# CHENMKO ENTERPRISE CO.,LTD

**CHM1825NGP**

Halogens free devices

## SURFACE MOUNT
## N-Channel Enhancement Mode Field Effect Transistor
*VOLTAGE 250 Volts CURRENT 18 Ampere*

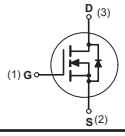
### APPLICATION
* Servo motor control.
* Power MOSFET gate drivers.
* Other switching applications.

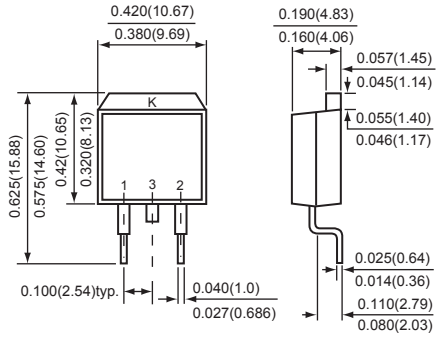
### FEATURE
* Small package. (D2PAK)
* Super high dense cell design for extremely low $R_{DS(ON)}$.
* High power and current handing capability.

### CONSTRUCTION
* N-Channel Enhancement

D2PAK

### CIRCUIT




1 Gate
2 Source
3 Drain ( Heat Sink )

Dimensions in inches and (millimeters)

D2PAK

## Absolute Maximum Ratings $T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | CHM1825NGP | Units |
|---|---|---|---|
| $V_{DSS}$ | Drain-Source Voltage | 250 | V |
| $V_{GSS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Maximum Drain Current - Continuous | 18 | A |
| | - Pulsed (Note 3) | 72 | |
| $P_D$ | Maximum Power Dissipation at Tc = 25 °C | 90 | W |
| $T_J$ | Operating Temperature Range | -55 to 150 | °C |
| $T_{STG}$ | Storage Temperature Range | -55 to 150 | °C |

Note : 1. Surface Mounted on FR4 Board , t <=10sec
2. Pulse Test , Pulse width <= 300us , Duty Cycle <= 2%
3. Repetitive Rating , Pulse width linited by maximum junction temperature
4. Guaranteed by design , not subject to production trsting

## Thermal characteristics

| | | | |
|---|---|---|---|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 1) | 62.5 | °C/W |

# ELECTRICAL CHARACTERISTIC ( CHM1825NGP )

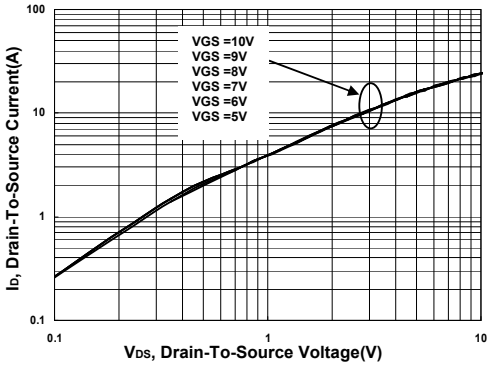
## Electrical Characteristics $T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| $BV_{DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$ = 0 V, $I_D$ = 250 μA | 250 | | | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$ = 250 V, $V_{GS}$ = 0 V | | | 1 | μA |
| $I_{GSSF}$ | Gate-Body Leakage | $V_{GS}$ = 20V, $V_{DS}$ = 0 V | | | +100 | nA |
| $I_{GSSR}$ | Gate-Body Leakage | $V_{GS}$ = -20V, $V_{DS}$ = 0 V | | | -100 | nA |
| **ON CHARACTERISTICS** (Note 2) | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$ = $V_{GS}$, $I_D$ = 250 μA | 2 | | 4 | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}$=10V, $I_D$=9A | | 180 | 200 | mΩ |
| $g_{FS}$ | Forward Transconductance | $V_{DS}$ =10V, $I_D$ = 18A | | 20 | | S |
| **Dynamic Characteristics** | | | | | | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$ = 25V, $V_{GS}$ = 0V, f = 1.0 MHz | | 1810 | | pF |
| $C_{oss}$ | Output Capacitance | | | 153 | | |
| $C_{rss}$ | Reverse Transfer Capacitance | | | 33 | | |
| **SWITCHING CHARACTERISTICS** (Note 4) | | | | | | |
| $Q_g$ | Total Gate Charge | $V_{DS}$=200V, $I_D$=9A, $V_{GS}$=10V | | 57 | | nC |
| $Q_{gs}$ | Gate-Source Charge | | | 9 | | |
| $Q_{gd}$ | Gate-Drain Charge | | | 26 | | |
| $t_{on}$ | Turn-On Time | $V_{DD}$= 125V, $I_D$= 18A, $V_{GS}$= 10 V, $R_{GEN}$= 6Ω | | 31 | | nS |
| $t_r$ | Rise Time | | | 215 | | |
| $t_{off}$ | Turn-Off Time | | | 73 | | |
| $t_f$ | Fall Time | | | 118 | | |
| **DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS** | | | | | | |
| $I_S$ | Drain-Source Diode Forward Current | (Note 1) | | | 18 | A |
| $V_{SD}$ | Drain-Source Diode Forward Voltage | $I_S$ = 18A, $V_{GS}$ = 0 V (Note 2) | | | 1.6 | V |

