

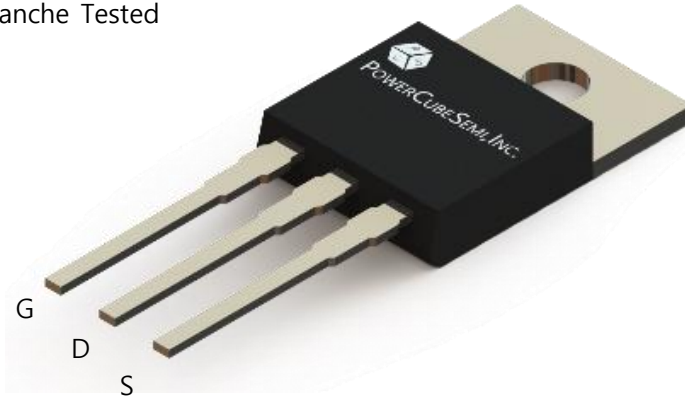
PM035P100AG

-100V -35A 35mΩ Si Single P-ch Enhancement Mode MOSFET with Normal Diode

Features

Si P-Ch Enhancement Mode Power MOSFET

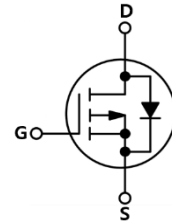
- Rated to -100V at -35Amps @ $T_j = 25^\circ\text{C}$
- Max $R_{DS(on)} = 35\text{ m}\Omega$
- Typ $R_{DS(on)} = 28\text{ m}\Omega$
- Gate Charge(Typ. $Q_g=41\text{ nC}$)
- 100% Avalanche Tested



PKG type : TO-220

Application

- Power switch
- DC/DC converters



Description

The PM035P100AG uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

Absolute Maximum Ratings

| Symbol | Parameter | Test Condition | Value | Unit |
|------------|--------------------------------|---|------------|------------------|
| BV_{DSS} | Drain-source breakdown Voltage | $V_{GS}=0V, I_D=-250\mu A$ | -100 | V |
| I_D | Drain current | $T_c=25^\circ\text{C}$ | -35 | A |
| I_{DM} | Drain current | Pulse width limited by junction temperature | -140 | A |
| V_{GS} | Gate-source voltage | | ± 20 | V |
| E_{AS} | Single pulsed avalanche energy | $V_{GS}=-10V, R_G=25\Omega$ $V_{DD}=-50V, L=0.5mH$ | 156 | mJ |
| P_d | Power dissipation | $T_c=25^\circ\text{C}$ | 106 | W |
| T_j | Operating junction | | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55 to 150 | $^\circ\text{C}$ |

Package Marking and Ordering Information

| Device Marking | Device | Package | Packing Method | Tape width | Quantity |
|----------------|-----------|---------|----------------|------------|----------|
| PM035P100AG | PM035P100 | TO-220 | TUBE | - | 50 |

Electrical Characteristics of Si MOSFET

| Symbol | Parameter | Test Condition | Numerical | | | Unit |
|--------------|---|--|-----------|------|-----------|------------|
| | | | Min | Typ. | Max. | |
| BV_{DSS} | Drain-source breakdown voltage | $V_{GS} = 0V, I_D = -250\mu A, T_J = 25^\circ C$ | -100 | - | - | V |
| I_{DSS} | Zero gate voltage drain current | $V_{DS} = -100V, V_{GS} = 0V$ | - | - | -1 | μA |
| I_{GSS} | Gate-source leakage current | $V_{GS} = \pm 20V$ | - | - | ± 100 | nA |
| $V_{GS(th)}$ | Gate threshold voltage | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1.0 | -1.9 | -2.5 | V |
| $R_{DS(on)}$ | Static drain-source on state resistance | $V_{GS} = -10V, I_D = -10A$ | - | 28 | 35 | m Ω |
| | | $V_{GS} = -4.5V, I_D = -10A$ | - | 33 | 40 | |
| g_{FS} | Forward transconductance | $V_{DS} = -5V, I_D = -10A$ | - | 21 | - | S |
| $t_{d(on)}$ | Turn-on Delay time | $V_{DD} = -50V, I_D = -10A, R_G = 1.6\Omega$ | - | 11 | - | ns |
| t_r | Turn-on Rise time | | - | 9 | - | |
| $t_{d(off)}$ | Turn-off Delay time | | - | 40 | - | |
| t_f | Turn-off Fall time | | - | 11 | - | |



