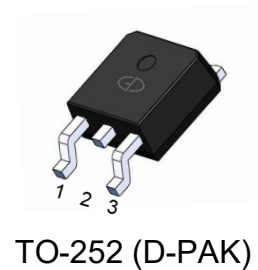


N-Channel 100V (D-S) Power MOSFET

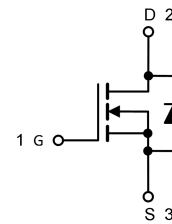
Features

- 100% Avalanche Tested
- Extremely Low Losses with Low FOM $R_{ds(on)} \cdot Q_g$
- Halogen Free, Pb-Free
- RoHS Compliant



Applications

- DC/DC
- Motors, lamps
- Power switching



| Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise noted) | | | |
|---|----------------|-------------------------|------------------|
| Parameter | Symbol | Value | Unit |
| Drain Source Voltage | V_{DS} | 100 | V |
| Gate Source Voltage | V_{GS} | ± 20 | V |
| Drain Current, Continuous $V_{GS}=10\text{V}$ (Note 1) | I_D | $T_C=25^\circ\text{C}$ | 140 |
| | | $T_C=100^\circ\text{C}$ | 85 |
| Drain Current, Pulsed (Note 2) | I_{DM} | 417 | A |
| Power Dissipation (Note 3) | P_D | 272 | W |
| Operating Junction/ Storage Temperature Range | T_J/ T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note 1: Calculated continuous current based on maximum allowable junction temperature.

Note 2: Repetitive rating; pulse width limited by max. junction temperature.

| Thermal Resistance | | | |
|---------------------------|-----------------|------|--------------------|
| Parameter | Symbol | Max | Unit |
| Junction-to-case (Note 3) | $R_{\theta JC}$ | 0.46 | $^\circ\text{C/W}$ |

Note 3: The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

Electrical Characteristics (T_J =25°C unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|----------------------------------|----------------------|---|-----|------|------|------|
| Drain Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =250μA | 100 | -- | -- | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =100V, V _{GS} =0V | -- | -- | 1 | uA |
| Gate Threshold Voltage | V _{GS(TH)} | V _{DS} =V _{GS} , I _{DS} =250uA | 2 | -- | 4 | V |
| Gate Leakage Current | I _{GSS} | V _{GS} =±20V, V _{DS} =0V | -- | -- | ±100 | nA |
| Drain-Source On-state Resistance | R _{DS(on)} | V _{GS} =10V, I _D =20A | -- | 4.3 | 6 | mΩ |
| Total Gate Charge | Q _g | V _{GS} =10V, V _{DS} =50V, I _D =20A | -- | 43 | -- | nC |
| Gate-Source Charge | Q _{gs} | | -- | 10 | -- | |
| Gate-Drain Charge | Q _{gd} | | -- | 9 | -- | |
| Turn-on Delay Time | t _{d(on)} | V _{GS} =10V, V _{DS} =50V, I _D =20A, R _{GEN} =3Ω | -- | 14 | -- | ns |
| Turn-on Rise Time | t _r | | -- | 26 | -- | |
| Turn-off Delay Time | t _{d(off)} | | -- | 44 | -- | |
| Turn-off Fall Time | t _f | | -- | 38 | -- | |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =50V, f=1MHz | -- | 4650 | -- | pF |
| Output Capacitance | C _{oss} | | -- | 607 | -- | |
| Reverse Transfer Capacitance | C _{rss} | | -- | 19.7 | -- | |

Reverse Diode Characteristics (T_J =25°C unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|-----------------|---|-----|-----|-----|------|
| Continuous Source Current (Body Diode) | I _S | T _C =25°C | -- | -- | 167 | A |
| Pulsed Source Current (Body Diode) | I _{SM} | | -- | -- | 417 | |
| Diode Forward Voltage (Note 4) | V _{SD} | I _S =20A, V _{GS} =0V | -- | -- | 1.2 | V |
| Reverse Recovery Time | T _{rr} | T _C =25°C, I _F =20A, di/dt = 100 A/μs | -- | 60 | -- | ns |
| Reverse Recovery Charge | Q _{rr} | | -- | 61 | -- | nC |

Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 - Typical Output Characteristics

