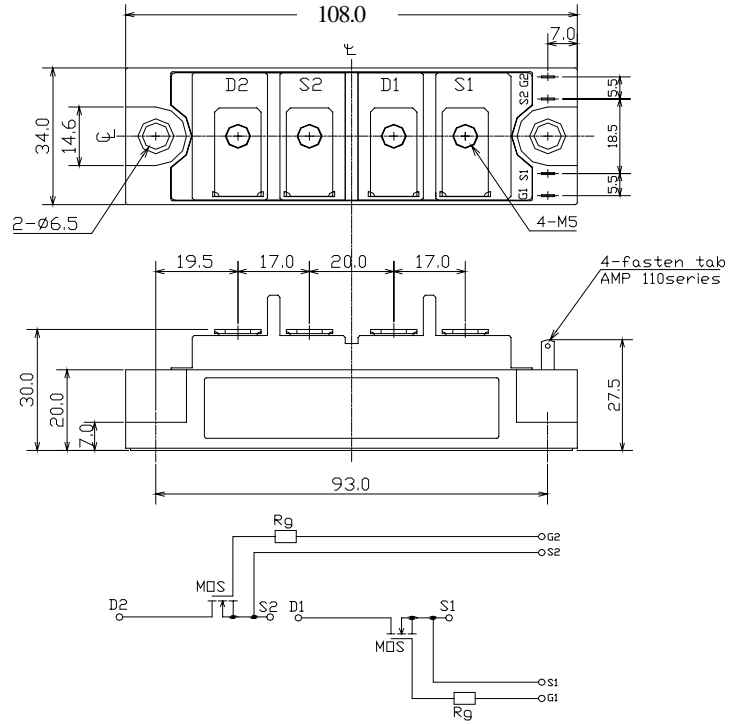
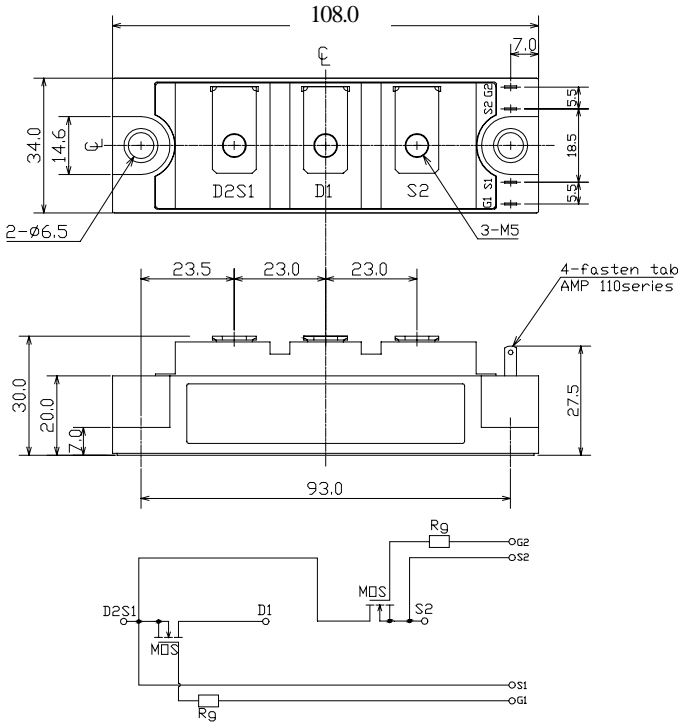


