# CMH035N10

**100V, 3.1mΩ typ., 200A N-Channel MOSFET**

## General Description

The CMH035N10 uses advanced SGT technology to provide excellent RDS(ON).This device is well suited for high efficiency fast switching applications.

## Product Summary

| BVDSS | $R_{DS(on)}$ max. | ID |
|---|---|---|
| 100V | 3.5mΩ | 200A |

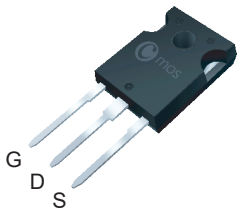
## Applications

- Motor control and drive
- Power switching application

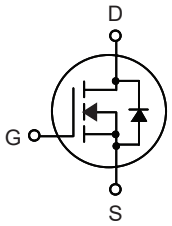
## Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

## TO-247 Pin Configuration




TO-247
CMH035N10




## Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | 100 | V |
| $V_{GS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$@$T_C$=25℃ | Continuous Drain Current | 200 | A |
| $I_D$@$T_C$=100℃ | Continuous Drain Current | 140 | A |
| $I_{DM}$ | Pulsed Drain Current | 800 | A |
| EAS | Single Pulse Avalanche Energy[1] | 3062 | mJ |
| $P_D$@$T_C$=25℃ | Total Power Dissipation | 450 | W |
| $T_{STG}$ | Storage Temperature Range | -55 to 150 | ℃ |
| $T_J$ | Operating Junction Temperature Range | 150 | ℃ |

## Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|---|---|---|---|---|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient(min. footprint) | --- | 62 | ℃/W |
| $R_{\theta JC}$ | Thermal Resistance Junction-case | --- | 0.28 | ℃/W |

## Electrical Characteristics($T_J$=25℃, unless otherwise noted)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $BV_{DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$=0V , $I_D$=250uA | 100 | --- | --- | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}$=10V , $I_D$=50A | --- | 3.1 | 3.5 | mΩ |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{GS}$=$V_{DS}$ , $I_D$ =250uA | 2.0 | --- | 4.0 | V |
| $I_{DSS}$ | Drain-Source Leakage Current | $V_{DS}$=100V , $V_{GS}$ =0V | --- | --- | 1 | μA |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$ =±20V , $V_{DS}$=0V | --- | --- | ±100 | nA |
| gfs | Forward Transconductance | $V_{DS}$=10V , $I_D$ =20A | --- | 44 | --- | S |
| $R_g$ | Gate Resistance | $V_{DS}$=0V , $V_{GS}$=0V , f=1MHz | --- | 2.4 | --- | Ω |
| $Q_g$ | Total Gate Charge | $I_D$=50A<br>$V_{DD}$=50V<br>$V_{GS}$=10V | --- | 117 | --- | nC |
| $Q_{gs}$ | Gate-Source Charge | | --- | 40 | --- | |
| $Q_{gd}$ | Gate-Drain Charge | | --- | 37 | --- | |
| $T_{d(on)}$ | Turn-On Delay Time | $V_{DD}$=50V<br>$V_{GS}$ = 10V<br>$R_G$ =3Ω | --- | 48 | --- | ns |
| $T_r$ | Rise Time | | --- | 56 | --- | |
| $T_{d(off)}$ | Turn-Off Delay Time | | --- | 75 | --- | |
| $T_f$ | Fall Time | | --- | 33 | --- | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=25V , $V_{GS}$=0V , f=1MHz | --- | 8600 | --- | pF |
| $C_{oss}$ | Output Capacitance | | --- | 2700 | --- | |
| $C_{rss}$ | Reverse Transfer Capacitance | | --- | 200 | --- | |

## Diode Characteristics

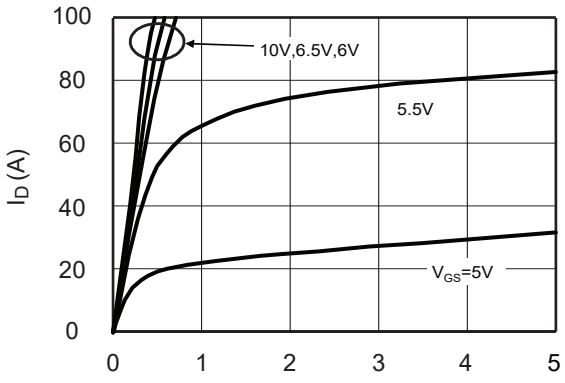
| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_S$ | Continuous Source Current | $V_G$=$V_D$=0V , Force Current | --- | --- | 200 | A |
| $I_{SM}$ | Pulsed Source Current | | --- | --- | 800 | A |
| $V_{SD}$ | Diode Forward Voltage | $V_{GS}$=0V , $I_S$=50A ,$T_J$=25℃ | --- | 0.87 | 1.4 | V |

