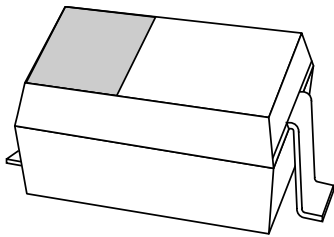


DATA SHEET



**PMEG2005AEA; PMEG3005AEA;
PMEG4005AEA**

Very low V_F MEGA Schottky barrier
rectifiers

**Very low V_F MEGA
Schottky barrier rectifiers**

**PMEG2005AEA; PMEG3005AEA;
PMEG4005AEA**

FEATURES

- Very low forward voltage
- High surge current
- Very small plastic SMD package.

APPLICATIONS

- Low voltage rectification
- High efficiency DC/DC conversion
- Voltage clamping
- Inverse polarity protection
- Low power consumption applications.

DESCRIPTION

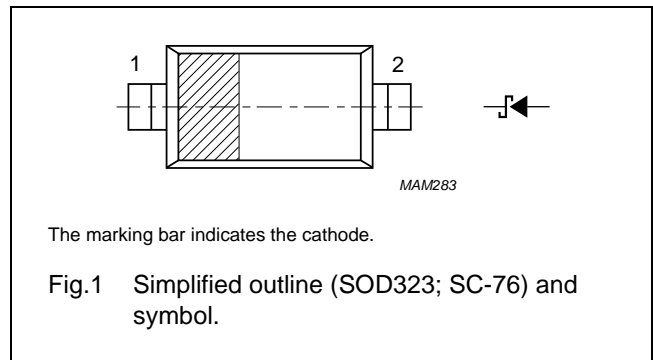
Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD323 (SC-76) very small SMD plastic package.

QUICK REFERENCE DATA

| SYMBOL | PARAMETER | MAX. | UNIT |
|--------|-----------------|------|------|
| I_F | forward current | 0.5 | A |
| V_R | reverse voltage | | |
| | PMEG2005AEA | 20 | V |
| | PMEG3005AEA | 30 | V |
| | PMEG4005AEA | 40 | V |

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | cathode |
| 2 | anode |



MARKING

| TYPE NUMBER | MARKING CODE |
|-------------|--------------|
| PMEG2005AEA | E5 |
| PMEG3005AEA | E4 |
| PMEG4005AEA | E3 |

RELATED PRODUCTS

| TYPE NUMBER | DESCRIPTION | FEATURE |
|-------------|--|--------------------------------|
| PMEGxx05AEV | 0.5 A; 20/30/40 V very low V_F MEGA Schottky rectifier | SOT666 package |
| PMEG2005EB | 0.5 A; 20 V very low V_F MEGA Schottky rectifier | smaller SOD523 (SC-79) package |
| PMEG2010EA | 1 A; 20 V very low V_F MEGA Schottky rectifier | higher forward current |

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PMEG4005AEA

LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-----------|-------------------------------------|------------------------------------|------|------|------|
| V_R | continuous reverse voltage | | | | |
| | PMEG2005AEA | | – | 20 | V |
| | PMEG3005AEA | | – | 30 | V |
| | PMEG4005AEA | | – | 40 | V |
| I_F | continuous forward current | note 1 | – | 0.5 | A |
| I_{FRM} | repetitive peak forward current | $t_p \leq 1$ ms; $\delta \leq 0.5$ | – | 3.5 | A |
| I_{FSM} | non-repetitive peak forward current | $t_p = 8$ ms; square wave | – | 10 | A |
| T_j | junction temperature | note 2 | – | 150 | °C |
| T_{amb} | operating ambient temperature | note 2 | –65 | +150 | °C |
| T_{stg} | storage temperature | | –65 | +150 | °C |

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 determination of the reverse power losses P_R and $I_{F(AV)}$ rating will be available on request.

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|----------------------------|-------|------|
| $R_{th\ j-a}$ | 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 |

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 determination of 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.

