# CHENMKO ENTERPRISE CO.,LTD

**CHM1012LPAPT**

## SURFACE MOUNT
## N-Channel Enhancement Mode Field Effect Transistor

*VOLTAGE 120 Volts CURRENT 10 Ampere*

Lead free devices

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

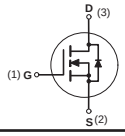
### FEATURE
* Small package. (TO-252A)
* Super high dense cell design for extremely low $R_{DS(ON)}$.
* High power and current handing capability.

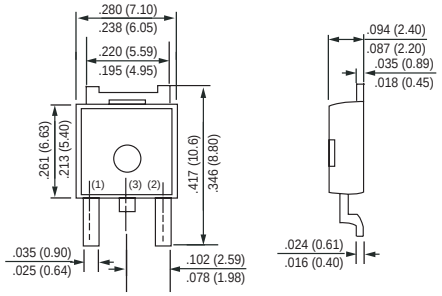
### CONSTRUCTION
* N-Channel Enhancement



TO-252A

### CIRCUIT




1 Gate
2 Source
3 Drain( Heat Sink )

Dimensions in inches and (millimeters)

TO-252A

## Absolute Maximum Ratings

$T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | CHM1012LPAPT | Units |
|---|---|---|---|
| $V_{DSS}$ | Drain-Source Voltage | 120 | V |
| $V_{GSS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Maximum Drain Current - Continuous | 10 | A |
| | - Pulsed (Note 3) | 40 | |
| $P_D$ | Maximum Power Dissipation at Tc = 25°C | 50 | 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) | 50 | °C/W |

2006-02

# RATING CHARACTERISTIC CURVES ( CHM1012LPAPT )

## 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 | 120 | | | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$ = 120 V, $V_{GS}$ = 0 V | | | 25 | 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 | 1 | 1.6 | 3 | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}$=10V, $I_D$=10A | | 100 | 120 | mΩ |
| $g_{FS}$ | Forward Transconductance | $V_{DS}$ =10V, $I_D$ = 5A | 3 | 9.5 | | S |
| **SWITCHING CHARACTERISTICS** (Note 4) | | | | | | |
| $Q_g$ | Total Gate Charge | $V_{DS}$=96V, $I_D$=10A<br>$V_{GS}$=5V | | 27.5 | 33 | nC |
| $Q_{gs}$ | Gate-Source Charge | | | 5 | | |
| $Q_{gd}$ | Gate-Drain Charge | | | 16 | | |
| $t_{on}$ | Turn-On Time | $V_{DD}$= 30V<br>$I_D$=10A, $V_{GS}$= 5 V<br>$R_{GEN}$= 9 Ω | | 42 | 50 | nS |
| $t_r$ | Rise Time | | | 85 | 130 | |
| $t_{off}$ | Turn-Off Time | | | 60 | 80 | |
| $t_f$ | Fall Time | | | 45 | 90 | |
| **DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS** | | | | | | |
| $I_S$ | Drain-Source Diode Forward Current | | | | 10 | A |
| $V_{SD}$ | Drain-Source Diode Forward Voltage | $I_S$ = 10A, $V_{GS}$ = 0 V | | 0.85 | 1.2 | V |