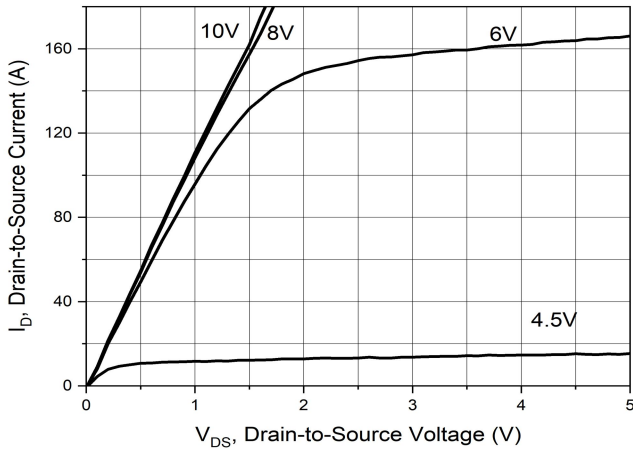


Fig.2 - Drain-to-Source Breakdown Voltage vs. Junction Temperature

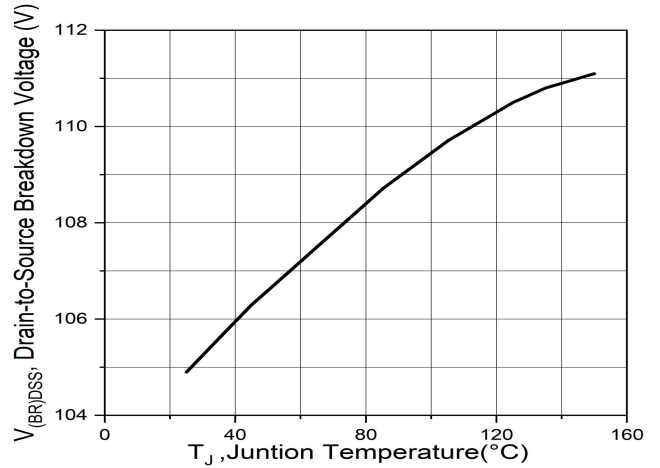


Fig.3 - RDS(on) vs. Junction Temperature

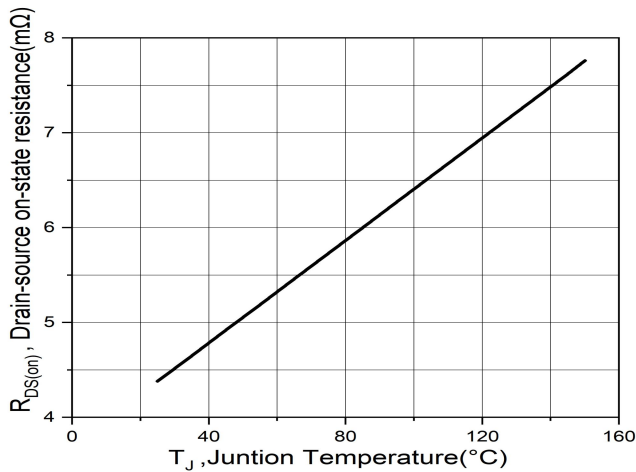


Fig.4 - Vth vs. Junction Temperature

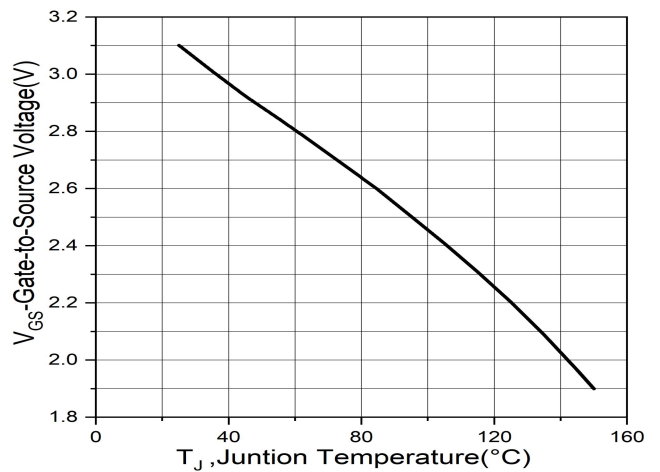


Fig.5 - Capacitance

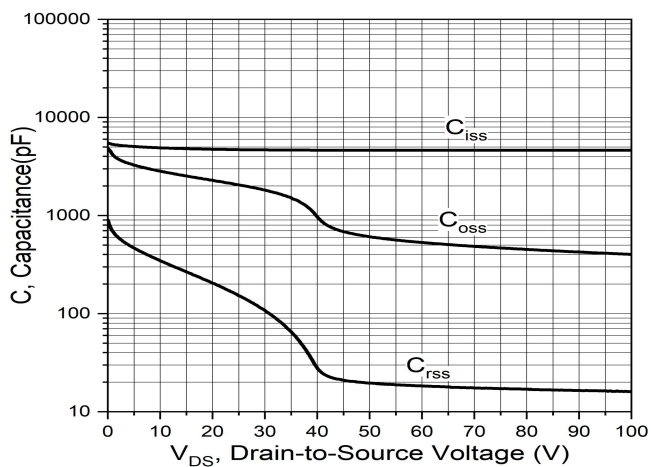
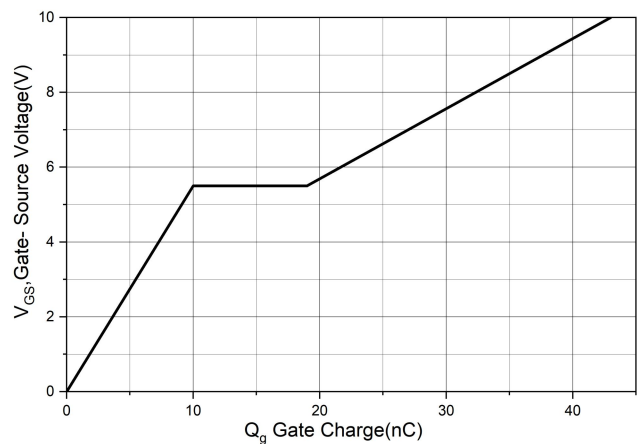


Fig.6 - Gate Charge



Typical Characteristics Curves ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 - Transfer Characteristics

