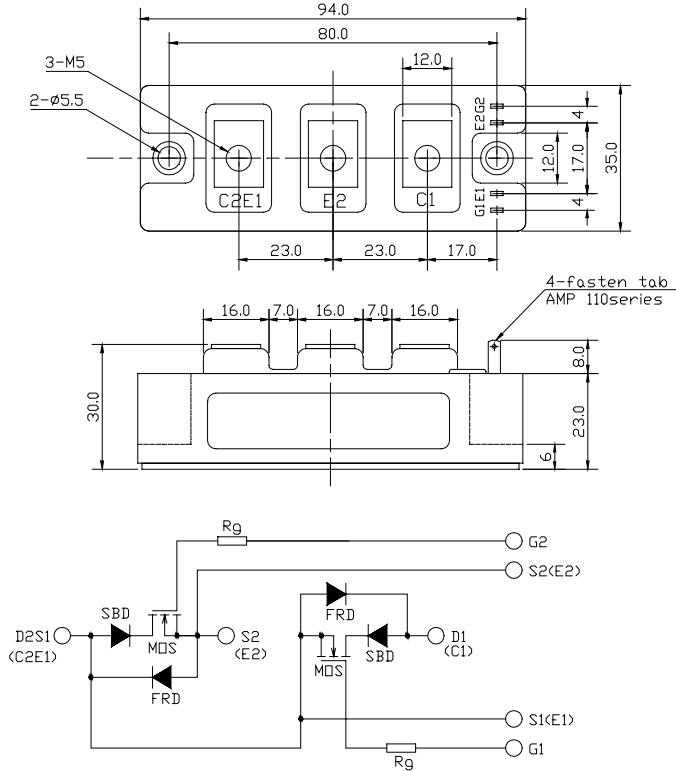


MOSFET 50A 500V
PDM505HC
PDM505HC


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 |
|--|----------|--------------|---|------------|
| | | | PDM505HC | |
| ドレイン・ソース間電圧 Drain-Source Voltage | | V_{DSS} | 500 $V_{GS}=0V$ | V |
| 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 | 50 ($T_c=25$) | A |
| | D.C. | | 35 ($T_c=25$) | |
| パルスドレイン電流 Pulsed Drain Current | | I_{DM} | 100 ($T_c=25$) | A |
| 全損失 Total Power Dissipation | | P_D | 350 ($T_c=25$) | 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 | I _{DSS} | V _{DS} = V _{DSS} , V _{GS} = 0V | | | 1 | mA |
| | | T _J = 125, V _{DS} = V _{DSS} , V _{GS} = 0V | | | 4 | |
| ゲート・ソース間しきい値電圧 Gate-Source Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 3mA | 2 | 3.1 | 4 | V |
| ゲート・ソース間漏れ電流 Gate-Source Leakage Current | I _{GSS} | V _{GS} = ±20V, V _{DS} = 0V | | | 0.3 | μA |
| ドレイン・ソース間オン抵抗 (MOSFET部) Static Drain-Source On-Resistance | r _{DS(on)} | V _{GS} = 10V, I _D = 25A | | 110 | 120 | m |
| ドレイン・ソース間オン電圧 Drain-Source On-Voltage | V _{DS(on)} | V _{GS} = 10V, I _D = 25A | | 3.2 | 3.5 | V |
| 順伝達コンダクタンス Forward Transconductance | g _{fg} | V _{DS} = 15V, I _D = 25A | | 30 | | S |
| 入力容量 Input Capacitance | C _{iss} | V _{GS} = 0V V _{DS} = 25V f = 1MHz | | 8.4 | | nF |
| 出力容量 Output Capacitance | C _{oss} | | | 1.1 | | nF |
| 帰還容量 Reverse Transfer Capacitance | C _{rss} | | | 0.24 | | nF |
| ターン・オン遅延時間 Turn-On Delay Time | t _{d(on)} | | | 92 | | ns |
| 上昇時間 Rise Time | t _r | | V _{DD} = 1/2V _{DSS} I _D = 25A | | 110 | |
| ターン・オフ遅延時間 Turn-Off Delay Time | t _{d(off)} | V _{GS} = -5V, +10V R _G = 5 | | 250 | | ns |
| 下降時間 Fall Time | t _f | | | 68 | | 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 | I _S | D. C. | | | 35 | A |
| パルスソース電流 Pulsed Source Current | I _{SM} | | | | 100 | A |
| ダイオード順電圧 Diode Forward Voltage | V _{SD} | I _S = 50A | | | 1.5 | V |
| 逆回復時間 Reverse Recovery Time | t _{rr} | I _S = 50A - dis/dt = 100A/μs | | 80 | | ns |
| 逆回復電荷 Reverse Recovery Charge | Q _r | | | 0.18 | | 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 | R _{th(j-c)} | MOSFET | | | 0.36 | /W |
| | | Diode | | | 2.0 | |
| 接触熱抵抗 (ケース - 冷却フィン間) Thermal Resistance, Case to Heatsink | R _{th(c-f)} | サーマルコンパウンド塗布 Mounting surface flat, smooth, and greased | | | 0.1 | |

