方为半导体
FARGO-SILICON

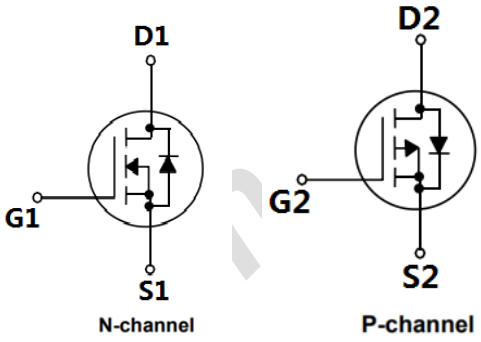
# FG4614

*数据手册 V1.0*

## 40V,互补高密度沟道 MOSFET

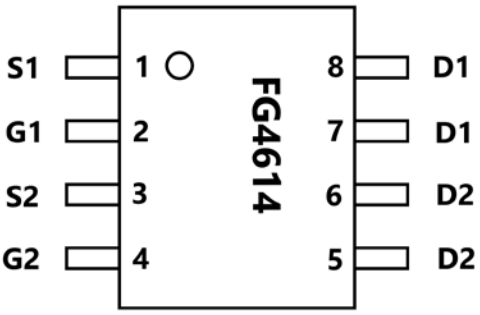
## Features

- **N-MOS**
  $V_{DS}$ = 40V， $I_D$ = 9A
  $R_{DS(on)Typ}$ = 20mΩ @$V_{GS}$ = 10V
  $R_{DS(on)Typ}$ = 23mΩ @$V_{GS}$ = 4.5V
- **P-MOS**
  $V_{DS}$ = -40V， $I_D$ = -15A
  $R_{DS(on)Typ}$ = 30mΩ @$V_{GS}$ = - 10V
  $R_{DS(on)Typ}$ = 41mΩ @$V_{GS}$ = - 4.5V
- **Very Low On-resistance $R_{DS\ (ON)}$**
- **Low Crss**
- **Fast switching**
- **Improved dv/dt capability**

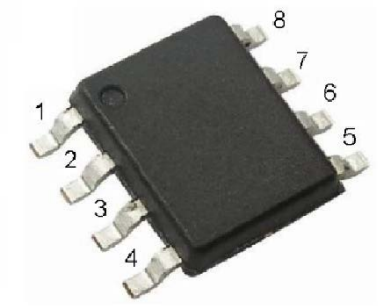



## Application

- **PWM Application**
- **Load Switch**
- **Power Module**




引脚定义




SOP-8 top view



## Mechanical Data

| | NMOS | PMOS |
|---|---|---|
| Nominal Back Metal Composition,Thickness | Ti-Ni-Ag,(1kA°-2kA°-10kA°) | Ti-Ni-Ag,(1kA°-2kA°-10kA°) |
| Nominal Front Metal Composition,Thickness | AlCU(4μm) | ALCU(4um) |
| Wafer Diameter | 200mm, with 010 notch | 300 mm, with 010 notch |
| Wafer Thickness | 150μm | 100 um+-10um |
| Scribe line width | 60μm | 60μm |
| Passivation | USG+SiN | TEOS4K+SIN8K |

