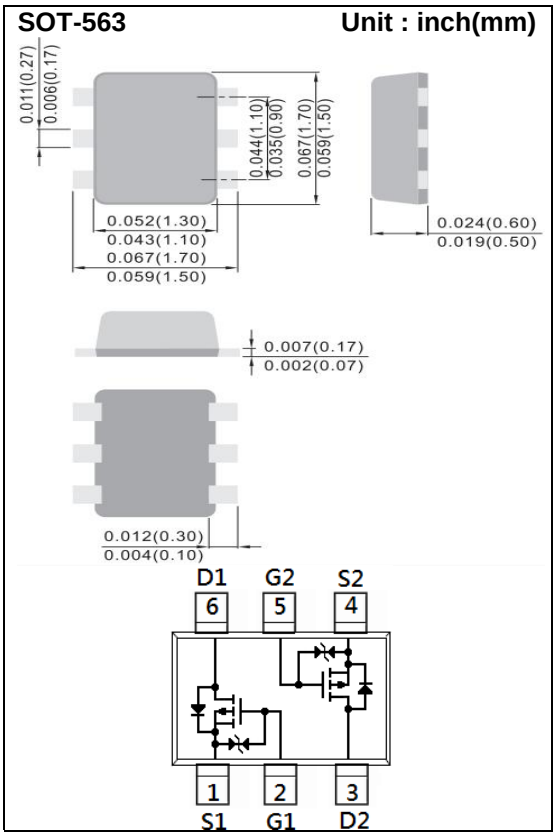
# PJX8807

## 20V P-Channel Enhancement Mode MOSFET

| Voltage | -20 V | Current | -500mA |
|---|---|---|---|




### Features

- Low Voltage Drive (1.2V).
- Advanced Trench Process Technology
- Specially Designed for Load switch, PWM Application, etc.
- ESD Protected
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive)
- Green molding compound as per IEC61249 Std.. (Halogen Free)

### Mechanical Data

- Case: SOT-563 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00009 ounces, 0.0026 grams
- Marking: X07

### Maximum Ratings and Thermal Characteristics ($T_A$=25°C unless otherwise noted)

| PARAMETER | | SYMBOL | LIMIT | UNITS |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | -20 | V |
| Gate-Source Voltage | | $V_{GS}$ | ±10 | V |
| Continuous Drain Current | | $I_D$ | -500 | mA |
| Pulsed Drain Current | | $I_{DM}$ | -1000 | mA |
| Power Dissipation | $T_a$=25°C | $P_D$ | 300 | mW |
| | Derate above 25°C | | 2.4 | mW/°C |
| Operating Junction and Storage Temperature Range | | $T_J$,$T_{STG}$ | -55~150 | °C |
| Typical Thermal Resistance<br>- Junction to Ambient (Note 3) | | $R_{\theta JA}$ | 417 | °C/W |

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

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V, $I_D$=-250uA | -20 | - | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=-250uA | -0.3 | -0.59 | -1.0 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}$=-4.5V, $I_D$=-500mA | - | 0.9 | 1.2 | Ω |
| | | $V_{GS}$=-2.5V, $I_D$=-200mA | - | 1.07 | 1.5 | |
| | | $V_{GS}$=-1.8V, $I_D$=-100mA | - | 1.25 | 2.2 | |
| | | $V_{GS}$=-1.5V, $I_D$=-40mA | - | 1.42 | 3.6 | |
| | | $V_{GS}$=-1.2V, $I_D$=-10mA | - | 1.7 | 6.0 | |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-16V, $V_{GS}$=0V | - | - | -1 | uA |
| Gate-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±8V, $V_{DS}$=0V | - | ±2 | ±10 | uA |
| **Dynamic** (Note 5) | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-10V, $I_D$=-500mA, $V_{GS}$=-4.5V (Note 1,2) | - | 1.4 | - | nC |
| Gate-Source Charge | $Q_{gs}$ | | - | 0.19 | - | |
| Gate-Drain Charge | $Q_{gd}$ | | - | 0.2 | - | |
| Input Capacitance | Ciss | $V_{DS}$=-10V, $V_{GS}$=0V, f=1.0MHZ | - | 38 | - | pF |
| Output Capacitance | Coss | | - | 15 | - | |
| Reverse Transfer Capacitance | Crss | | - | 9 | - | |
| Turn-On Delay Time | $td_{(on)}$ | $V_{DD}$=-10V, $I_D$=-500mA, $V_{GS}$=-4.5V, $R_G$=6Ω (Note 1,2) | - | 7.2 | - | ns |
| Turn-On Rise Time | tr | | - | 21 | - | |
| Turn-Off Delay Time | $td_{(off)}$ | | - | 85 | - | |
| Turn-Off Fall Time | tf | | - | 116 | - | |
| **Drain-Source Diode** | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | $I_S$ | --- | - | - | -500 | mA |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=-500mA, $V_{GS}$=0V | - | -0.93 | -1.3 | V |

NOTES :

1. Pulse width≤300us, Duty cycle≤2%
2. Essentially independent of operating temperature typical characteristics.
3. $R_{\Theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper
4. The maximum current rating is package limited
5. Guaranteed by design, not subject to production testing.