Note :

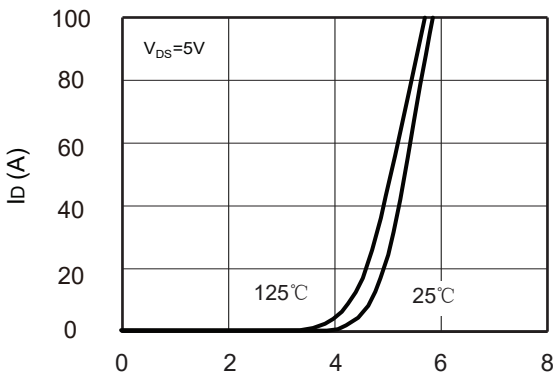
1.The EAS data shows Max. rating . The test condition is $V_{DD}$=80V , $V_{GS}$=10V , L=5mH , $I_{AS}$=35A.

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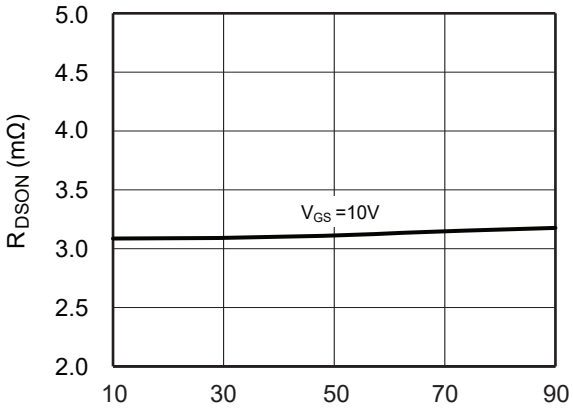
## Typical Characteristics