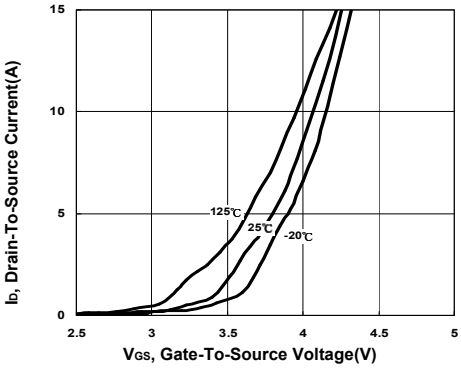
# RATING CHARACTERISTIC CURVES ( CHM1825NGP )

**Typical Electrical Characteristics**

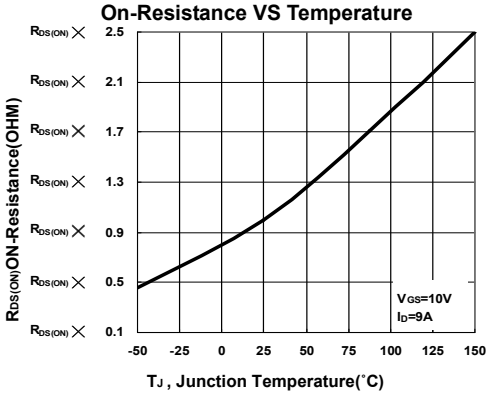
**Output Characteristics**



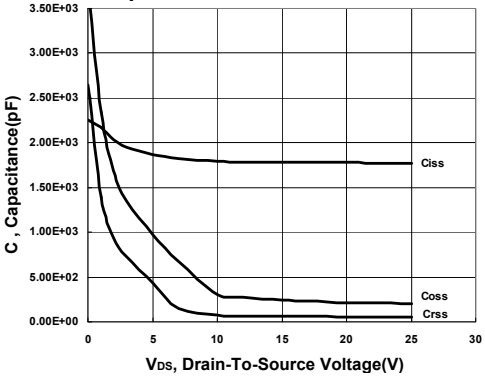

**Transfer Characteristics**



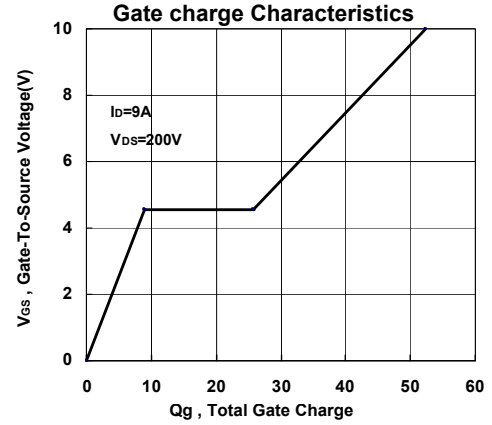

**On-Resistance VS Temperature**




**Capacitance Characteristic**




**Gate charge Characteristics**




**Source-Drain Diode Forward Voltage**