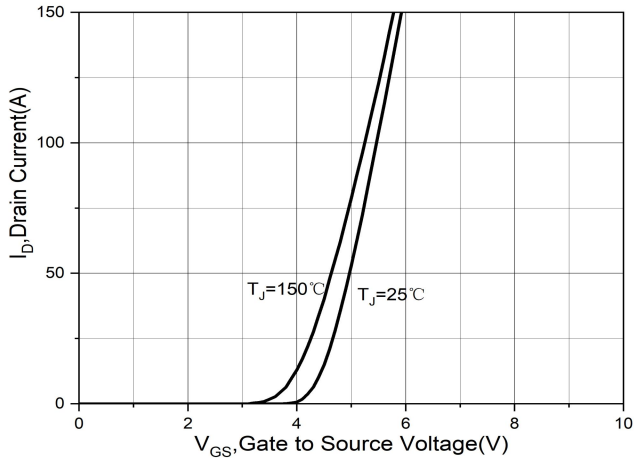
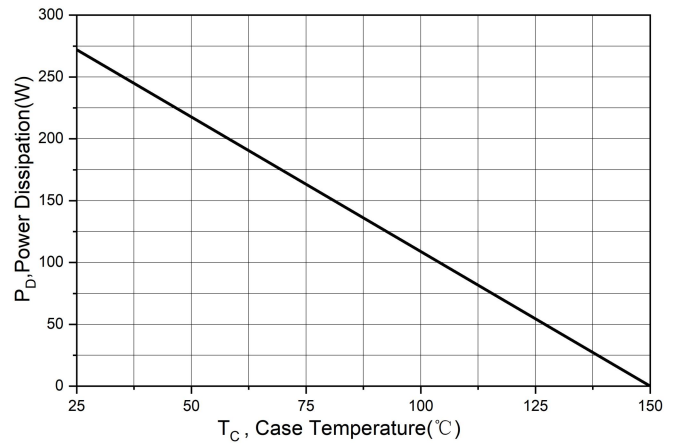
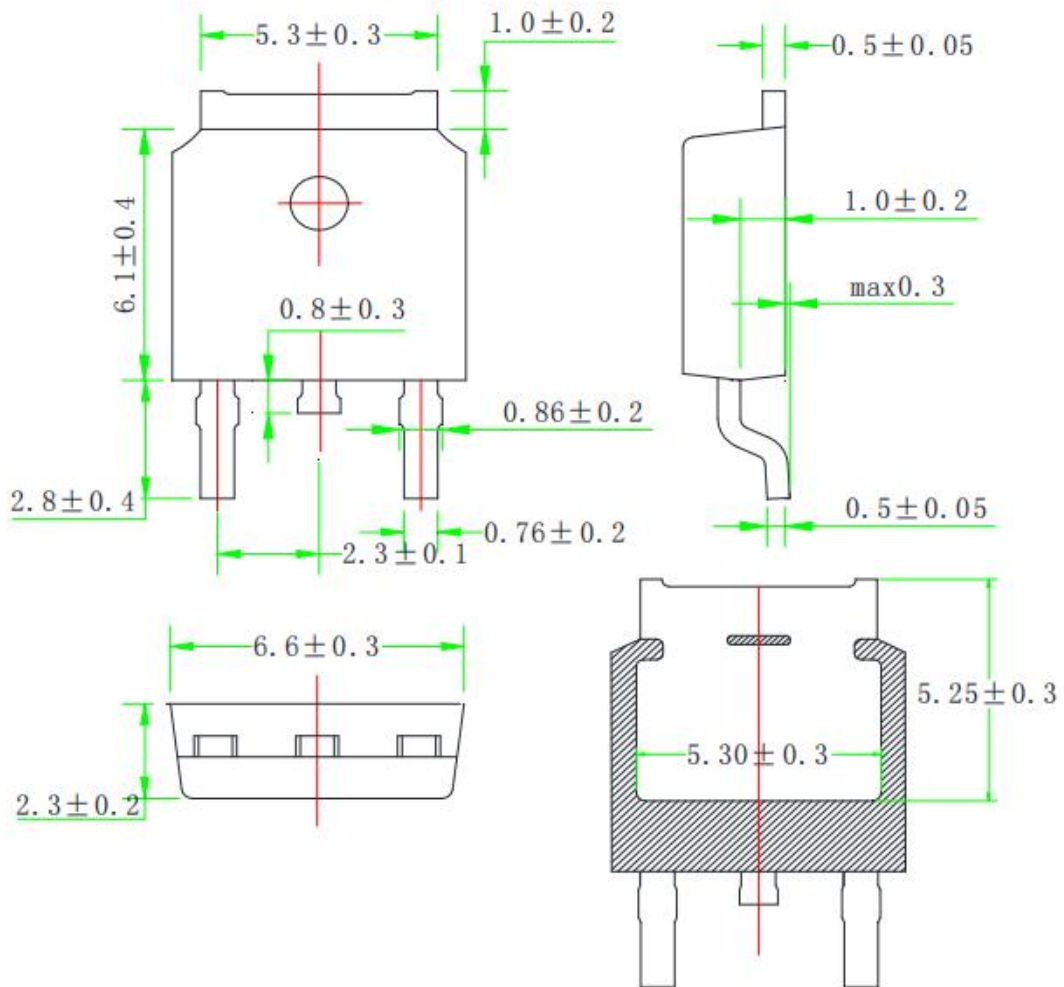


Fig.8 - Power Dissipation

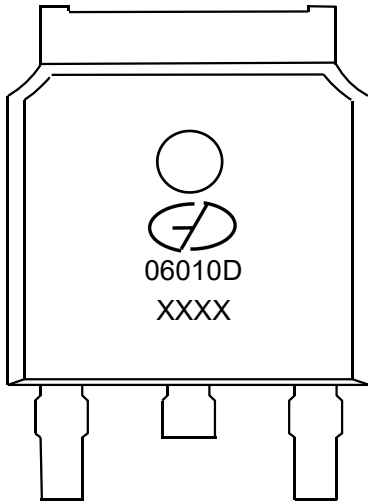


Package Outline Dimensions (Unit: millimeters)


TO-252(D-PAK)



Marking Outline



Part Name: GMN06010D

1. Logo Mark: 
2. P/N Mark: 06010D
3. Date Code: XXXX

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