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PMEG4005AEA

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | PMEG2005AEA | | PMEG3005AEA | | PMEG4005AEA | | 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_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 |

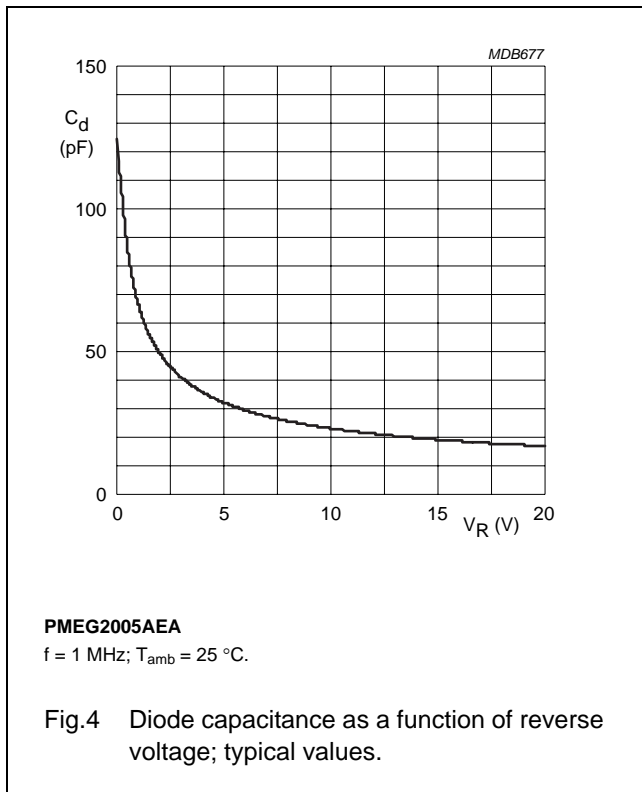
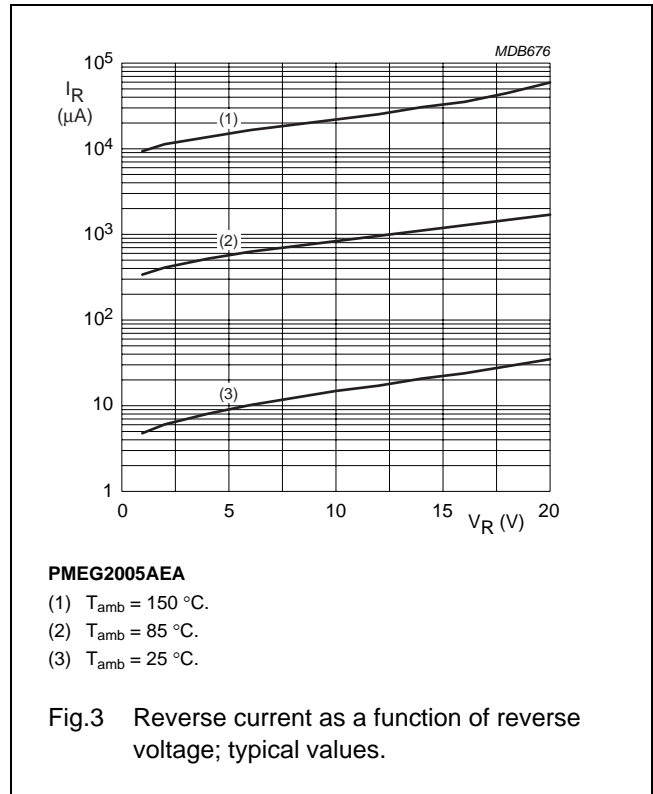
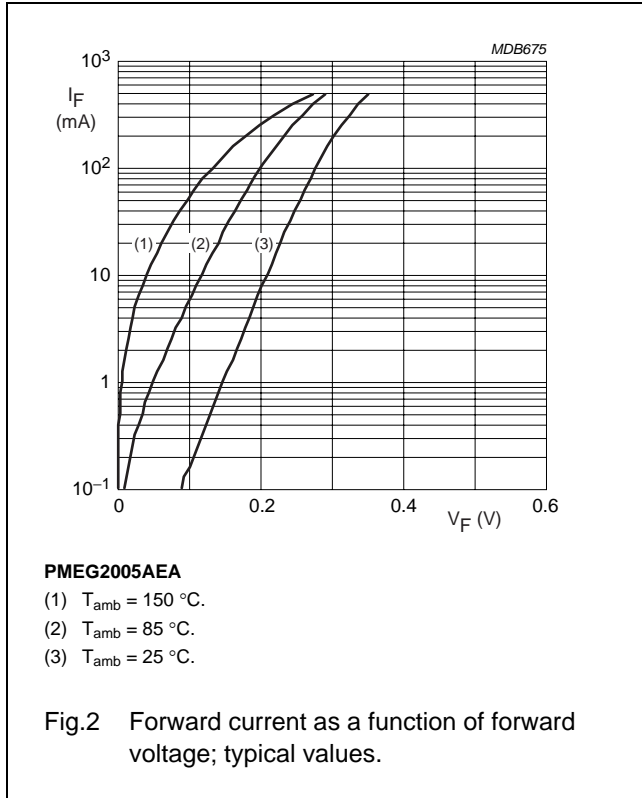
Note

