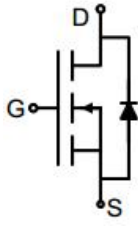
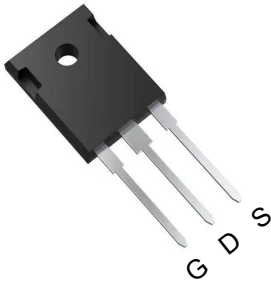


N-Channel Enhancement Mode Power MOSFET

| | |
|--|--|
| <p>Description</p> <p>The GT035N10M uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.</p> <p>General Features</p> <ul style="list-style-type: none"> ● V_{DS} 100V ● I_D (at $V_{GS} = 10V$) 190A ● $R_{DS(ON)}$ (at $V_{GS} = 10V$) < 3.5mΩ ● 100% Avalanche Tested ● RoHS Compliant <p>Application</p> <ul style="list-style-type: none"> ● Power switch ● DC/DC converters |  <p>Schematic diagram</p>  <p>TO-247</p> |
|--|--|

Ordering Information

| Device | Package | Marking | Packaging |
|-----------|---------|----------|------------|
| GT035N10M | TO-247 | GT035N10 | 30pcs/Tube |

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

| Parameter | Symbol | Value | Unit |
|--|----------------|------------|------------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Continuous Drain Current | I_D | 190 | A |
| Pulsed Drain Current (note1) | I_{DM} | 760 | A |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Power Dissipation | P_D | 277 | W |
| Single pulse avalanche energy (note2) | E_{AS} | 441 | mJ |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 To 150 | $^\circ C$ |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|---|------------|-------|--------------|
| Thermal Resistance, Junction-to-Ambient | R_{thJA} | 55 | $^\circ C/W$ |
| Maximum Junction-to-Case | R_{thJC} | 0.45 | $^\circ C/W$ |

| Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted | | | | | | |
|--|---------------|---|-------|------|-----------|------------|
| Parameter | Symbol | Test Conditions | Value | | | Unit |
| | | | Min. | Typ. | Max. | |
| Static Parameters | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 100 | -- | -- | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 100V, V_{GS} = 0V$ | -- | -- | 1 | μA |
| Gate-Source Leakage | I_{GSS} | $V_{GS} = \pm 20V$ | -- | -- | ± 100 | nA |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 2.0 | 3.0 | 4.0 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 30A$ | -- | 2.5 | 3.5 | m Ω |
| Forward Transconductance | g_{FS} | $V_{GS} = 5V, I_D = 30A$ | -- | 69 | -- | S |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V,$ $V_{DS} = 50V,$ $f = 1.0MHz$ | -- | 6516 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 2027 | -- | |
| Reverse Transfer Capacitance | C_{rss} | | -- | 155 | -- | |
| Total Gate Charge | Q_g | $V_{DD} = 50V,$ $I_D = 30A,$ $V_{GS} = 10V$ | -- | 68 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 26 | -- | |
| Gate-Drain Charge | Q_{gd} | | -- | 31 | -- | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD} = 50V,$ $I_D = 30A,$ $R_G = 3\Omega$ | -- | 27 | -- | ns |
| Turn-on Rise Time | t_r | | -- | 21 | -- | |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 78 | -- | |
| Turn-off Fall Time | t_f | | -- | 30 | -- | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Continuous Body Diode Current | I_S | $T_C = 25^\circ\text{C}$ | -- | -- | 190 | A |
| Body Diode Voltage | V_{SD} | $T_J = 25^\circ\text{C}, I_{SD} = 30A, V_{GS} = 0V$ | -- | -- | 1.2 | V |
| Reverse Recovery Charge | Q_{rr} | $I_F = 30A, V_{GS} = 0V$ $di/dt = 100A/us$ | -- | 680 | -- | nC |
| Reverse Recovery Time | T_{rr} | | -- | 132 | -- | ns |

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition : $T_J = 25^\circ\text{C}, V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$
3. Identical low side and high side switch with identical R_G