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## TYPICAL CHARACTERISTIC CURVES

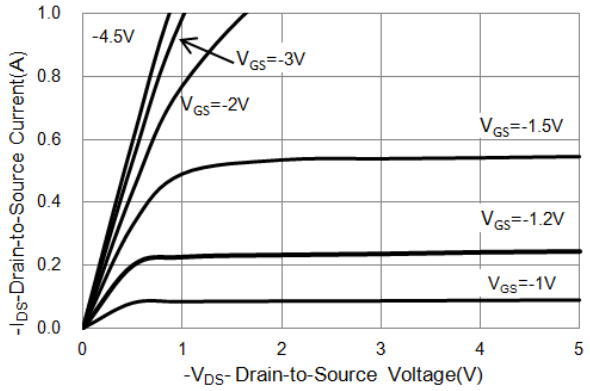


Fig.1 On-Region Characteristics

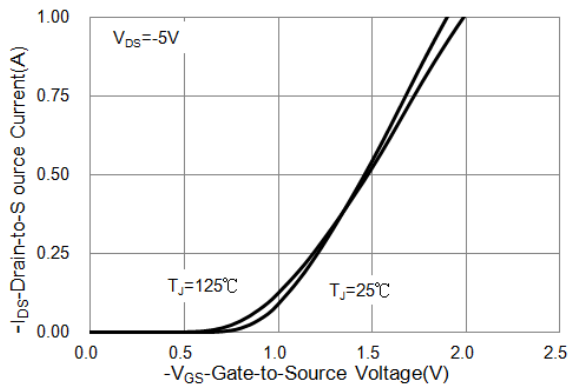


Fig.2 Transfer Characteristics

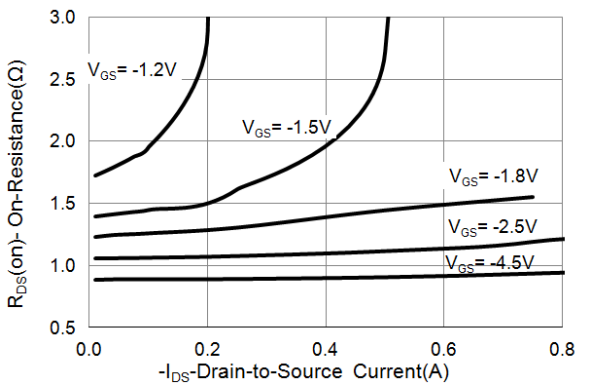


Fig.3 On-Resistance vs. Drain Current

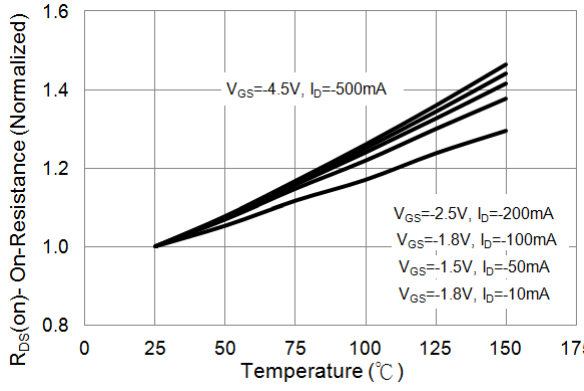


Fig.4 On-Resistance vs. Junction temperature

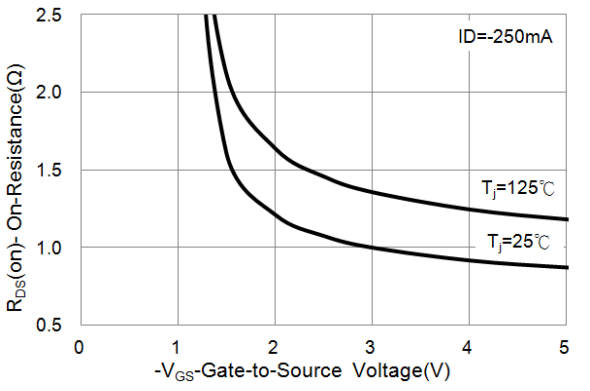


Fig.5 On-Resistance Variation with VGS.