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

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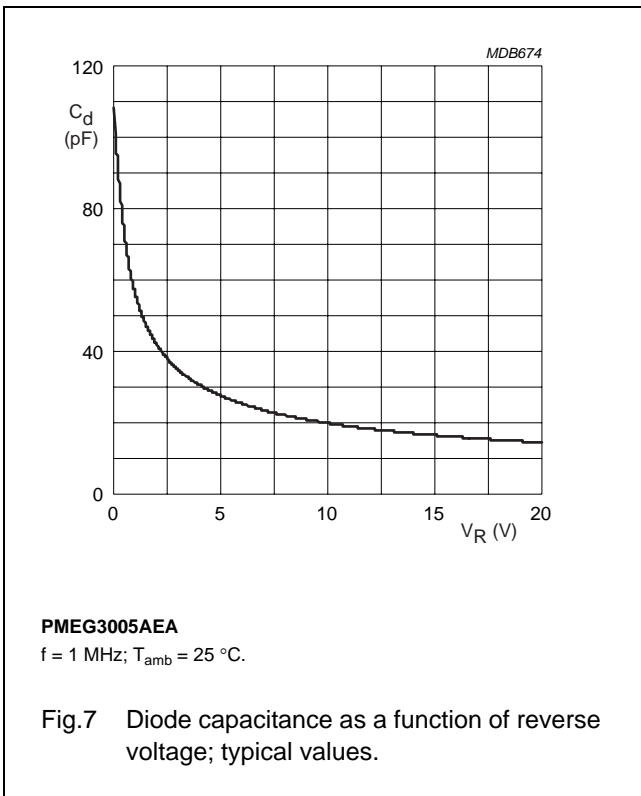
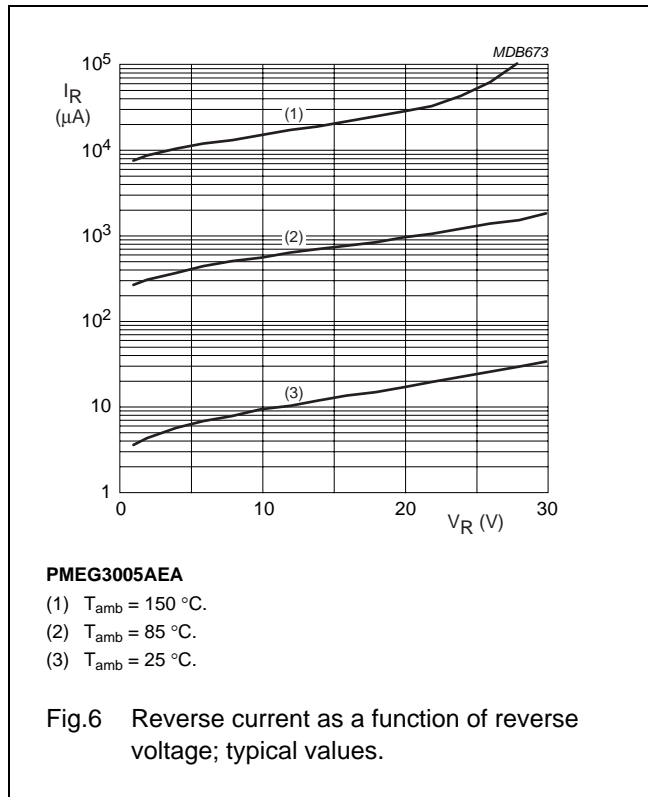
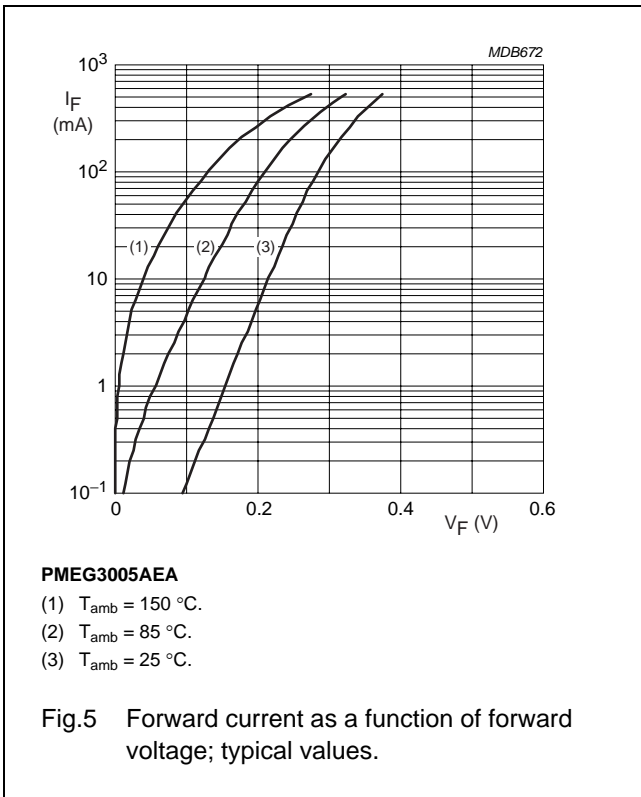
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GRAPHICAL DATA