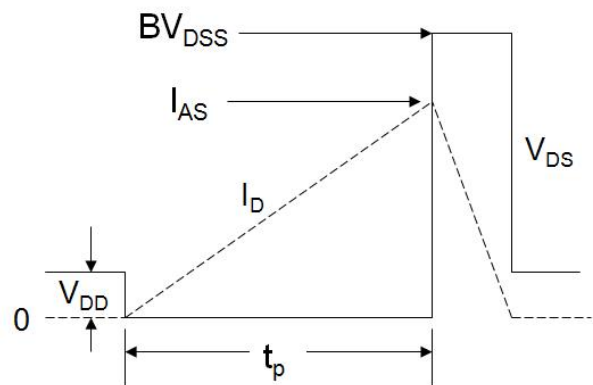
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



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

Figure 1. Output Characteristics

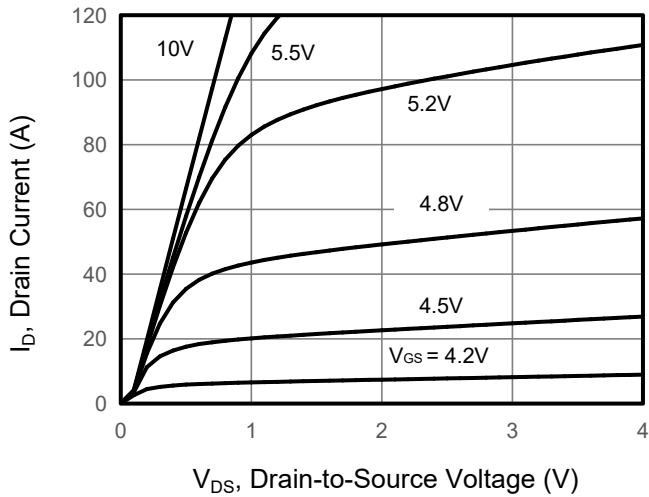


Figure 2. Transfer Characteristics