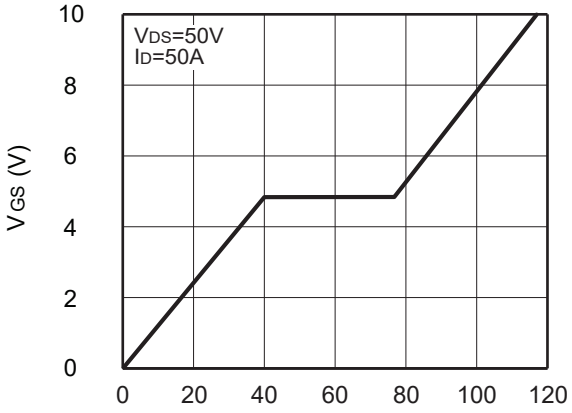

Output Characteristics



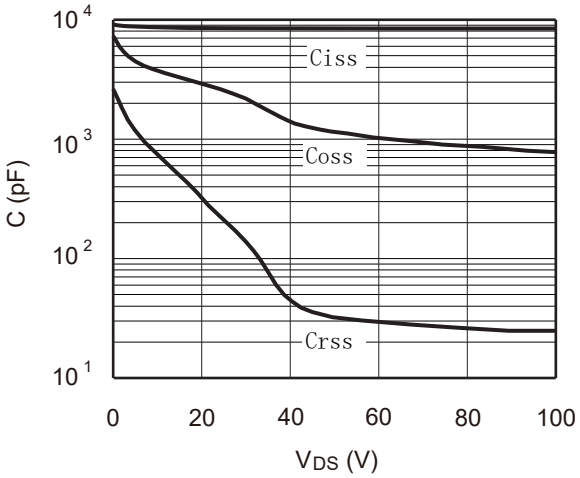

transfer characteristics



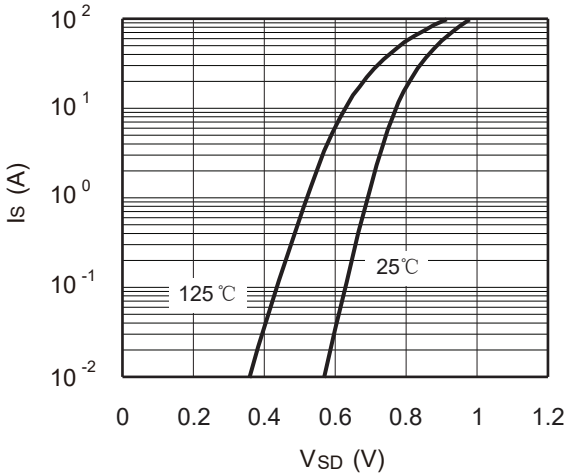

On-Resistance vs. Drain Current




Gate charge vs gate-source voltage



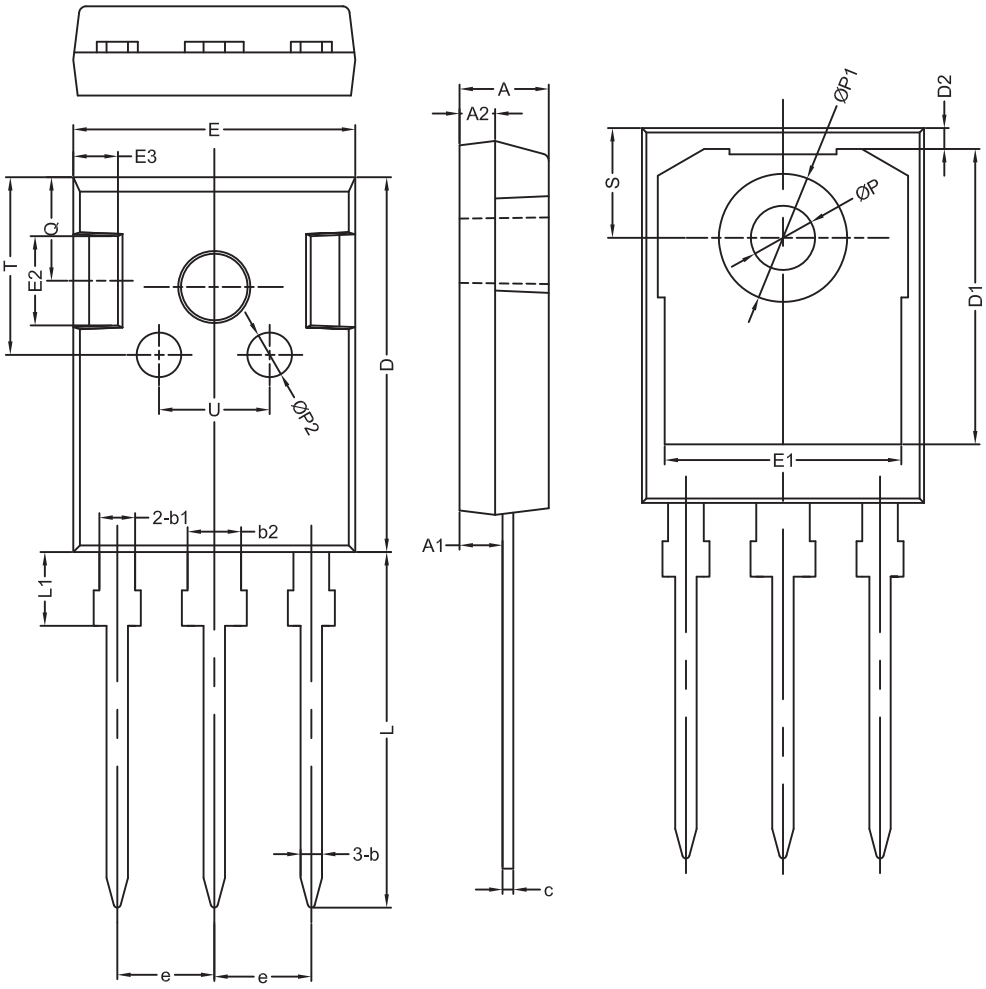

Capacitance Characteristics




Body-Diode Characteristics

## Package Dimension

TO-247 Unit :mm




| 符号 | 机械尺寸/mm | | | 符号 | 机械尺寸/mm | | |
|---|---|---|---|---|---|---|---|
| | 最小值 | 典型值 | 最大值 | | 最小值 | 典型值 | 最大值 |
| A | 4.80 | 5.00 | 5.20 | E2 | | 5.00 | |
| A1 | 2.21 | 2.41 | 2.61 | E3 | | 2.50 | |
| A2 | 1.90 | 2.00 | 2.10 | e | | 5.44 | |
| b | 1.10 | 1.20 | 1.35 | L | 19.42 | 19.92 | 20.42 |
| b1 | | 2.00 | | L1 | | 4.13 | |
| b2 | | 3.00 | | P | 3.50 | 3.60 | 3.70 |
| c | 0.55 | 0.60 | 0.75 | P1 | | 7.19 | |
| D | 20.80 | 21.00 | 21.20 | P2 | | 2.50 | |
| D1 | | 16.55 | | Q | | 5.80 | |
| D2 | | 1.20 | | S | 6.05 | 6.15 | 6.25 |
| E | 15.60 | 15.80 | 16.0 | T | | 10.00 | |
| E1 | | 13.30 | | U | | 6.20 | |