



## Description

The PMF63UNEX uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

## General Features

$V_{DS} = 20V$   $I_D = 2A$

$R_{DS(ON)} < 55m\Omega @ V_{GS}=4.5V$

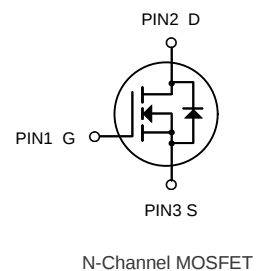
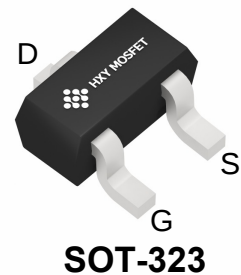
$R_{DS(ON)} < 85m\Omega @ V_{GS}=2.5V$

## Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

## Package Marking and Ordering Information

| Product ID | Pack    | Brand      | Qty(PCS) |
|------------|---------|------------|----------|
| PMF63UNEX  | SOT-323 | HXY MOSFET | 3000     |

## Absolute Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise noted)

| Symbol          | Parameter                                                   | Limit      | Unit          |
|-----------------|-------------------------------------------------------------|------------|---------------|
| $V_{DS}$        | Drain-Source Voltage                                        | 20         | V             |
| $V_{GS}$        | Gate-Source Voltage                                         | $\pm 12$   | V             |
| $I_D$           | Drain Current-Continuous                                    | 2          | A             |
| $P_D$           | Maximum Power Dissipation                                   | 0.3        | W             |
| $T_J, T_{STG}$  | Operating Junction and Storage Temperature Range            | -55 To 150 | $^{\circ}C$   |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup> | 125        | $^{\circ}C/W$ |



**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

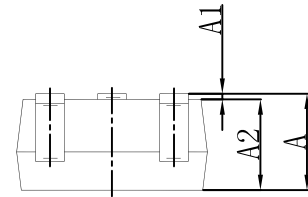
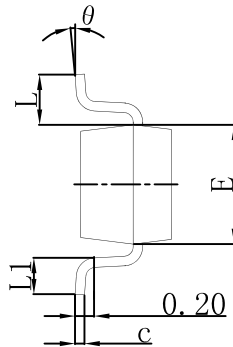
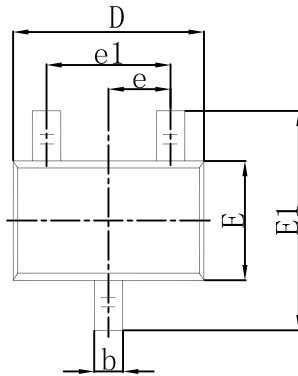
| Parameter                                                | Symbol               | Test conditions                                                                          | Min | Typ | Max  | Unit |
|----------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------|-----|-----|------|------|
| Static Characteristics                                   |                      |                                                                                          |     |     |      |      |
| Drain-source breakdown voltage                           | V <sub>(BR)DSS</sub> | V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA                                              | 20  |     |      | V    |
| Zero gate voltage drain current                          | I <sub>DSS</sub>     | V <sub>DS</sub> =18V,V <sub>GS</sub> = 0V                                                |     |     | 1    | μA   |
| Gate-body leakage current                                | I <sub>GSS</sub>     | V <sub>GS</sub> =±12V, V <sub>DS</sub> = 0V                                              |     |     | ±100 | nA   |
| Gate threshold voltage <small>(note2)</small>            | V <sub>GS(th)</sub>  | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                                 | 0.4 | 0.7 | 1.0  | V    |
| Drain-source on-resistance <small>(note2)</small>        | R <sub>DS(on)</sub>  | V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.0A                                              |     |     | 55   | mΩ   |
|                                                          |                      | V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.3A                                              |     |     | 85   | mΩ   |
| Maximum Continuous Drain to Source Diode Forward Current | I <sub>S</sub>       | --                                                                                       |     |     | 1.0  | A    |
| Diode forward voltage                                    | V <sub>SD</sub>      | I <sub>S</sub> =1.0A, V <sub>GS</sub> =0V                                                |     |     | 1.2  | V    |
| Dynamic Charatceristics <small>(note3)</small>           |                      |                                                                                          |     |     |      |      |
| Input capacitance                                        | C <sub>iss</sub>     | V <sub>DS</sub> =10V,V <sub>GS</sub> =0V,<br>f =1MHz                                     |     | 300 |      | pF   |
| Output capacitance                                       | C <sub>Oss</sub>     |                                                                                          |     | 120 |      | pF   |
| Reverse transfer capacitance                             | C <sub>rss</sub>     |                                                                                          |     | 80  |      | pF   |
| Switching Characteristics <small>(note3)</small>         |                      |                                                                                          |     |     |      |      |
| Turn-on delay time                                       | t <sub>d(on)</sub>   | V <sub>GS</sub> =4.5V,V <sub>DS</sub> =10V,<br>R <sub>L</sub> =5.1Ω,R <sub>G</sub> =5.1Ω |     |     | 15   | nS   |
| Turn-on rise time                                        | t <sub>r</sub>       |                                                                                          |     |     | 85   | nS   |
| Turn-off delay time                                      | t <sub>d(off)</sub>  |                                                                                          |     |     | 65   | nS   |
| Turn-off fall time                                       | t <sub>f</sub>       |                                                                                          |     |     | 27   | nS   |

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. These parameters have no way to verify.



## SOT-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.200                     | 0.400 | 0.008                | 0.016 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.450 | 0.085                | 0.096 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| K      | 0°                        | 8°    | 0°                   | 8°    |



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