MOSFET 30A 450~500V

PD4M441L PD4M440L
P2H4M441L P2H4M440L

PD4M441L/440L

P2H4M441L/440L



質量 Approximate Weight :220g

質量 Approximate Weight :220g

最大定格 Maximum Ratings

| 項目 Rating | 目 | 記号 Symbol | 耐压・クラス Grade | | 単位 Unit |
|--|----------|------------------|---|--------------------|------------|
| | | | PD4M441L/P2H4M441L | PD4M440L/P2H4M440L | |
| ドレイン・ソース間電圧 Drain-Source Voltage | | V _{DSS} | 450 | 500 | V |
| | | | V _{GS} =0V | | |
| ゲート・ソース間電圧 Gate-Source Voltage | | V _{GSS} | ± 20 | | V |
| ドレイン電流 (連続) Continuous Drain Current | Duty=50% | I _D | 30 (T _c =25) | | A |
| | D.C. | | 21 (T _c =25) | | |
| パルスドレイン電流 Pulsed Drain Current | | I _{DM} | 60 (T _c =25) | | A |
| 全損失 Total Power Dissipation | | P _D | 230 (T _c =25) | | W |
| 動作接合温度範囲 Operating Junction Temperature Range | | T _{jw} | - 40 ~ +150 | | |
| 保存温度範囲 Storage Temperature Range | | T _{stg} | - 40 ~ +125 | | |
| 絶縁耐圧 RMS Isolation Voltage | | V _{iso} | 2000 | | V |
| | | | 端子 - ベース間, AC1 分間 Terminals to Base, AC 1 min . | | |
| 締付トルク Mounting Torque | | F _{tor} | 3.0 (本体取付 Module Base to Heat sink) | | N・m |
| | | | 2.0 (ネジ端子部 Bus bar to Main Terminals) | | |

電気的特性 Electrical Characteristics (@Tc = 25 unless otherwise noted)

| 項目 Characteristic | 記号 Symbol | 条件 Condition | 特性値 (最大) Maximum Value | | | 単位 Unit |
|--|--------------|-----------------------------------|---------------------------|------------|------------|------------|
| | | | 最小 Min. | 標準 Typ. | 最大 Max. | |
| ドレイン遮断電流 Zero Gate Voltage Drain Current | IDSS | VDS = VDS, VGS = 0V | | | 1 | mA |
| | | Tj = 125, VDS = VDS, VGS = 0V | | | 4 | |
| ゲート・ソース間しきい値電圧 Gate-Source Threshold Voltage | VGS(th) | VDS = VGS, ID = 1mA | 2 | 3.2 | 4 | V |
| ゲート・ソース間漏れ電流 Gate-Source Leakage Current | IGSS | VGS = ±20V, VDS = 0V | | | 1 | μA |
| ドレイン・ソース間オン抵抗 (MOSFET部) Static Drain-Source On-Resistance | rD(on) | VGS = 10V, ID = 15A | | 190 | 210 | m |
| 順伝達コンダクタンス Forward Transconductance | gfg | VDS = 15V, ID = 15A | | 27 | | S |
| 入力容量 Input Capacitance | Ciss | VGS = 0V VDS = 25V f = 1MHz | | 5.2 | | nF |
| 出力容量 Output Capacitance | Coss | | | 1.1 | | nF |
| 帰還容量 Reverse Transfer Capacitance | Crss | | | 0.18 | | nF |
| ターン・オン遅延時間 Turn-On Delay Time | t(on) | | | 100 | | ns |
| 上昇時間 Rise Time | tr | VDD = 1/2VDS ID = 15A | | 60 | | ns |
| ターン・オフ遅延時間 Turn-Off Delay Time | t(off) | VGS = -5V, +10V RG = 7 | | 180 | | ns |
| 下降時間 Fall Time | tf | | | 50 | | ns |

内部ダイオード定格・特性 Source-Drain Diode Ratings and Characteristics (@Tc = 25 unless otherwise noted)

| 項目 Characteristic | 記号 Symbol | 条件 Condition | 特性値 (最大) Maximum Value | | | 単位 Unit |
|---|--------------|--------------------|---------------------------|------------|------------|------------|
| | | | 最小 Min. | 標準 Typ. | 最大 Max. | |
| ソース電流 (連続) Continuous Source Current | IS | D. C. | | | 21 | A |
| パルスソース電流 Pulsed Source Current | ISM | | | | 60 | A |
| ダイオード順電圧 Diode Forward Voltage | VSD | IS = 30A | | | 2.0 | V |
| 逆回復時間 Reverse Recovery Time | trr | IS = 30A | | 750 | | ns |
| 逆回復電荷 Reverse Recovery Charge | QR | - dis/dt = 100A/μs | | 17 | | μC |

