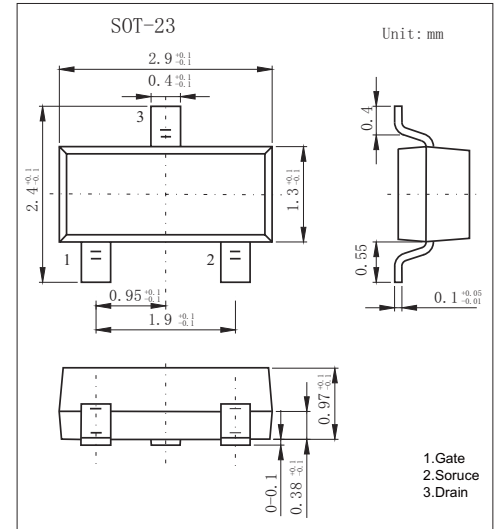# 3407

## SOT-23 Plastic-Encapsulate MOSFETS

### FEATURE

- TrenchFET Power MOSFET
- P-Channel Enhancement Mode Field Effect Transistor

### MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any



1.Gate
2.Soruce
3.Drain

## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -30 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Continuous Drain Current | $I_D$ | -4.1 | A |
| Power Dissipation | $P_D$ | 350 | mW |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | ℃/W |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature | $T_{stg}$ | -55~+150 | ℃ |

| $V_{(BR)DSS}$ | $R_{DS(on)}$MAX | $I_D$ |
|---|---|---|
| -30V | 60mΩ@-10V | -4.1A |
| | 87mΩ@-4.5V | |

## MOSFET ELECTRICAL CHARACTERISTICS Ta=25 ℃ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **Static characteristics** | | | | | | |
| Drain-source breakdown voltage | $BV_{DSS}$ | $V_{GS} = 0V$, $I_D =-250\mu A$ | -30 | | | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS} =-24V$,$V_{GS} = 0V$ | | | -1 | μA |
| Gate-source leakage current | $I_{GSS}$ | $V_{GS} =\pm 20V$, $V_{DS} = 0V$ | | | ±100 | nA |
| Drain-source on-resistance (note 1) | $R_{DS(on)}$ | $V_{GS} =-10V$, $I_D =-4.1A$ | | 50 | 60 | mΩ |
| | | $V_{GS} =-4.5V$, $I_D =-3A$ | | 68 | 87 | mΩ |
| Forward tranconductance (note 1) | $g_{FS}$ | $V_{DS} =-5V$, $I_D =-4A$ | 5.5 | | | S |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} =V_{GS}$, $I_D =-250\mu A$ | -1 | -1.4 | -3 | V |
| Diode forward voltage (note 1) | $V_{SD}$ | $I_S=-1A$,$V_{GS}=0V$ | | | -1 | V |
| **Dynamic characteristics** (note 2) | | | | | | |
| Input capacitance | $C_{iss}$ | $V_{DS} =-15V$,$V_{GS} =0V$,$f =1MHz$ | | 700 | | pF |
| Output capacitance | $C_{oss}$ | | | 120 | | pF |
| Reverse transfer capacitance | $C_{rss}$ | | | 75 | | pF |
| **Switching Characteristics** (note 2) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}=-10V$,$V_{DS}=-15V$, $R_L=3.6\Omega$,$R_{GEN}=3\Omega$ | | 8.6 | | ns |
| Turn-on rise time | $t_r$ | | | 5.0 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 28.2 | | ns |
| Turn-off fall time | $t_f$ | | | 13.5 | | ns |

**Notes:**

1. Pulse test: Pulse width ≤300μs, duty cycle ≤2%.
2. These parameters have no way to verify.

# RATINGS AND CHARACTERISTIC CURVES

**Typical Characteristics**

### Output Characteristics

$T_a$=25℃
Pulsed

$V_{GS}$=-10、-5.0、-4.5、-4.0V

$V_{GS}$=-3.5V

$V_{GS}$=-3.0V

DRAIN CURRENT $I_D$ (A)

DRAIN TO SOURCE VOLTAGE $V_{DS}$ (V)

### Transfer Characteristics

$T_a$=25℃
Pulsed

DRAIN CURRENT $I_D$ (A)

GATE TO SOURCE VOLTAGE $V_{GS}$ (V)

### $R_{DS(ON)}$ —— $I_D$

$T_a$=25℃
Pulsed

$V_{GS}$=-4.5V

$V_{GS}$=-10V

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

DRAIN CURRENT $I_D$ (A)

### $R_{DS(ON)}$ —— $V_{GS}$

$T_a$=25℃
Pulsed

$I_D$=-4.1A

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

GATE TO SOURCE VOLTAGE $V_{GS}$ (V)

### $I_S$ —— $V_{SD}$

$T_a$=25℃
Pulsed

SOURCE CURRENT $I_S$ (A)

SOURCE TO DRAIN VOLTAGE $V_{SD}$ (V)