## N-MOS Key Electrical Characteristics

| Parameter | Description | Min. | Typ. | Max. | Unit | Test Condtion |
|---|---|---|---|---|---|---|
| $V_{(BR)DSS}$ | Drain-to-Source Breakdown Voltage | 40 | 47 | -- | V | $V_{GS}$ = 0V，$I_D$ = 250μA |
| $I_{D(Device\ Ref)}$ | Continuous Drain Current | -- | -- | 9 | A | $T_C$ = 25℃ |
| $R_{DS(on)}$(CP) | Static Drain-to-Source On-Resistance | -- | 17 | 21 | mΩ | $V_{GS}$ = 10V，$I_D$ = 1.0A |
| | | -- | 20 | 38 | mΩ | $V_{GS}$ = 4.5V，$I_D$ = 1.0A |
| $R_{DS(on)}$(FT) | Static Drain-to-Source On-Resistance | -- | 20 | 26 | mΩ | $V_{GS}$ = 10V，$I_D$ = 4A |
| | | -- | 23 | 36 | mΩ | $V_{GS}$ = 4.5V，$I_D$ = 3A |
| $V_{GS(th)}$ | Gate Threshold Voltage | 1.0V | 1.3 | 1.9 | V | $V_{DS}$ = $V_{GS}$，$I_D$ = 250μA |
| $I_{DSS}$ | Drian-to-Source Leakage Current | -- | -- | 1 | uA | $V_{DS}$ = 40V,$V_{GS}$ = 0V |
| $I_{GSS}$ | Gate-to-Source leakage Current | -- | -- | ±100 | nA | $V_{DS}$ = 0V, $V_{GS}$ =±20V |
| $T_J$ ,$T_{STG}$ | Operating and Storage Temperature | -55℃ to 150℃ Max | | | | |

## P-MOS Key Electrical Characteristics

| Parameter | Description | Min. | Typ. | Max. | Unit | Test Condtion |
|---|---|---|---|---|---|---|
| $V_{(BR)DSS}$ | Drain-to-Source Breakdown Voltage | -40 | -45 | -- | V | $V_{GS}$ = 0V，$I_D$ =- 250μA |
| $I_{D(Device\ Ref)}$ | Continuous Drain Current | -- | -- | -15 | A | $T_C$ = 25℃ |
| $R_{DS(on)}$(CP) | Static Drain-to-Source On-Resistance | -- | 28.5 | 34.5 | mΩ | $V_{GS}$ = -10V，$I_D$ = -1.0A |
| | | -- | 39.5 | 51.5 | mΩ | $V_{GS}$ = -4.5V，$I_D$ = -1.0A |
| $R_{DS(on)}$(FT) | Static Drain-to-Source On-Resistance | -- | 30 | 40 | mΩ | $V_{GS}$ = -10V，$I_D$ = -15A |
| | | -- | 41 | 53 | mΩ | $V_{GS}$ = -4.5V，$I_D$ = -10A |
| $V_{GS(th)}$ | Gate Threshold Voltage | -1.0 | -1.7 | -2.5 | V | $V_{DS}$ = $V_{GS}$，$I_D$ = 250μA |
| $I_{DSS}$ | Drian-to-Source Leakage Current | -- | -- | -1.0 | uA | $V_{DS}$ = -40V,$V_{GS}$ = 0V |
| $I_{GSS}$ | Gate-to-Source leakage Current | -- | -- | ±100 | nA | $V_{GS}$ = ±20V，$V_{DS}$ = 0V |