熱抵抗特性 Thermal Characteristics

| 項目 Characteristic | 記号 Symbol | 条件 Condition | 特性値 (最大) Maximum Value | | | 単位 Unit |
|--|--------------|--|---------------------------|------------|------------|------------|
| | | | 最小 Min. | 標準 Typ. | 最大 Max. | |
| 熱抵抗 (接合部 - ケース間) Thermal Resistance, Junction to Case | Rth(j-c) | MOSFET | | | 0.56 | /W |
| | | Diode | | | 0.56 | |
| 接触熱抵抗 (ケース - 冷却フィン間) Thermal Resistance, Case to Heatsink | Rth(c-f) | サーマルコンパウンド塗布 Mounting surface flat, smooth, and greased | | | 0.1 | |

Fig. 1 Typical Output Characteristics

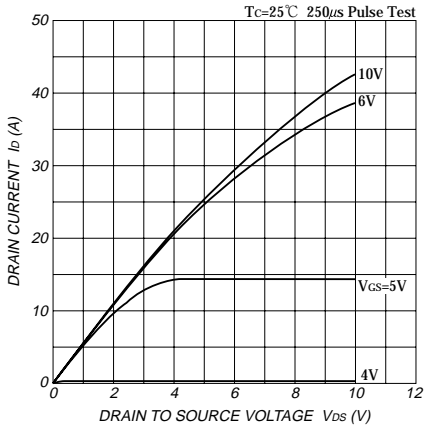


Fig. 2 Typical Drain-Source On-Voltage Vs. Gate-Source Voltage

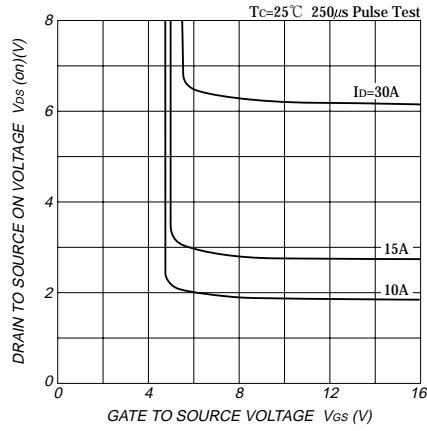


Fig. 3 Typical Drain-Source On Voltage Vs. Junction Temperature

