## Features

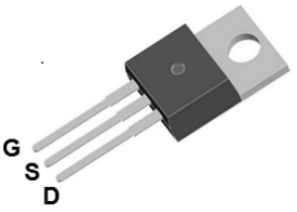
- Low On-resistance
- Low gate charge
- Low intrinsic capacitance
- Extremely fast switching

## Product Summary

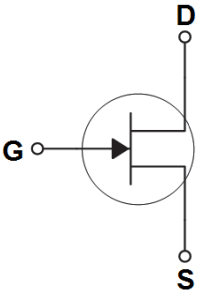
| | | |
|---|---|---|
| $V_{DS}$ | 650 | V |
| $R_{DS(on),Typ}$@ $V_{GS}$=6V | 160 | mΩ |
| $I_D$ | 10 | A |

## Applications

- Resonant soft switching Converters
- Switch Mode Power Supplies
- Isolated DC/DC converters




TO-220-3L top view




## Absolute Maximum Ratings($T_c$=25℃ unless otherwise specified)

| Parameter | Symbol | Value | Unit | Test Condition |
|---|---|---|---|---|
| Drain-source voltage | $V_{DS}$ | 650 | V | |
| Gate-source voltage | $V_{GS}$ | -10 to +7 | V | DC |
| Continuous drain current* | $I_D$ | 10 | A | $T_C$=25°C |
| | | 8 | A | $T_C$=100°C |
| Operation and storage temperature | Tj | -55 to 150 | ℃ | |
| | Tstg | -55 to 150 | ℃ | |

## Electrical Characteristics($T_c$=25℃ unless otherwise specified)

### Typical Performance - Static

| Parameter | Symbol | Values | | | Unit | Test Condition |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Drain source breakdown voltage | $BV_{DS}$ | 650 | / | / | V | $V_{GS}$=0V, $I_D$=12μA |
| Total drain leakage current | $I_{DSS}$ | / | 6 | 12 | μA | $V_{DS}$=650V, $V_{GS}$=0V, $T_j$=25°C |
| | | / | 25 | 50 | μA | $V_{DS}$=650V, $V_{GS}$=0V, $T_j$=150°C |
| Gate-to-source current | $I_{GS}$ | / | 100 | / | μA | $V_{DS}$=0V, $V_{GS}$=6V, Tj=25°C |
| | | / | 500 | / | μA | $V_{DS}$=0V, $V_{GS}$=6V, Tj=150°C |
| Static drain-source on-resistance | $R_{DS(on)}$ | / | 160 | / | mΩ | $V_{GS}$=6V, $I_D$=3A, $T_j$=25°C |
| | | / | 360 | / | mΩ | $V_{GS}$=6V, $I_D$=3A, $T_j$=150°C |
| Gate threshold voltage | $V_{G(th)}$ | / | 1.0 | / | V | $V_{DS}$=$V_{GS}$, $I_D$=3.5mA |
| Body diode forward voltage | $V_{SD}$ | / | 1.8 | / | V | $V_{GS}$=0V, $I_{SD}$=1A |

### Typical Performance - Dynamic

| Parameter | Symbol | Values | | | Unit | Test Condition |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Input capacitance | $C_{ISS}$ | / | 71 | / | pF | $V_{DS}$=400V, $V_{GS}$=0V, $f$=1MHz |
| Output capacitance | $C_{OSS}$ | / | 25 | / | pF | |
| Reverse transfer capacitance | $C_{RSS}$ | / | 0.7 | / | pF | |
| Output capacitance, energy related | $C_{OSS(er)}$ | / | 31 | / | pF | $V_{DS}$=0V to 400V, $V_{GS}$=0V |
| Output capacitance, time related | $C_{OSS(tr)}$ | / | 40 | / | pF | |
| Total gate charge | $Q_G$ | / | 2.0 | / | nC | $V_{DS}$=400V, $V_{GS}$=0V to 6V |
| Gate-drain charge | $Q_{GD}$ | / | 0.9 | / | nC | |
| Gate-source charge | $Q_{GS}$ | / | 0.4 | / | nC | |
| Gate Resistance | $R_G$ | / | 1.4 | / | Ω | $f$ = $f_{res}$, Open drain |