# N-Channel Typical Characteristics

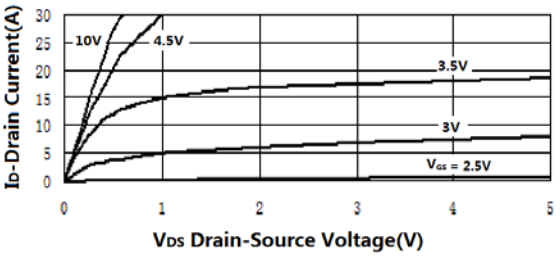



Fig.1 Typical Output Characteristics

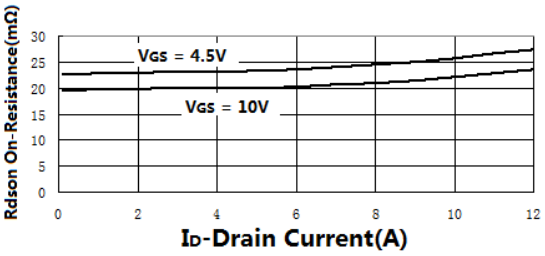



Fig.2 Drain-Source On-Resistance

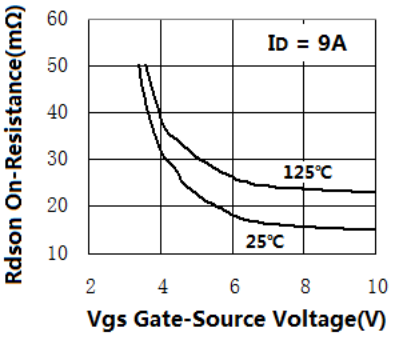



Fig.3Rdson vs Vgs

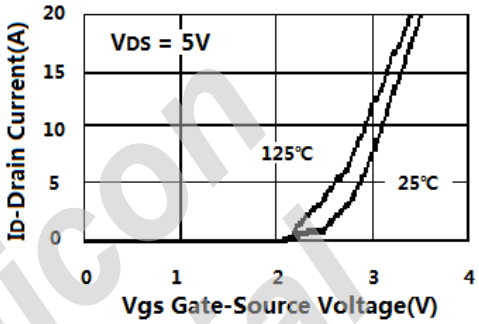



Fig.4 Transfer Characteristics

# P-Channel Typical Characteristics

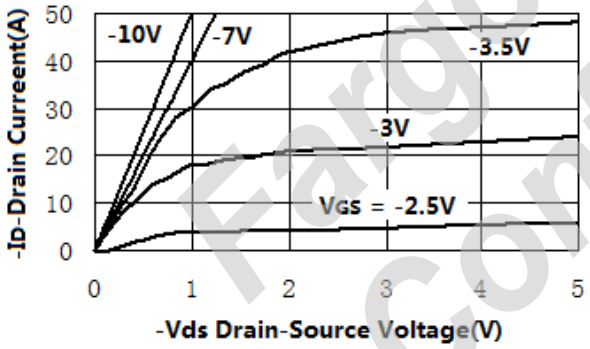



Fig.1 Typical Output Characteristics

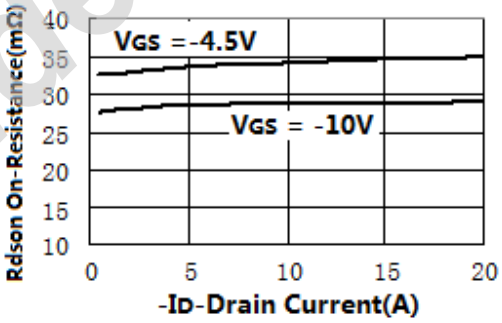



Fig.2 Rdson-Drain Current

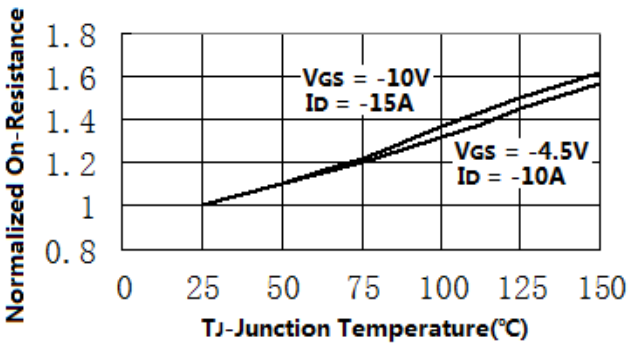