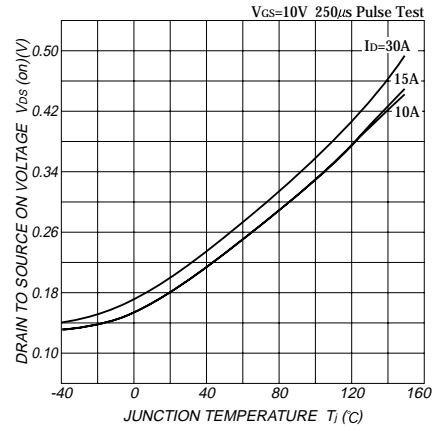


Fig. 4 Typical Capacitance Vs. Drain-Source Voltage

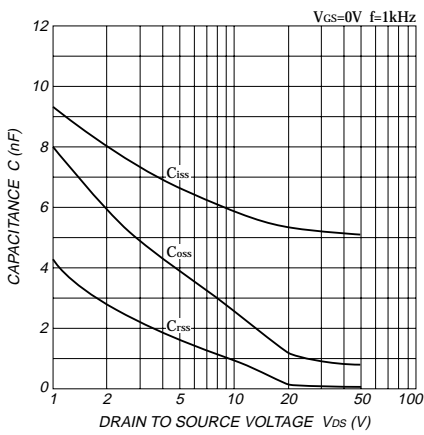


Fig. 5 Typical Gate Charge Vs. Gate-Source Voltage

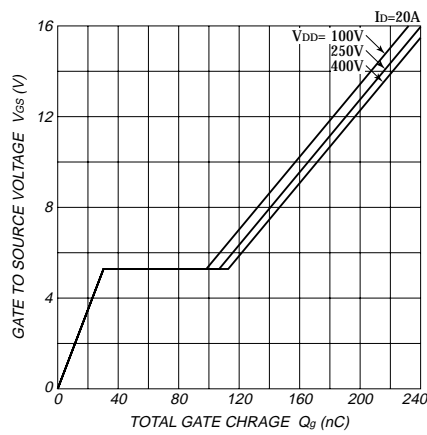


Fig. 6 Typical Switching Time Vs. Series Gate Impedance

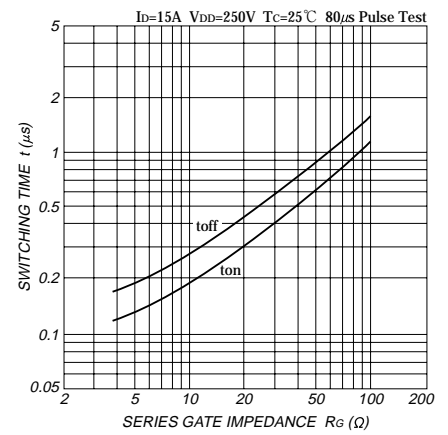


Fig. 7 Typical Switching Time Vs. Drain Current

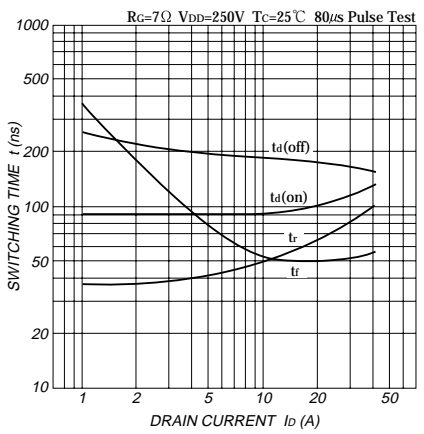


Fig. 8 Typical Source-Drain Diode Forward Characteristics

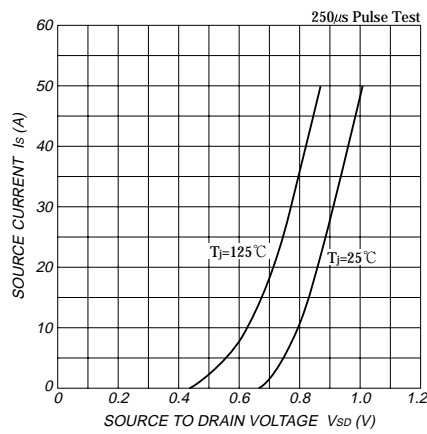


Fig. 9 Typical Reverse Recovery Characteristics

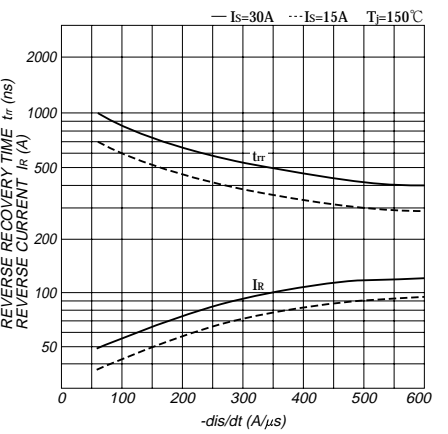


Fig. 10 Maximum Safe Operating Area

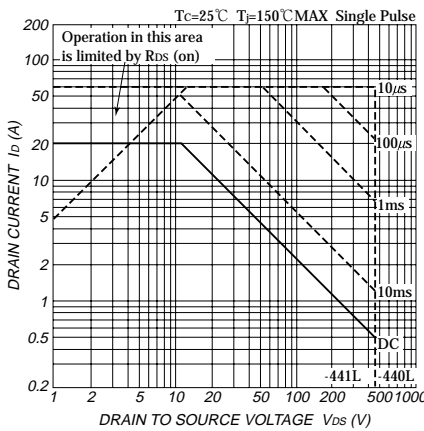


Fig. 11 Normalized Transient Thermal Impedance(MOSFET)