定格・特性曲線

Fig. 1 Typical Output Characteristics

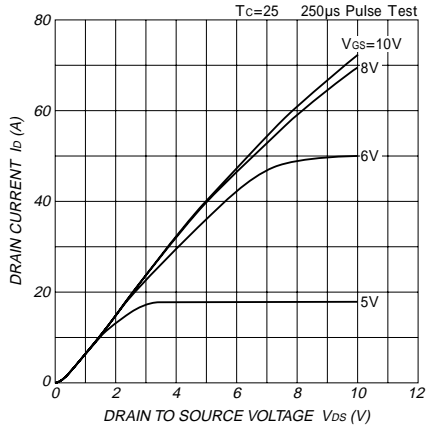


Fig. 4 Typical Capacitance Vs. Drain-Source Voltage

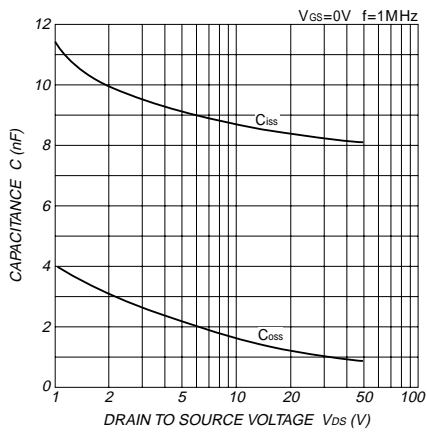


Fig. 7 Typical Switching Time Vs. Drain Current

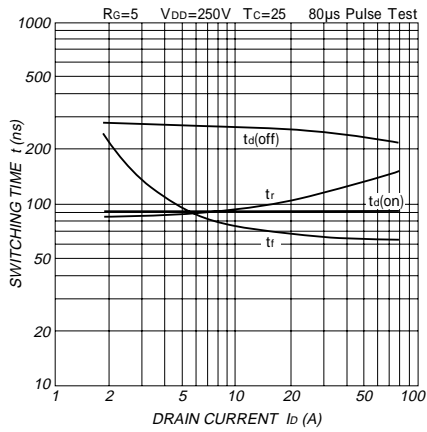


Fig. 10 Maximum Safe Operating Area

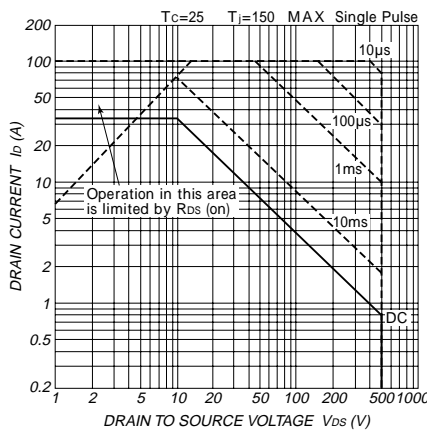


Fig. 2 Typical Drain-Source On-Voltage Vs. Gate-Source Voltage

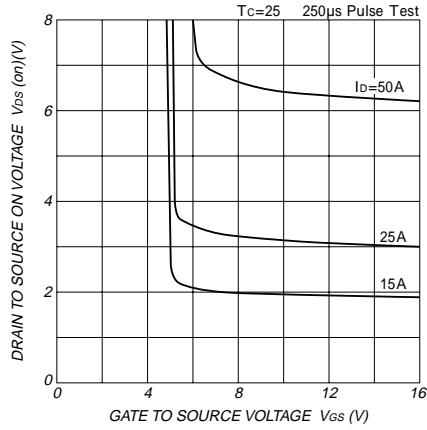


Fig. 5 Typical Gate Charge Vs. Gate-Source Voltage

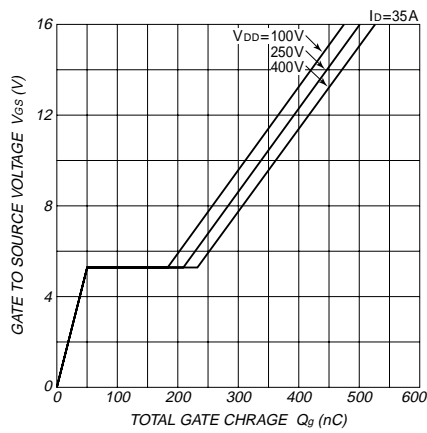


