



Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|---------------------|-------|
| 30V | 4.1m Ω @10V | 65A |
| | 6.5m Ω @4.5V | |

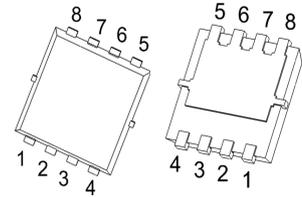
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

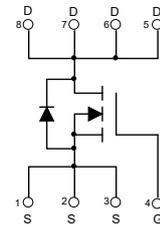
Application

- Load Switch
- BLDC Motor driver

PDFN3.3X3.3-8L



Schematic diagram



Package Marking and Ordering Information

| Part Number | Package | Marking | Packing | Reel Size | Tape Width | Qty |
|--------------|----------------|----------|-------------|-----------|------------|---------|
| GPM042N03LNA | PDFN3.3X3.3-8L | M042N03L | Reel & Tape | 330mm | 12mm | 5000pcs |

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|---------------------------|--------------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current ¹ | I_D | $T_C = 25^\circ\text{C}$ | 65 |
| | | $T_C = 100^\circ\text{C}$ | 41 |
| Pulsed Drain Current ² | I_{DM} | 260 | A |
| Single Pulsed Avalanche Current ³ | I_{AS} | 18 | A |
| Single Pulsed Avalanche Energy ³ | E_{AS} | 81 | mJ |
| Power Dissipation ⁵ | P_D | 50 | W |
| Thermal Resistance from Junction to Ambient ⁶ | $R_{\theta JA}$ | 60 | $^\circ\text{C/W}$ |
| Thermal Resistance from Junction to Case | $R_{\theta JC}$ | 2.5 | $^\circ\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55~ +150 | $^\circ\text{C}$ |

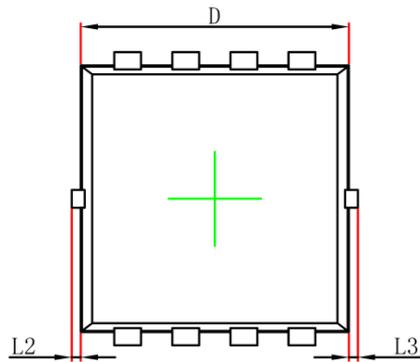
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|---------------|---|-----|------|-----------|------------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 30V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics⁴ | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1.2 | 1.5 | 1.9 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 20A$ | | 4.1 | 6 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 20A$ | | 6.5 | 9 | |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ | | 1568 | | pF |
| Output Capacitance | C_{oss} | | | 170 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 166 | | |
| Gate Resistance | R_g | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$ | | 5.6 | | Ω |
| Switching Characteristics | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = 25V, V_{GS} = 10V, I_D = 20A$ | | 41 | | nC |
| Gate-Source Charge | Q_{gs} | | | 4.6 | | |
| Gate-Drain Charge | Q_{gd} | | | 12 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = 15V, V_{GS} = 10V, R_G = 3\Omega, R_L = 0.75\Omega$ | | 10 | | ns |
| Turn-On Rise Time | t_r | | | 14 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 35 | | |
| Turn-Off Fall Time | t_f | | | 8 | | |
| Source-Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ⁴ | V_{SD} | $V_{GS} = 0V, I_S = 20A$ | | | 1.2 | V |

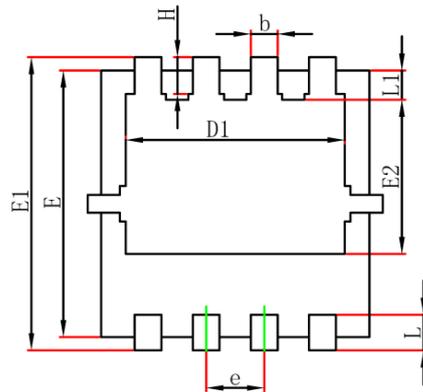
Notes:

1. The maximum current rating is limited by package. And device mounted on a large heatsink.
2. Pulse Test: Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. EAS condition: $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
4. Pulse Test: Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$. And device mounted on a large heatsink.
6. Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

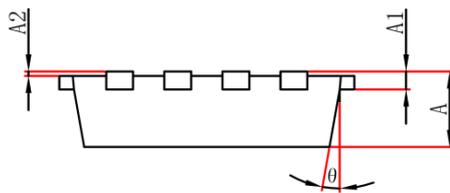
PDFN3.3X3.3-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.700 | 0.900 | 0.028 | 0.035 |
| A1 | 0.10 | 0.25 | 0.004 | 0.010 |
| A2 | 0.000 | 0.050 | 0.000 | 0.002 |
| D | 2.900 | 3.200 | 0.114 | 0.126 |
| D1 | 2.300 | 2.600 | 0.091 | 0.102 |
| E | 2.900 | 3.200 | 0.114 | 0.126 |
| E1 | 3.150 | 3.450 | 0.124 | 0.136 |
| E2 | 1.535 | 1.935 | 0.060 | 0.076 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| e | 0.550 | 0.750 | 0.022 | 0.030 |
| L | 0.300 | 0.500 | 0.012 | 0.020 |
| L1 | 0.180 | 0.480 | 0.007 | 0.019 |
| L2 | 0.000 | 0.100 | 0.000 | 0.004 |
| L3 | 0.000 | 0.100 | 0.000 | 0.004 |
| H | 0.315 | 0.515 | 0.012 | 0.020 |
| θ | 0° | 12° | 0° | 12° |

Attention:

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