Fig.3 Rdson-Junction Temperature

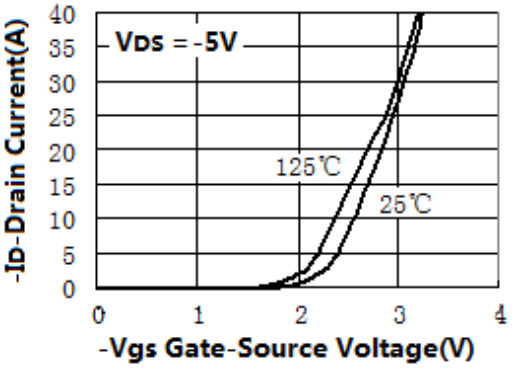
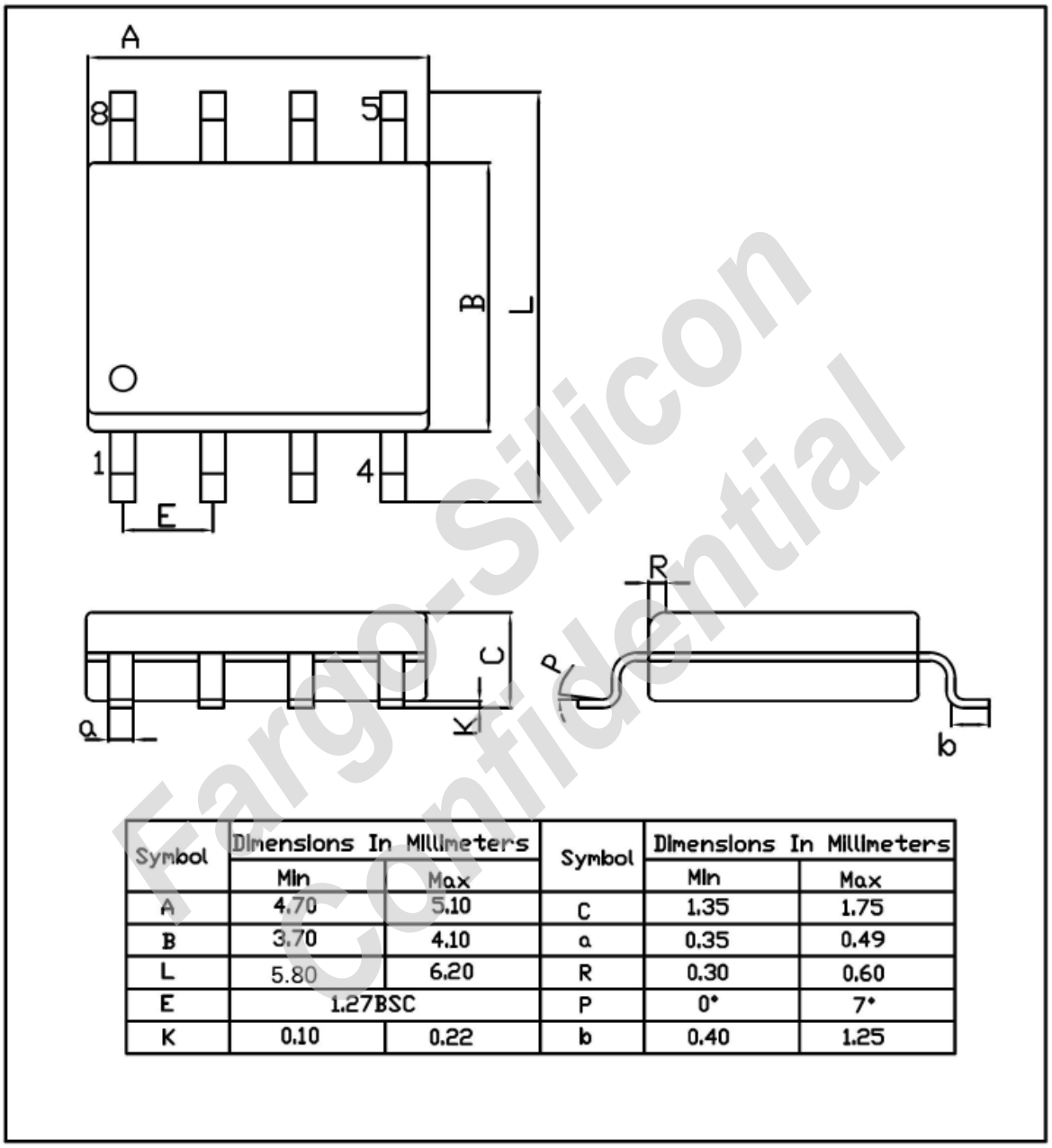



Fig.4 Transfer Characteristics

## SOP-8 封装信息

SOP-8 外形尺寸图




| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|---|---|---|---|---|---|
| | Min | Max | | Min | Max |
| A | 4.70 | 5.10 | C | 1.35 | 1.75 |
| B | 3.70 | 4.10 | a | 0.35 | 0.49 |
| L | 5.80 | 6.20 | R | 0.30 | 0.60 |
| E | 1.27BSC | | P | 0° | 7° |
| K | 0.10 | 0.22 | b | 0.40 | 1.25 |



## 联系方式

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