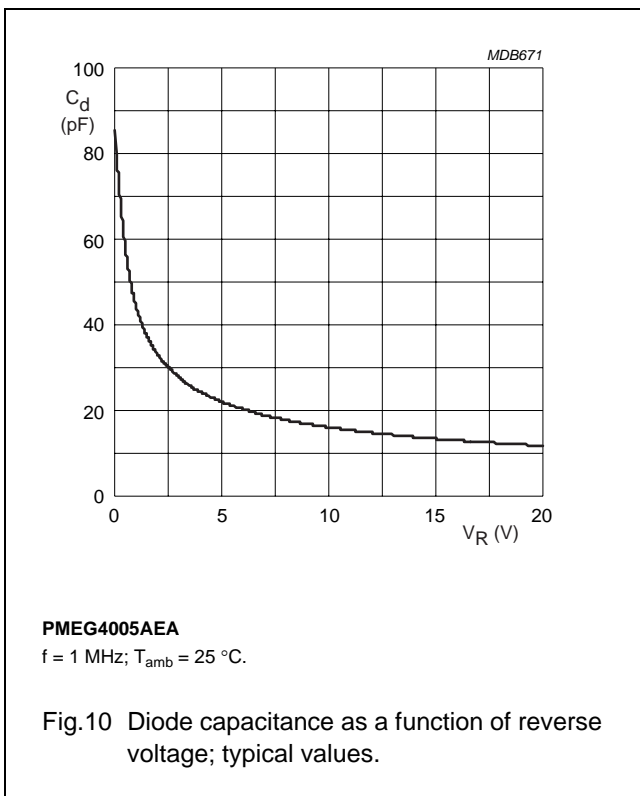
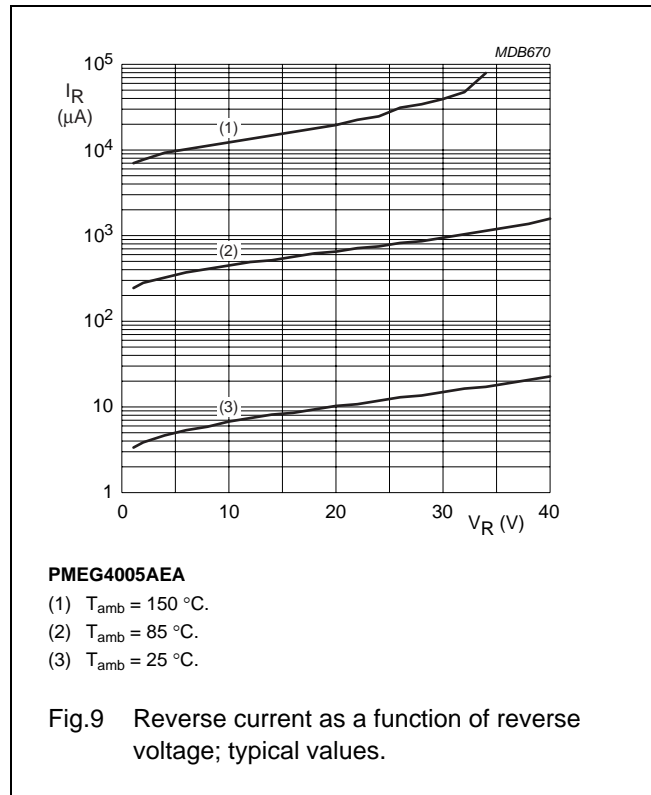
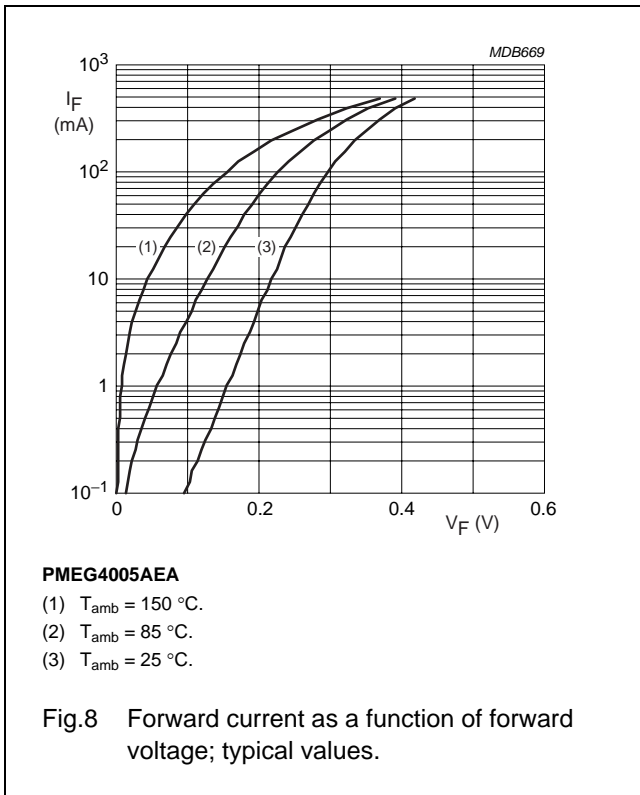
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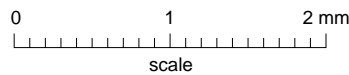
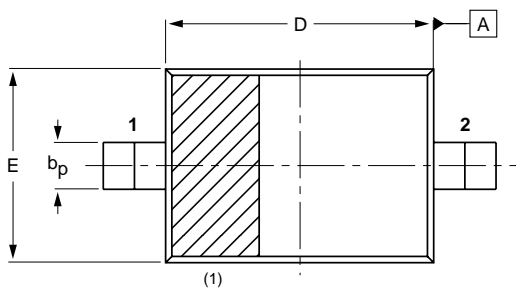
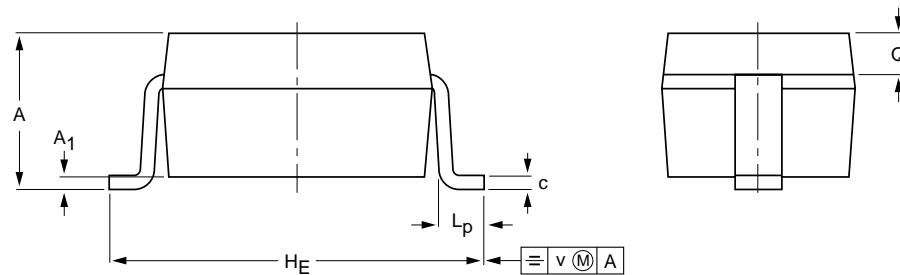
Very low V_F MEGA
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PMEG2005AEA; PMEG3005AEA;
PMEG4005AEA

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max. | b _p | c | D | E | H _E | L _p | Q | v |
|------|------------|------------------------|----------------|--------------|------------|--------------|----------------|----------------|--------------|-----|
| mm | 1.1 0.8 | +0.05 -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 | EIAJ | | |
| SOD323 | | | SC-76 | | 98-09-14 99-09-13 |

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PMEG4005AEA

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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