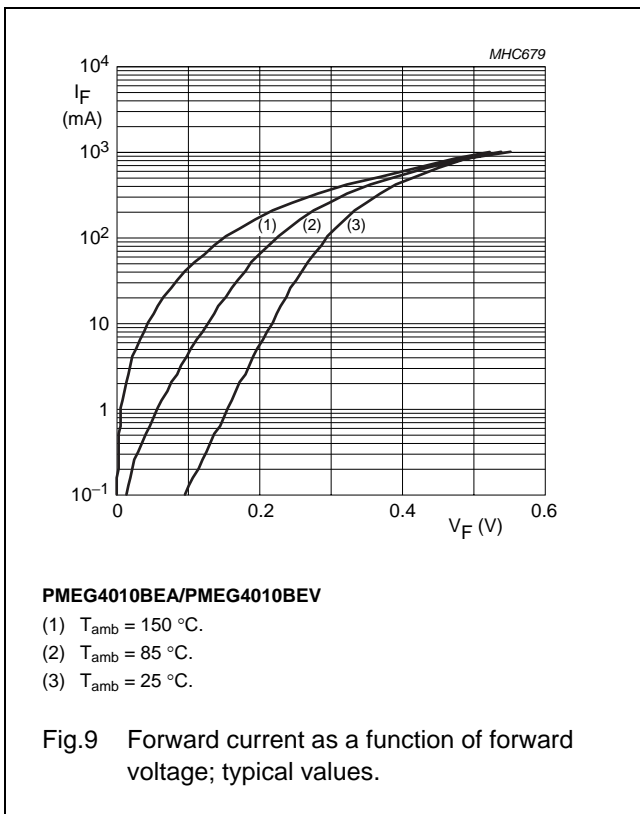
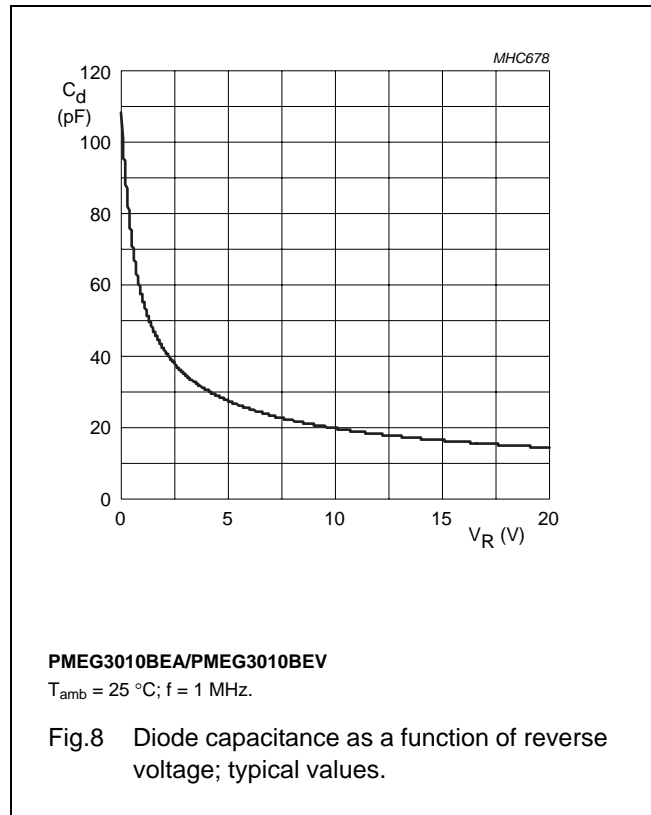
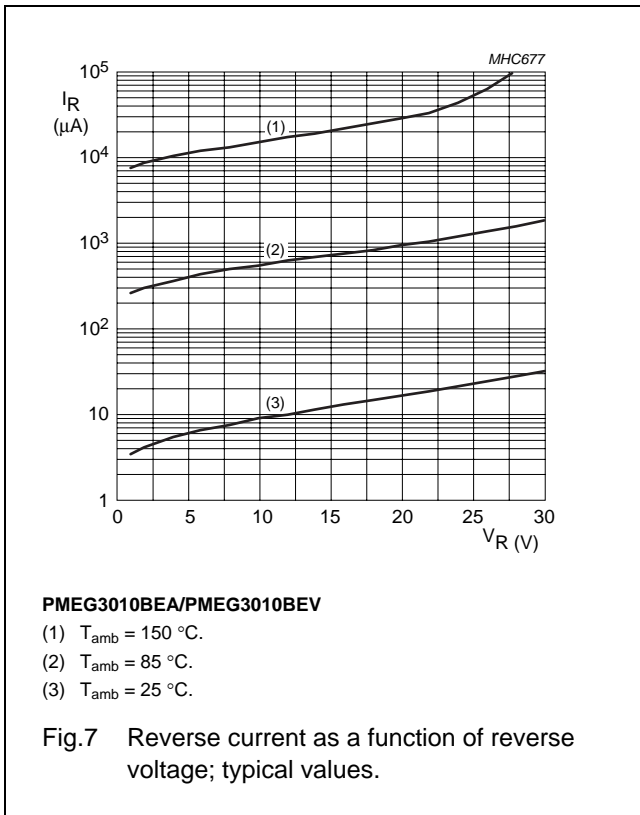
PMEGXX10BEA;
PMEGXX10BEV