Electrical Characteristics of Si MOSFET

| Symbol | Parameter | Test Condition | Numerical | | Unit |
|---------------------|--------------------------------------|---|-----------|------|-----------------------------|
| | | | Typ. | Max. | |
| $R_{\theta JC}$ | Thermal resistance, Junction to case | | 1.2 | - | $^{\circ}\text{C}/\text{W}$ |
| C_{iss} | Input capacitance | $V_{DS} = -50\text{V}, V_{GS} = 0\text{V},$ $f = 1.0\text{MHz}$ | 3223 | - | pF |
| C_{oss} | Output capacitance | | 256 | - | |
| C_{rss} | Reverse transfer capacitance | | 20 | - | |
| $Q_{g(\text{tot})}$ | Total gate charge at 10V | $V_{DD} = -50\text{V}, I_D = -10\text{A}$ $V_{GS} = -10\text{V}$ | 41 | - | nC |
| Q_{gs} | Gate to source gate charge | | 9 | - | |
| Q_{gd} | Gate to drain "Miller" charge | | 4 | - | |

Electrical Characteristics of Si Diode

| Symbol | Parameter | Test Condition | Numerical | | Unit |
|----------|--|--|-----------|------|------|
| | | | Typ. | Max. | |
| I_S | Maximum continuous drain to source diode forward current | $T_c = 25^{\circ}\text{C}$ | - | -35 | A |
| V_{SD} | Drain to source diode forward voltage | $I_{SD} = -10\text{A}, V_{GS} = 0\text{V}$ | - | -1.2 | V |
| T_{rr} | Reverse recovery time | $I_F = -10\text{A}, V_{GS} = 0\text{V},$ $di_F/dt = -100\text{A}/\mu\text{s}$ | 44 | - | ns |
| Q_{rr} | Reverse recovery charge | | 80 | - | nC |