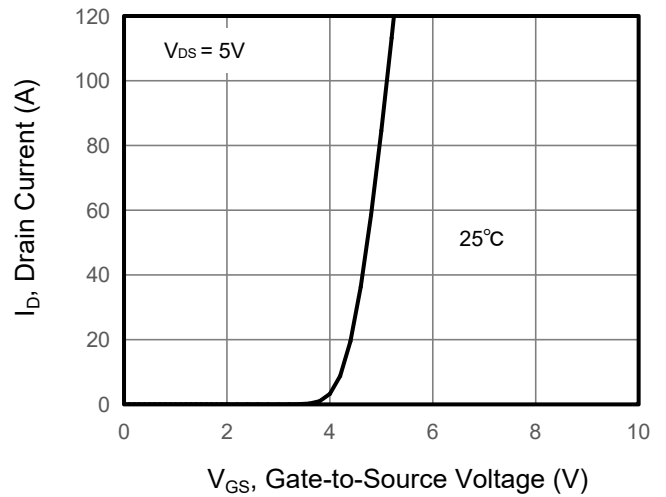


Figure 3. Drain Source On Resistance

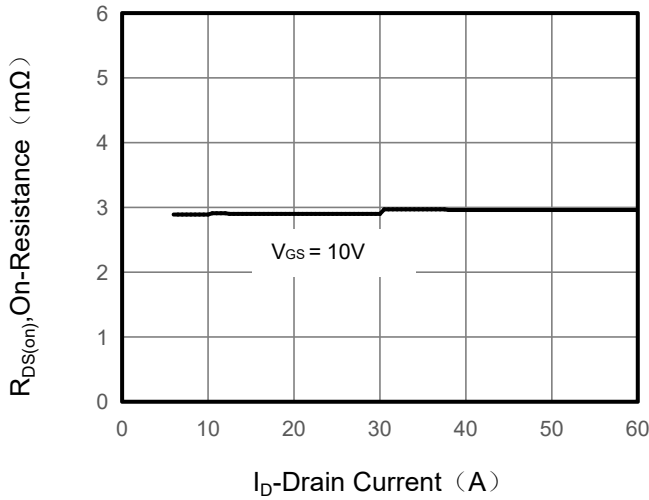


Figure 4. Gate Charge

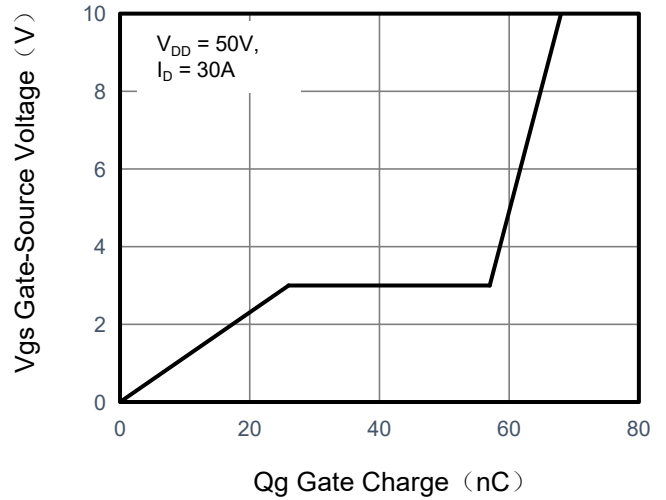


Figure 5. Capacitance

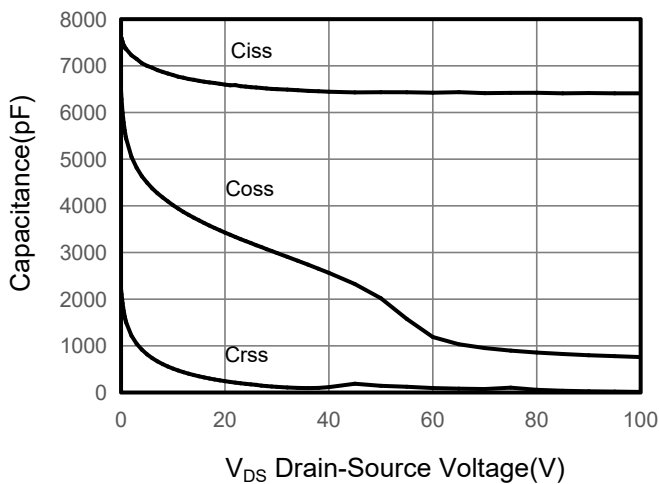
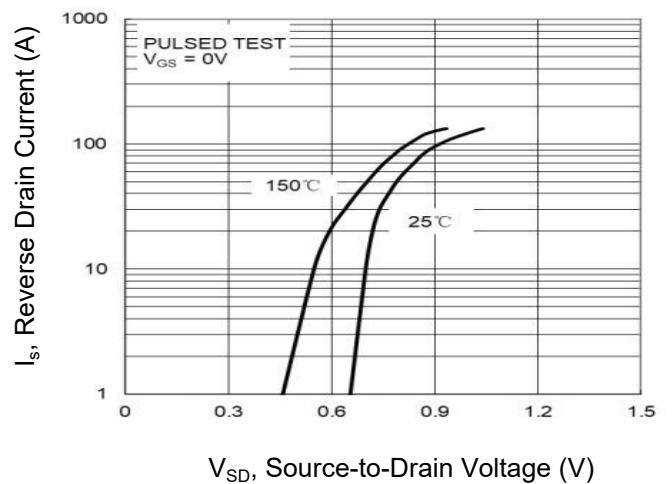


