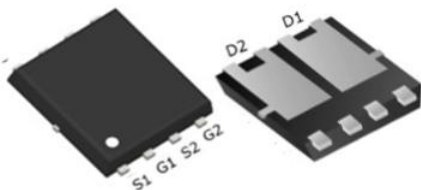
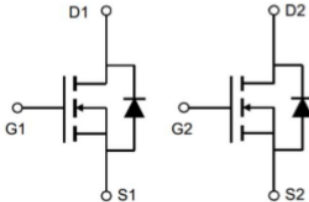


| | |
|--|--|
| <p>Features</p> <ul style="list-style-type: none"> 100V, 5.5A $R_{DS(ON)} = 130m\Omega$ (Max.) @ $V_{GS} = 10V, I_D = 3A$ High Power and Current Handling Capability Lead Free Product is Acquired Surface Mount Package | <p>Application</p> <ul style="list-style-type: none"> PWM Application Load Switch Power Management |
| <p>Package</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">PDFN5060-8L SEG10X10AGL</p> | |

Absolute Maximum Ratings $T_C=25^\circ C$ unless otherwise specified

| Symbol | Parameter | Max. | Units |
|-----------------|--|----------------------------|--------------|
| V_{DSS} | Drain-Source Voltage | 100 | V |
| V_{GSS} | Gate-Source Voltage | ± 20 | V |
| I_D | Continuous Drain Current ^{note5} | $T_C = 25^\circ C$ 5.5 | A |
| I_D | Continuous Drain Current ^{note5} | $T_C = 100^\circ C$ 3.5 | A |
| I_{DM} | Pulsed Drain Current ^{note3} | 22 | A |
| P_D | Power Dissipation ^{note2} | $T_C = 25^\circ C$ 6 | W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient ^{note1,4} | 20 | $^\circ C/W$ |
| T_J, T_{STG} | Operating and Storage Temperature Range | -55 to +150 | $^\circ C$ |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|----------------------------------|-----------------------------------|--|------|------|-----------|-----------|
| Off Characteristic | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS} = 0V, I_D = 250\mu A$ | 100 | - | - | V |
| I_{DSS} | Drain-Source Leakage Current | $V_{DS} = 80V, V_{GS} = 0V$ | - | - | 1 | μA |
| I_{GSS} | Gate to Body Leakage Current | $V_{DS} = 0V, V_{GS} = \pm 20V$ | - | - | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1.0 | 1.3 | 1.6 | V |
| $R_{DS(on)}$ | Static Drain-Source On-Resistance | $V_{GS} = 10V, I_D = 3A$ | - | 105 | 130 | $m\Omega$ |
| | | $V_{GS} = 4.5V, I_D = 2A$ | - | 135 | 150 | $m\Omega$ |
| Dynamic Characteristics | | | | | | |
| C_{iss} | Input Capacitance | $V_{DS} = 50V, V_{GS} = 0V,$ $f = 1.0MHz$ | - | 165 | - | pF |
| C_{oss} | Output Capacitance | | - | 55 | - | pF |
| C_{rss} | Reverse Transfer Capacitance | | - | 7.5 | - | pF |
| Switching Characteristics | | | | | | |
| Q_g | Total Gate Charge | $V_{DS} = 50V, I_D = 3A,$ $V_{GS} = 10V$ | - | 3.3 | - | nC |
| Q_{gs} | Gate-Source Charge | | - | 0.35 | - | |
| Q_{gd} | Gate-Drain("Miller") Charge | | - | 0.87 | - | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DS} = 50V, I_D = 3A,$ $R_G = 2\Omega, V_{GS} = 10V$ | - | 13.2 | - | ns |
| t_r | Turn-On Rise Time | | - | 2.2 | - | |
| $t_{d(off)}$ | Turn-Off Delay Time | | - | 11 | - | |
| t_f | Turn-Off Fall Time | | - | 1.1 | - | |
| Diode Characteristics | | | | | | |
| I_S | Continuous Source Current | | - | - | 5.5 | A |
| V_{SD} | Diode Forward Voltage | $I_S = 3A, V_{GS} = 0V$ | - | - | 1.0 | V |
| t_{rr} | Reverse Recovery Time | $I_{SD} = 3A,$ | - | 27 | - | ns |
| Q_{rr} | Reverse Recovery Charge | $dI_{SD}/dt = 100A/\mu s$ | - | 35 | - | nC |

Notes:

1. The value of $R_{\theta JC}$ is measured in a still air environment with $T_A = 25^\circ\text{C}$ and the maximum allowed junction temperature of 150°C . The value in any given application depends on the user's specific board design.
2. The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
3. Single pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.
5. The maximum current rating is package limited.