Fig. 8 Typical Source-Drain Diode Forward Characteristics

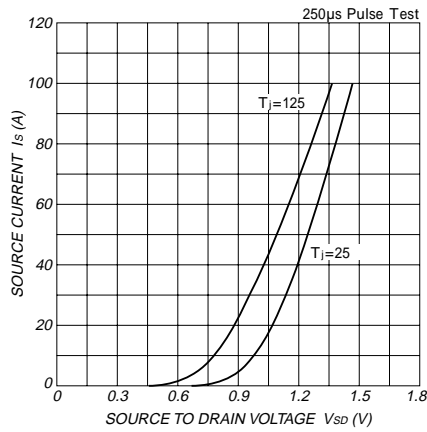


Fig. 11-1 Normalized Transient Thermal Impedance (MOSFET)

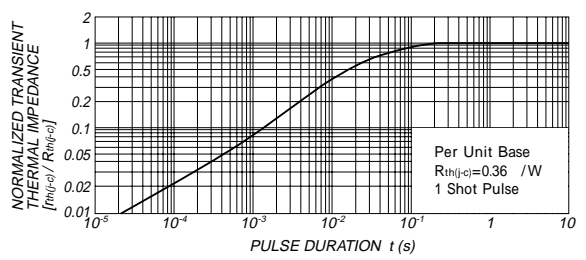


Fig. 11-2 Normalized Transient Thermal Impedance (DIODE)

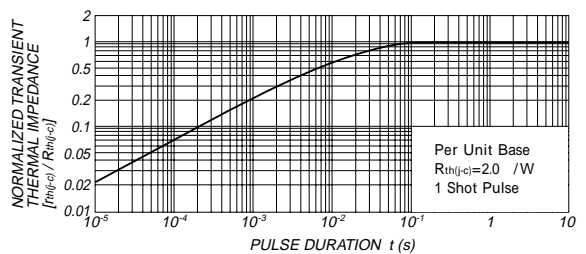


Fig. 3 Typical Drain-Source On Voltage Vs. Junction Temperature

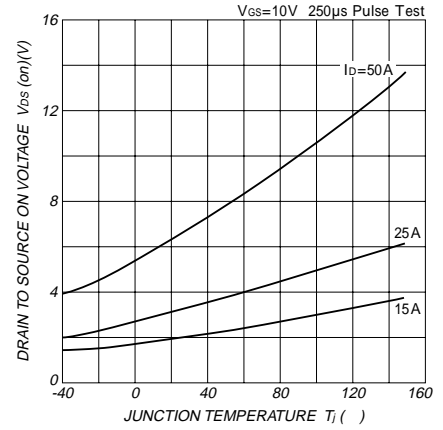


Fig. 6 Typical Switching Time Vs. Series Gate Impedance

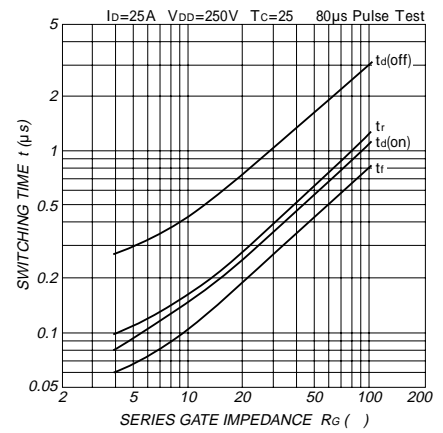


Fig. 9 Typical Reverse Recovery Characteristics