Figure 6. Source-Drain Diode Forward



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

Figure 7. Drain-Source On-Resistance

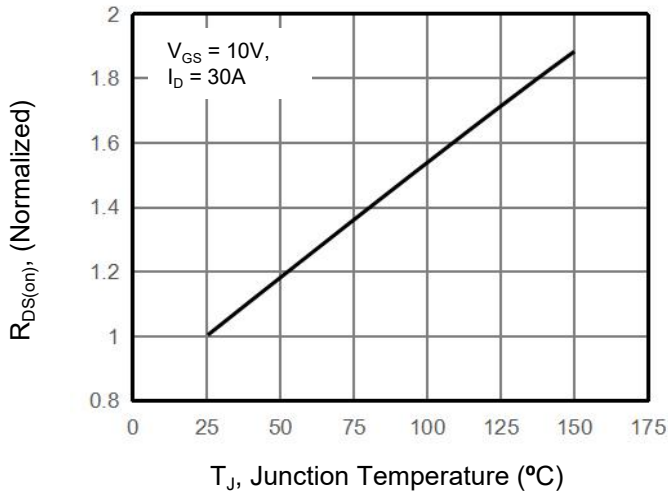


Figure 8. Safe Operation Area

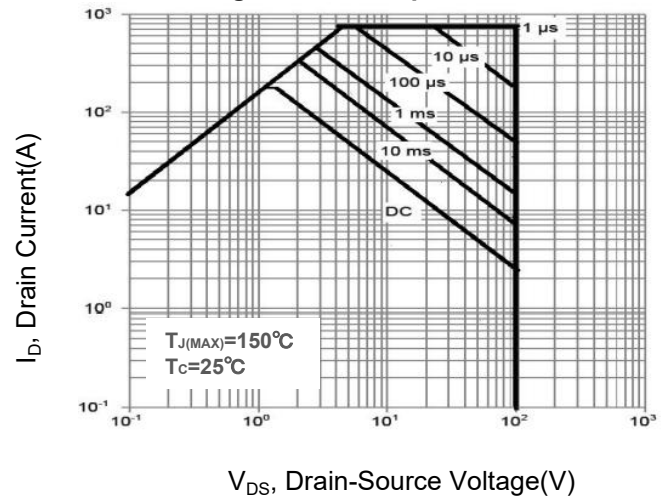
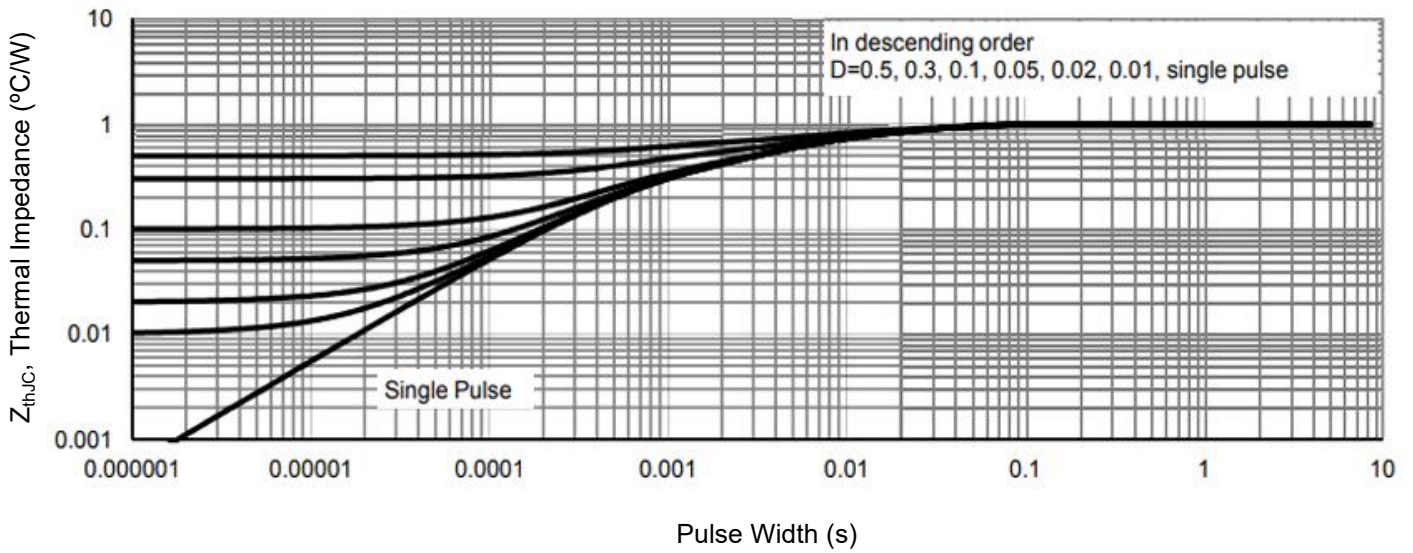
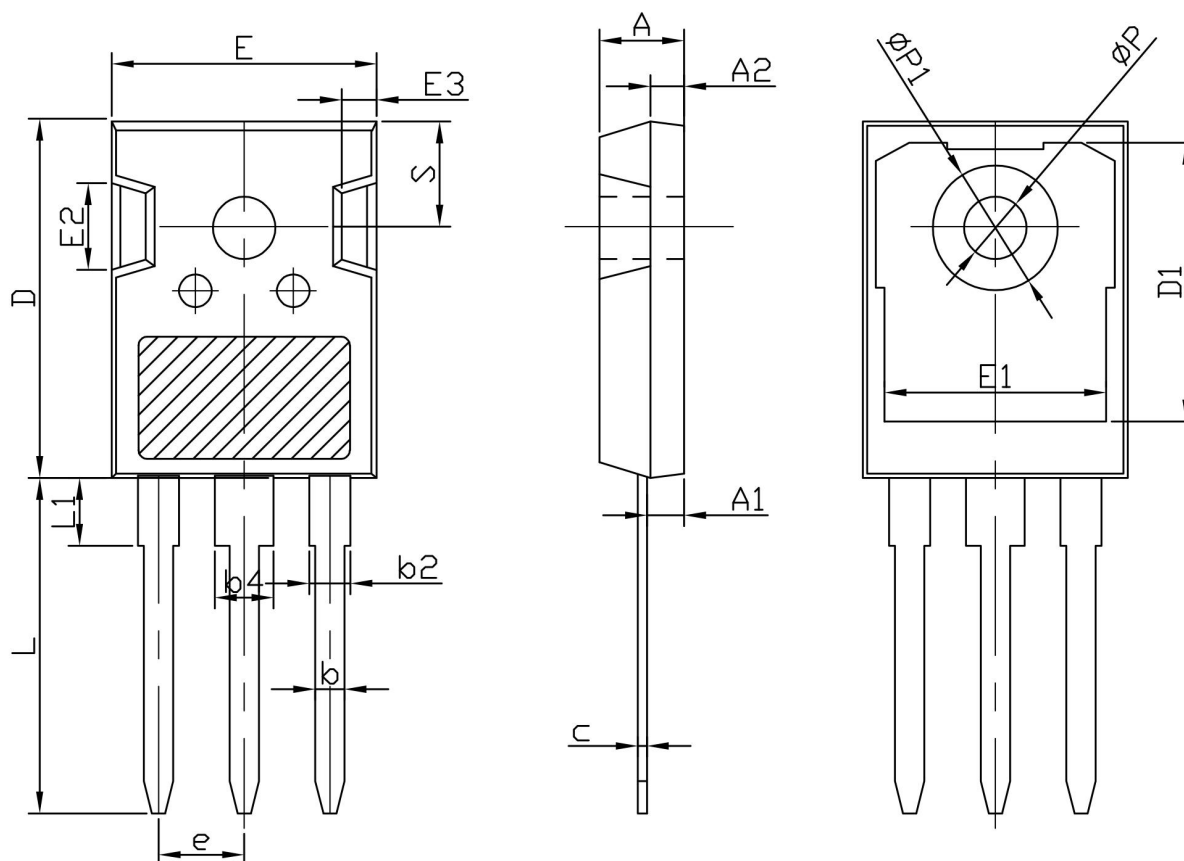


Figure 9. Normalized Maximum Transient Thermal Impedance



TO-247 Package Information



| SYMBOL | mm | | |
|--------|---------|-------|-------|
| | MIN | NOM | MAX |
| A | 4.80 | 5.00 | 5.20 |
| A1 | 2.21 | 2.41 | 2.59 |
| A2 | 1.85 | 2.00 | 2.15 |
| b | 1.11 | 1.21 | 1.36 |
| b2 | 1.91 | 2.01 | 2.21 |
| b4 | 2.91 | 3.01 | 3.21 |
| c | 0.51 | 0.61 | 0.75 |
| D | 20.70 | 21.00 | 21.30 |
| D1 | 16.25 | 16.55 | 16.85 |
| E | 15.50 | 15.80 | 16.10 |
| E1 | 13.00 | 13.30 | 13.60 |
| E2 | 4.80 | 5.00 | 5.20 |
| E3 | 2.30 | 2.50 | 2.70 |
| e | 5.44BSC | | |
| L | 19.62 | 19.92 | 20.22 |
| L1 | - | - | 4.30 |
| ØP | 3.40 | 3.60 | 3.80 |
| ØP1 | - | - | 7.30 |
| S | 6.15BSC | | |

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