**JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD**

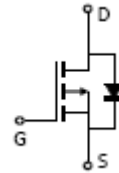# SOT-23-3L Plastic-Encapsulate MOSFETS

## CJK2305  P-Channel 12-V(D-S) MOSFET
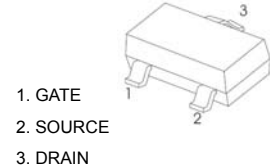
### FEATURE

TrenchFET Power MOSFET

**SOT-23-3L**



1. GATE
2. SOURCE
3. DRAIN

### APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

**MARKING: S5**



### Maximum ratings (T$_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Drain-Source Voltage | V$_{DS}$ | -12 | V |
| Gate-Source Voltage | V$_{GS}$ | ±12 | |
| Continuous Drain Current | I$_D$ | -3.5 [a] | A |
| Pulsed Drain Current (10μs pulse width ) | I$_{DM}$ | -10 | |
| Power Dissipation | P$_D$ | 0.3 [a] | W |
| Thermal Resistance from Junction to Ambient (t≤10s) | R$_{thJA}$ | 417 [b] | ℃/W |
| Junction Temperature | T$_J$ | 150 | ℃ |
| Storage Temperature | T$_{stg}$ | -50 ~+150 | |

**Notes :**

a. t=10s.

b. Maximum under Steady State conditions is 175℃/W.

## Electrical characteristics (T$_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-source breakdown voltage | V$_{(BR)DSS}$ | V$_{GS}$ = 0V, I$_D$ =-250µA | -12 | | | V |
| Gate-source threshold voltage | V$_{GS(th)}$ | V$_{DS}$ =V$_{GS}$, I$_D$ =-250µA | -0.42 | | -1.0 | |
| Gate-source leakage | I$_{GSS}$ | V$_{DS}$ =0V, V$_{GS}$ =±12V | | | ±100 | nA |
| Zero gate voltage drain current | I$_{DSS}$ | V$_{DS}$ =-12V, V$_{GS}$ =0V | | | -1 | µA |
| Drain-source on-state resistance(note 1) | R$_{DS(on)}$ | V$_{GS}$ =-4.5V, I$_D$ =-3.5A | | | 0.052 | Ω |
| | | V$_{GS}$ =-2.5V, I$_D$ =-3A | | | 0.070 | |
| | | V$_{GS}$ =-1.8V,I$_D$=-2.0A | | | 0.095 | |
| Forward transconductance(note 1) | g$_{fs}$ | V$_{DS}$ =-5V, I$_D$ =-2.8A | 8 | | | S |
| **Dynamic(note 2)** | | | | | | |
| Input capacitance | C$_{iss}$ | V$_{DS}$ =-8V,V$_{GS}$ =0V,f =1MHz | | 1050 | | pF |
| Output capacitance | C$_{oss}$ | | | 190 | | |
| Reverse transfer capacitance | C$_{rss}$ | | | 150 | | |
| Turn-on delay Time | t$_{d(on)}$ | V$_{DD}$=-10V, R$_L$=10Ω, I$_D$=-1A, V$_{GEN}$=-4.5V,R$_G$=6Ω | | | 10 | ns |
| Rise time | t$_r$ | | | | 23 | |
| Turn-off delay time | t$_{d(off)}$ | | | | 120 | |
| Fall time | t$_f$ | | | | 71 | |
| **Drain-source body diode characteristics** | | | | | | |
| Body diode forward voltage(note 1) | V$_{SD}$ | I$_S$=-1.25A, V$_{GS}$ = 0V | | | -1.3 | V |

**Notes:**

1. Pulse Test ; Pulse Width ≤300µs, Duty Cycle ≤2%.

2. These parameters have no way to verify.

# Typical Characteristics

# CJK2305

### Output Characteristics



### Transfer Characteristics



### $R_{DS(ON)}$ — $I_D$



### $R_{DS(ON)}$ — $V_{GS}$



### $I_S$ — $V_{SD}$