Typical Performance Characteristics

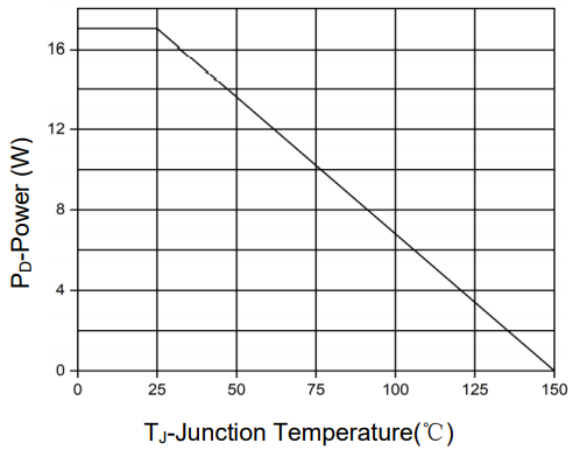


Figure 1. Power Dissipation

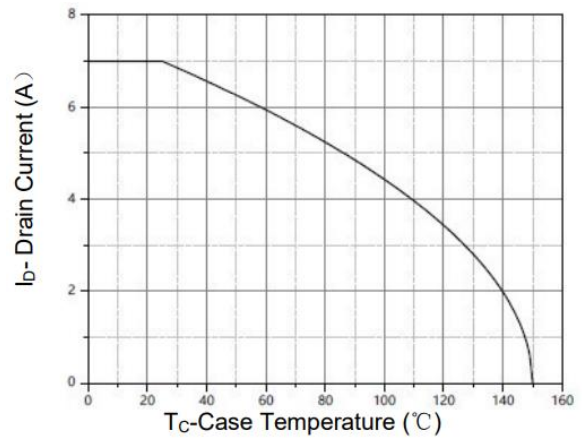


Figure 2. Drain Current

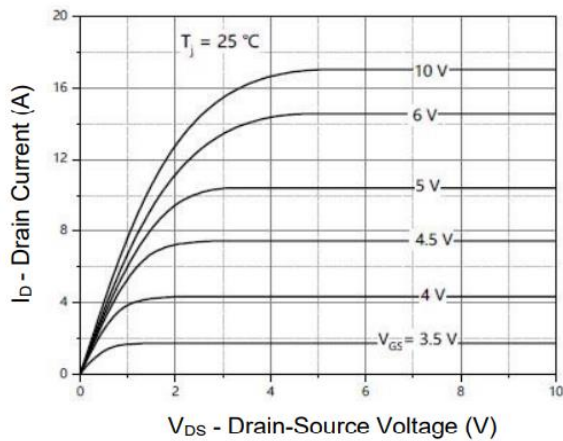


Figure 3. Output characteristics

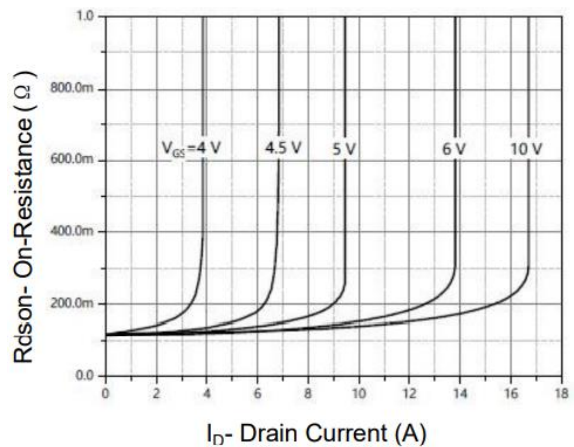


Figure 4. Drain-Source On-state resistance

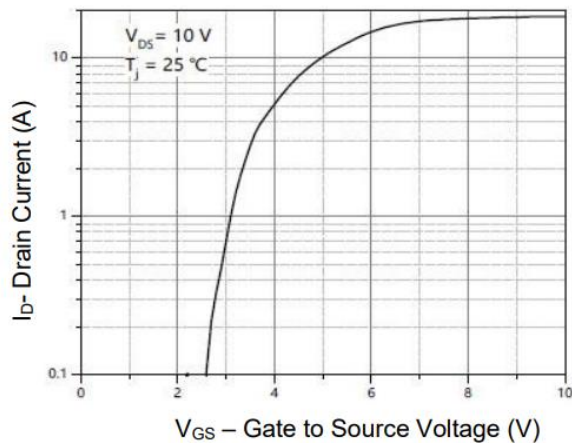


Figure 5. Transfer Characteristics

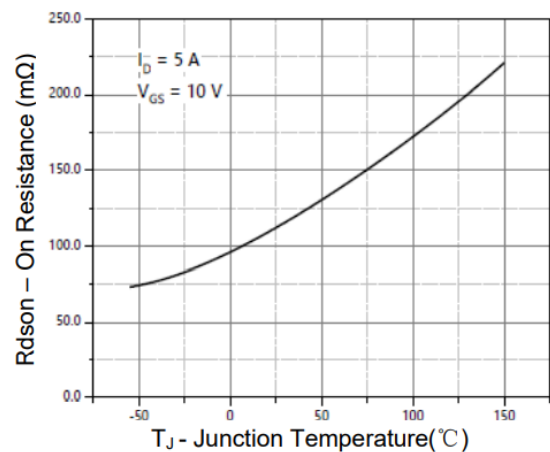


Figure 6. Drain-Source On-State Resistance

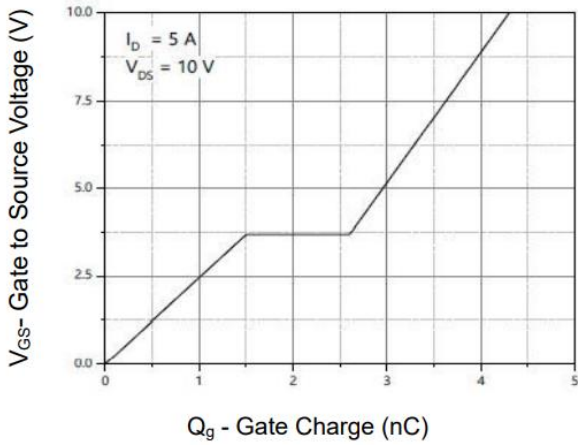


Figure 7. Gate Charge

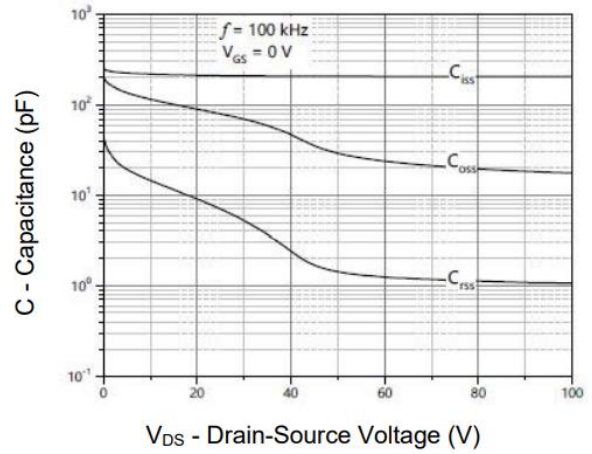


Figure 8. Capacitance vs Vds

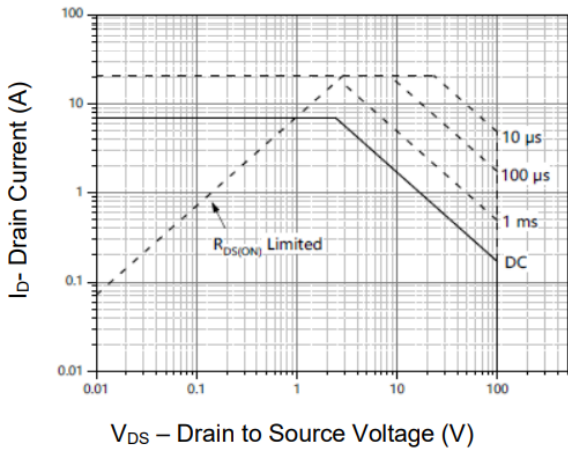