Typical Characteristics

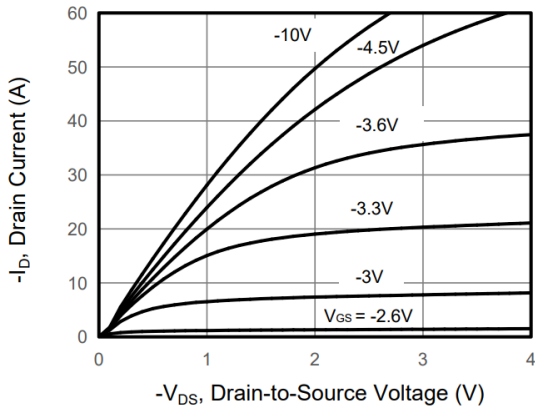


Figure 1. Output Characteristics

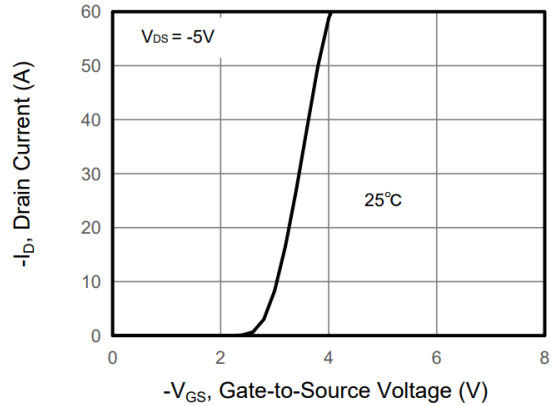


Figure 2. Transfer Characteristics

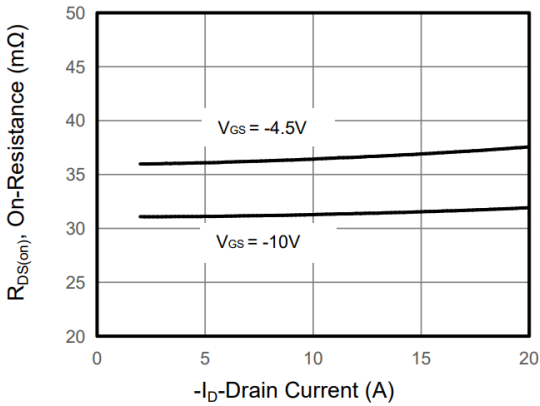


Figure 3. Drain Source On Resistance

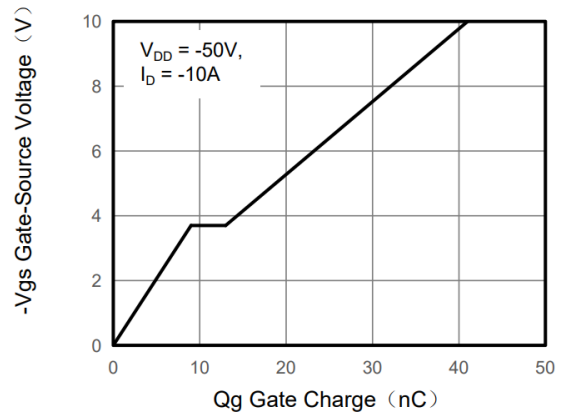


Figure 4. Gate Charge

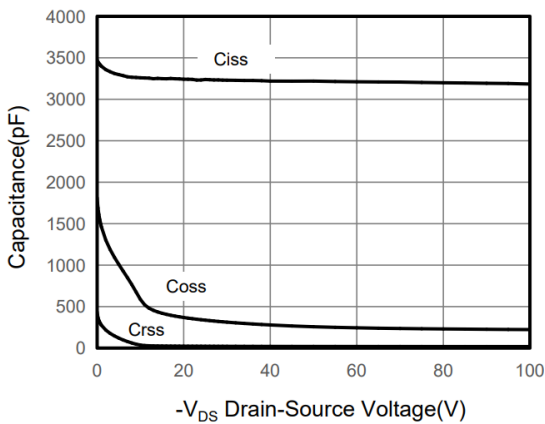


Figure 5. Capacitance

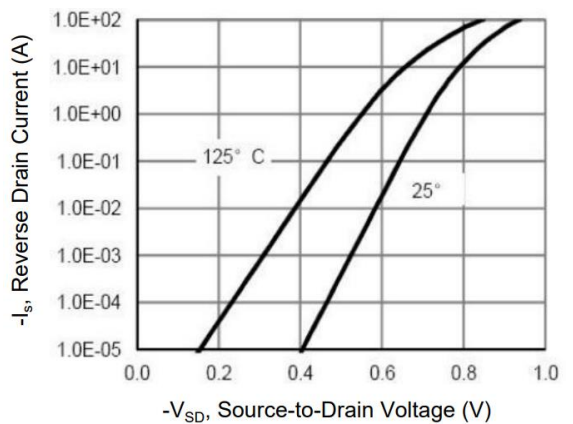


Figure 6. Source-Drain Diode Forward

Typical Characteristics

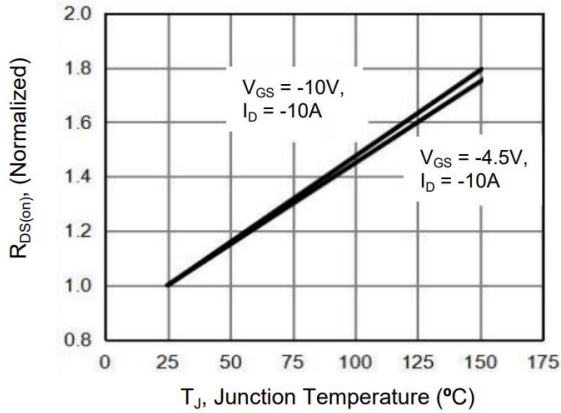


Figure 7. Drain-Source On-Resistance

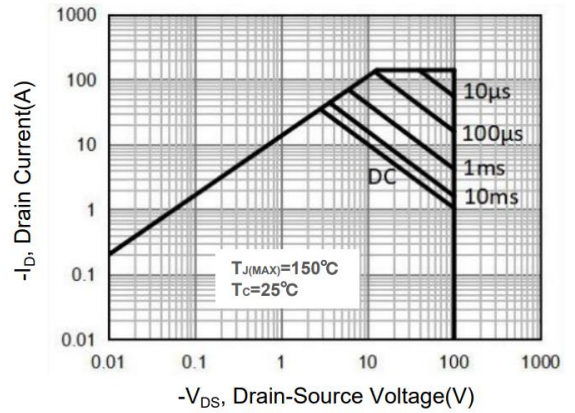


Figure 8. Safe Operation Area

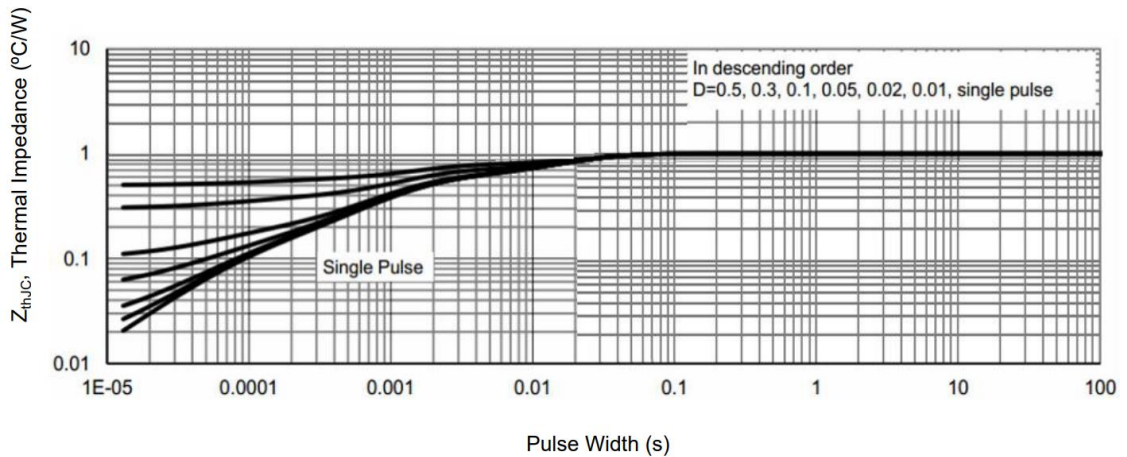


Figure 9. Normalized Maximum Transient Thermal Impedance



Package Outline

Unit : mm