GRAPHICAL DATA



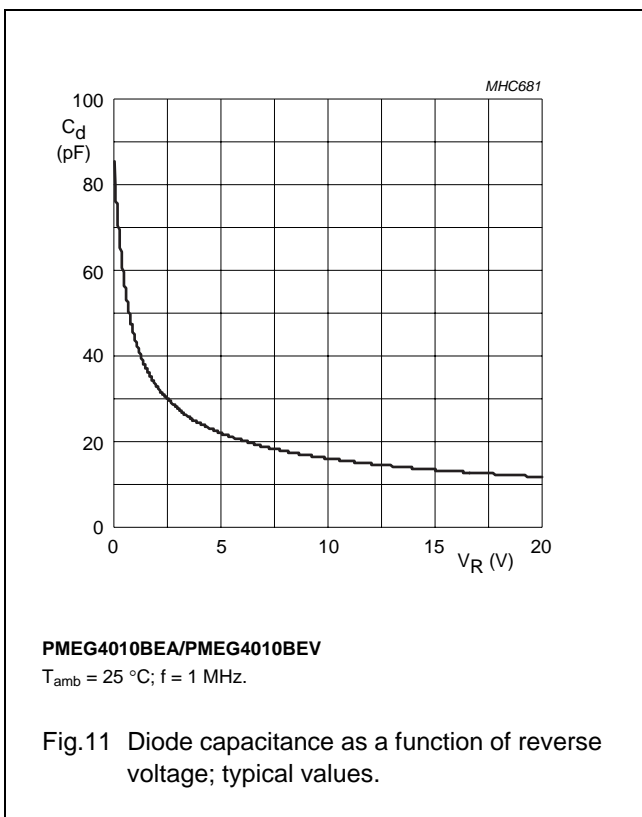
1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV



1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV



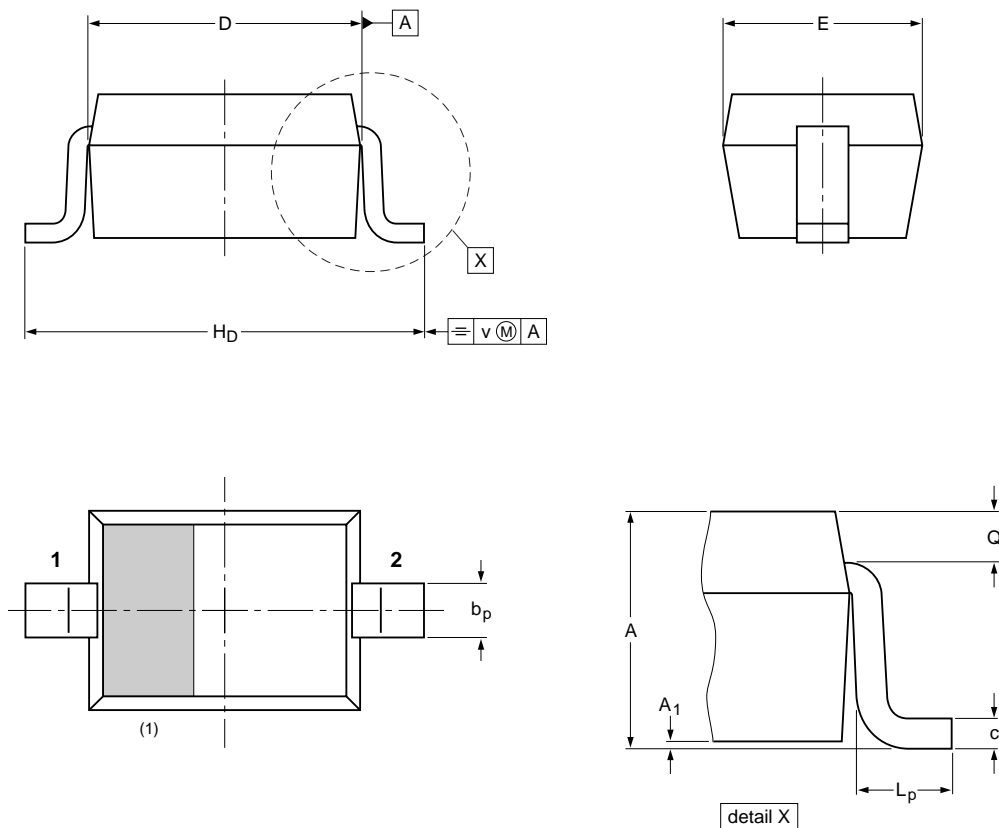
1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV

PACKAGE OUTLINES

Plastic surface-mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | c | D | E | H _D | L _p | Q | v |
|------|------------|-----------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm | 1.1 0.8 | 0.05 | 0.40 0.25 | 0.25 0.10 | 1.8 1.6 | 1.35 1.15 | 2.7 2.3 | 0.45 0.15 | 0.25 0.15 | 0.2 |

Note

1. The marking bar indicates the cathode

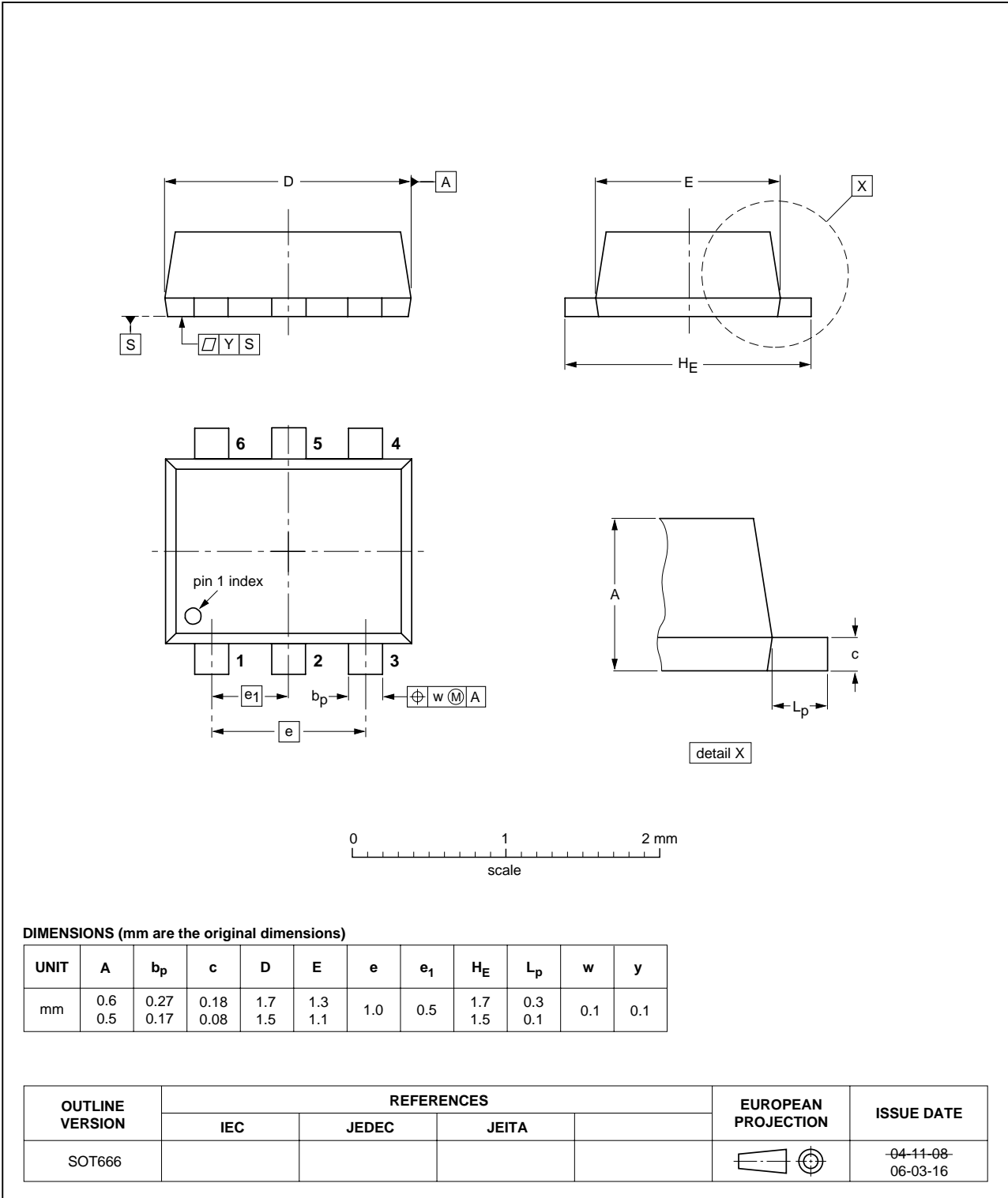
| OUTLINE VERSION | REFERENCES | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|-------|------------------------|---------------------------------|
| | IEC | JEDEC | JEITA | | |
| SOD323 | | | SC-76 | | 03-12-17 06-03-16 |

1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV

Plastic surface-mounted package; 6 leads

SOT666



1 A very low V_F MEGA Schottky barrier rectifier

PMEGXX10BEA;
PMEGXX10BEV

DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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NXP Semiconductors

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This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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