Figure 9. Safe Operation Area

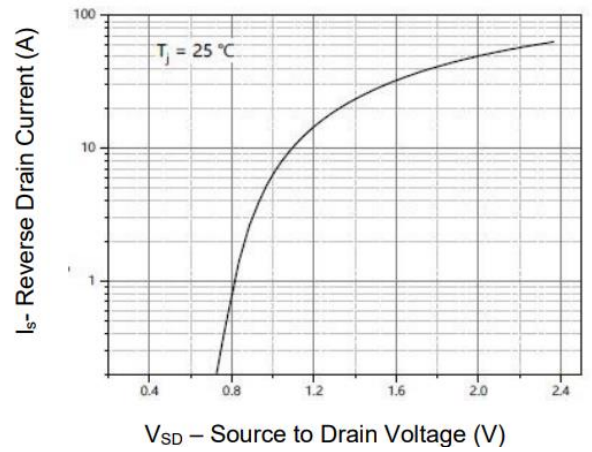


Figure 10. Source- Drain Diode Forward

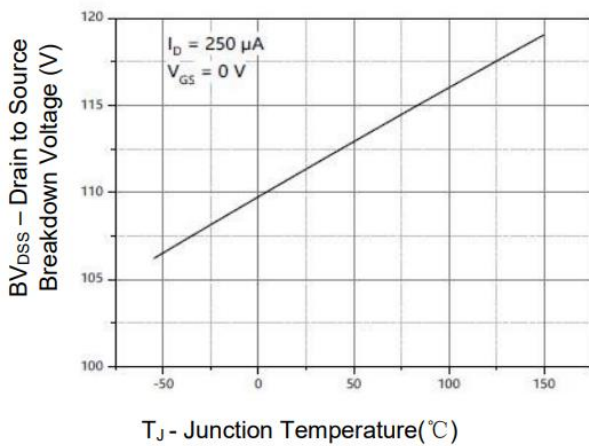
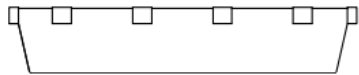
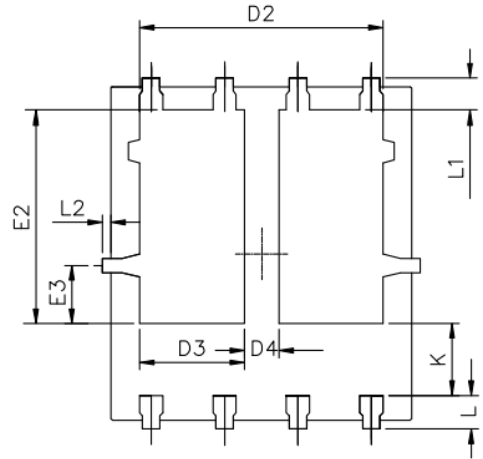
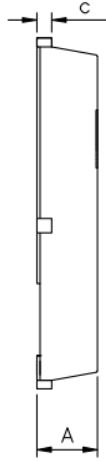
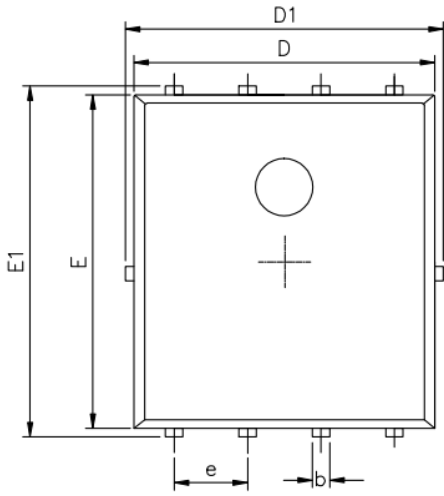
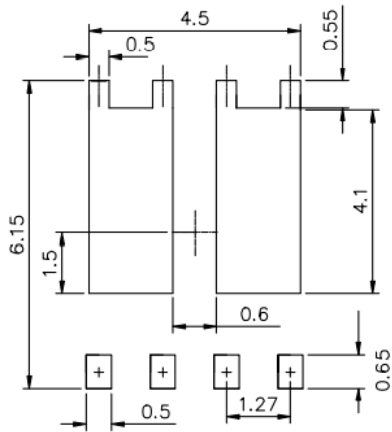


Figure 11. Drain-source breakdown voltage

PDFN5060-8L Package Mechanical Data



RECOMMENDED LAND PATTERN



| | MIN | NOM | MAX |
|----|-------|-------|-------|
| A | 0.90 | 1.00 | 1.10 |
| b | 0.25 | 0.35 | 0.50 |
| c | 0.10 | 0.20 | 0.30 |
| D | 4.80 | 5.00 | 5.30 |
| D1 | 4.90 | 5.10 | 5.50 |
| D2 | 3.92 | 4.02 | 4.20 |
| D3 | 1.605 | 1.705 | 1.805 |
| D4 | 0.50 | 0.60 | 0.70 |
| E | 5.65 | 5.75 | 5.85 |
| E1 | 5.90 | 6.05 | 6.20 |
| E2 | 3.325 | 3.525 | 3.775 |
| E3 | 0.80 | 0.90 | 1.00 |
| e | | 1.27 | |
| L | 0.40 | 0.55 | 0.70 |
| L1 | | 0.65 | |
| L2 | 0.00 | | 0.15 |
| K | 1.00 | 1.30 | 1.50 |

SEG10X10AGL Product Description

Silicon N-Channel MOSFET



NOTE:

1. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
2. Please do not exceed the absolute maximum ratings of the device when circuit designing.
3. Winsemi Microelectronics Co., Ltd reserved the right to make changes in this specification sheet and is subject to change without prior notice.

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