## Typical Performance Diagrams

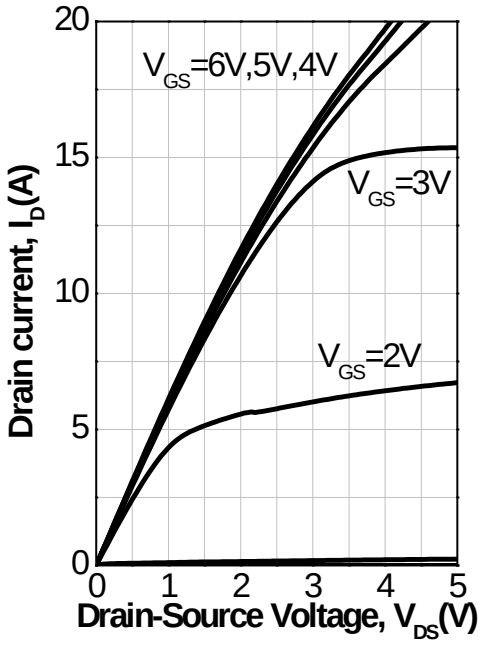



*Figure 1 Typical output characteristics at $T_j$=25°C*

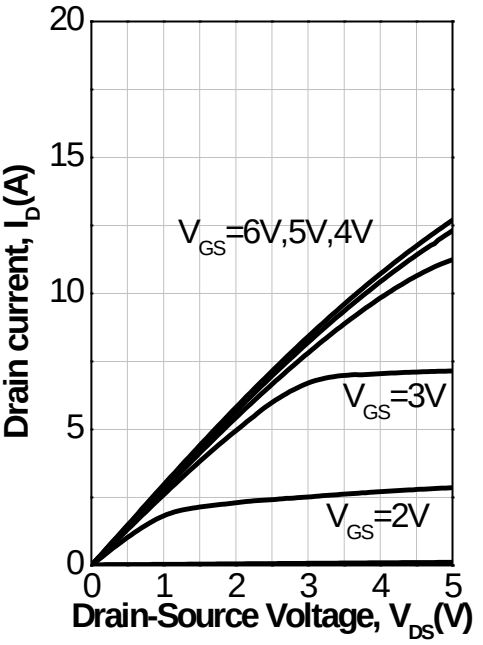



*Figure 2 Typical output characteristics at $T_j$=150°C*

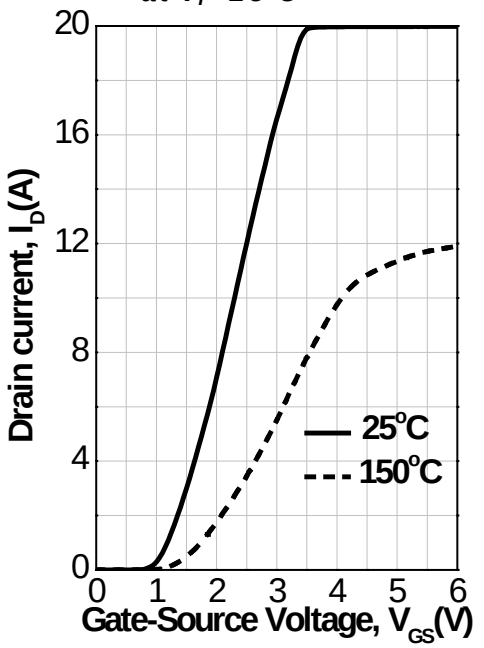



*Figure 3 Typical transfer characteristics at $V_{DS}$=5V*

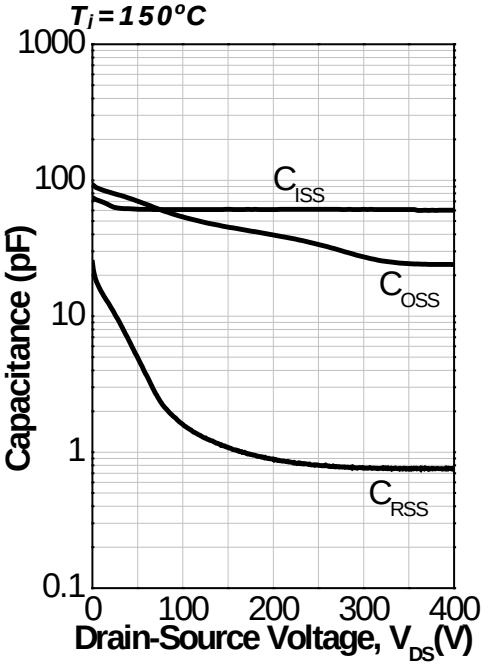



*Figure 4 Typical capacitance characteristics at 1MHz*

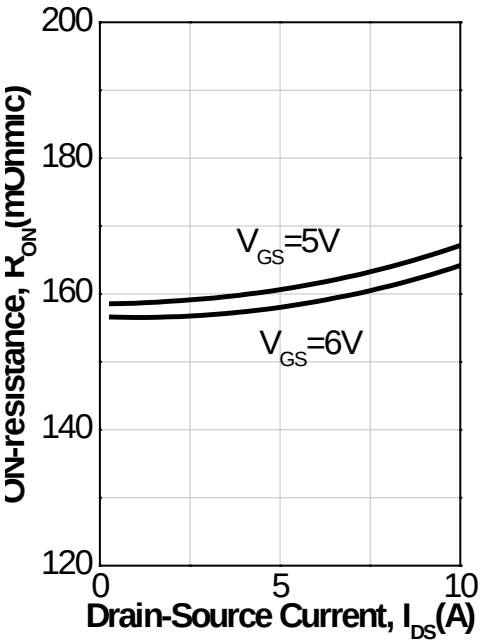



*Figure 5 ON-resistance for various drain current at $T_j$=25°C*

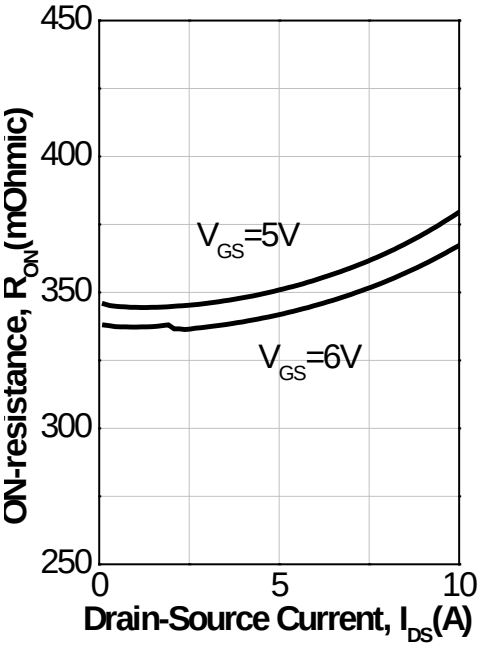



*Figure 6 ON-resistance for various drain current at $T_j$=150°C*

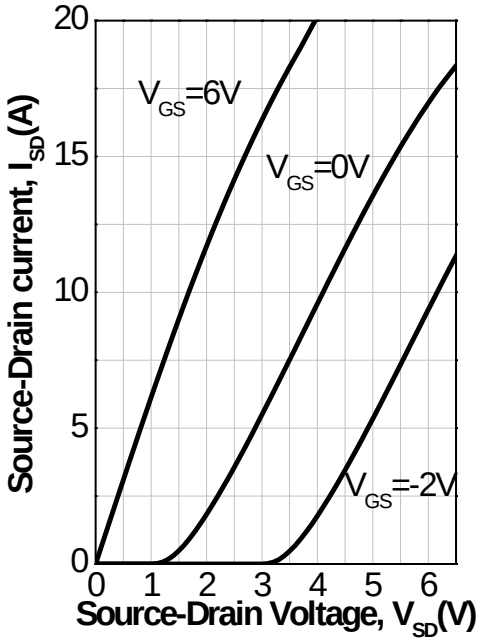



*Figure 7 Typical reverse conduction characteristics*

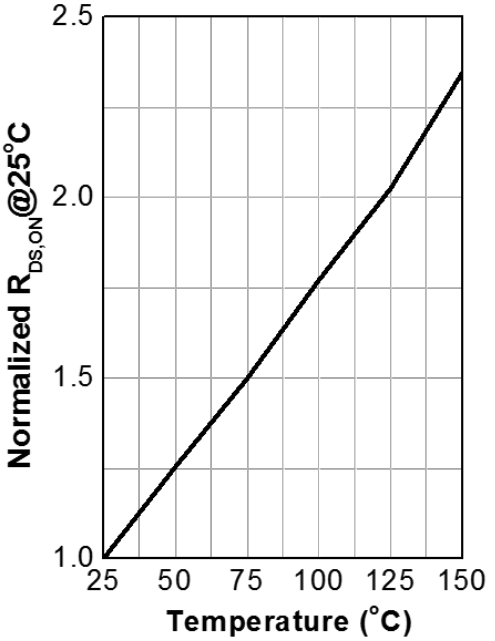
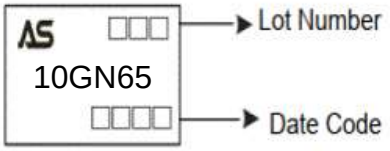



*Figure 8 Normalized ON-resistance at various temperatures*

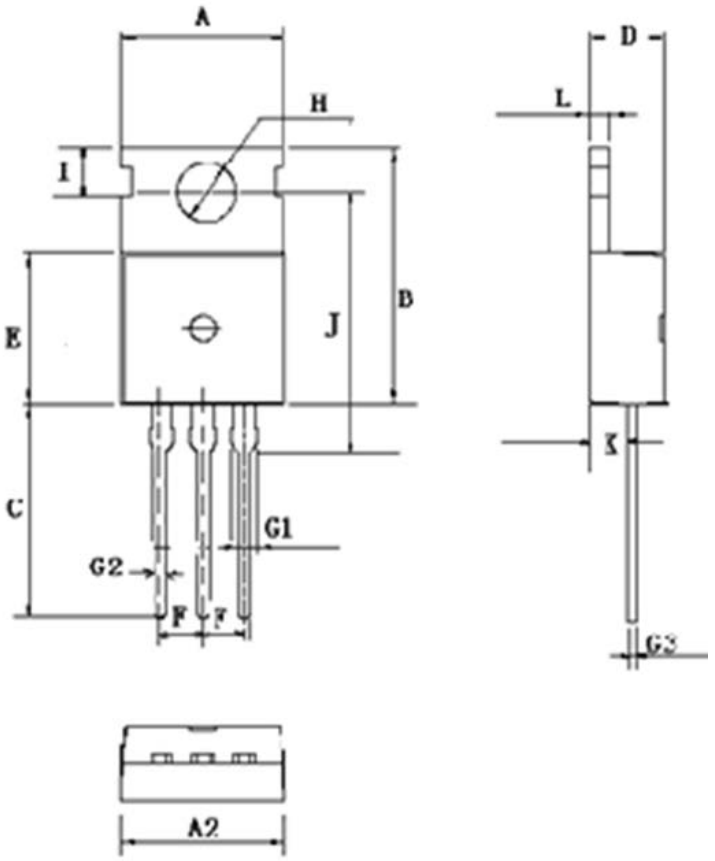
## Ordering and Marking Information

| Ordering Device No. | Marking | Package | Packing | Quantity |
|---|---|---|---|---|
| ASDM10GN65P-T | 10GN65 | TO-220 | Tube | 50/Tube |

| PACKAGE | MARKING |
|---|---|
| TO-220 |  |

## Outline Dimension (unit= mm)

Package TO-220-3L




| SYMBOL | mm | |
|---|---|---|
| | MIN | MAX |
| A | 9.66 | 10.28 |
| A2 | 9.80 | 10.20 |
| B | 15.60 | 15.80 |
| C | 12.70 | 14.27 |
| D | 4.30 | 4.70 |
| E | 8.59 | 9.40 |
| F | 2.54 NOM | |
| G1 | 1.42 | 1.62 |
| G2 | 0.70 | 0.95 |
| G3 | 0.45 | 0.60 |
| H | 3.50 | 3.70 |
| I | 2.70 | 2.90 |
| J | 15.70 | 16.25 |
| K | 2.20 | 2.90 |
| L | 1.15 | 1.40 |
| M | 0.5 | |

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