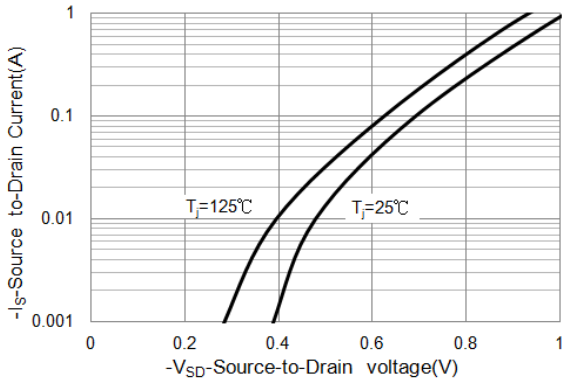


Fig.6 Body Diode Characteristics

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## TYPICAL CHARACTERISTIC CURVES

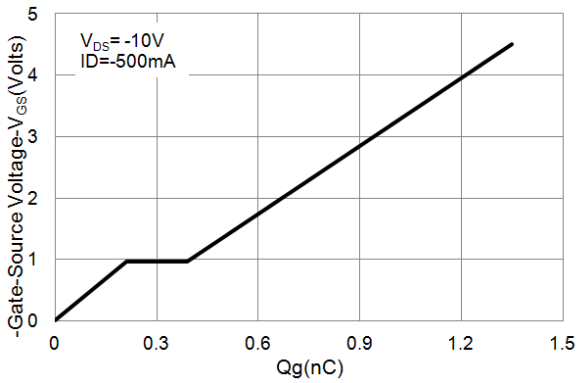


Fig.7 Gate-Charge Characteristics

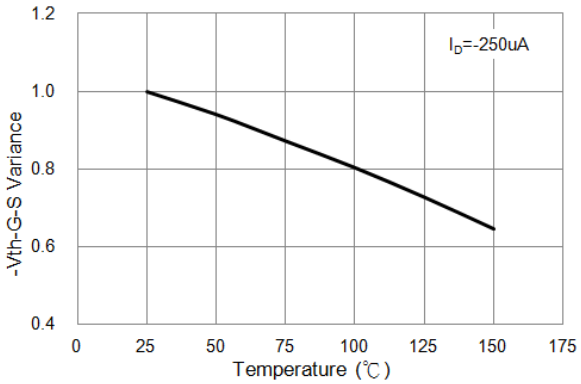


Fig.8 Threshold Voltage Variation with Temperature

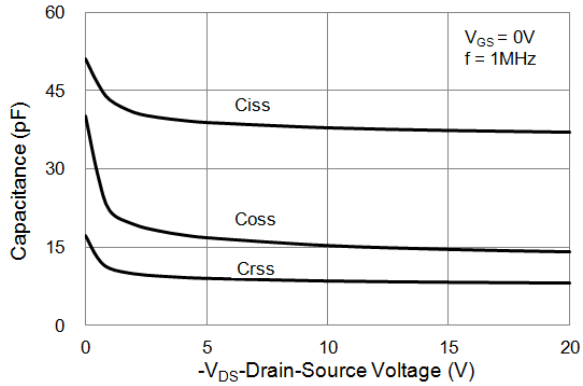


Fig.9 Capacitance vs. Drain-Source Voltage.

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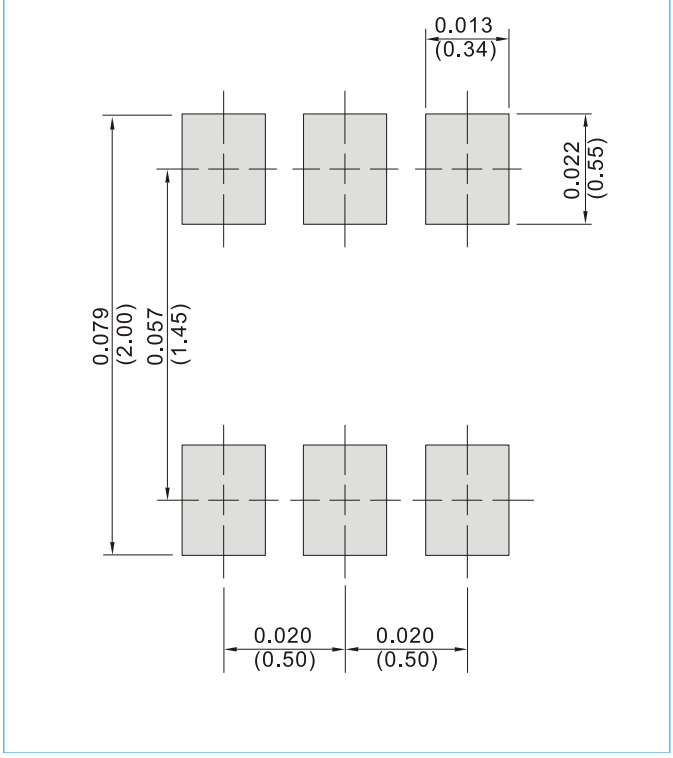
## PART NO PACKING CODE VERSION

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|---|---|---|---|---|
| PJX8807_R1_00001 | SOT-563 | 4K pcs / 7” reel | X07 | Halogen free |
| PJX8807_R2_00001 | SOT-563 | 10K pcs / 13” reel | X07 | Halogen free |
| PJX8807_R1_00002 | SOT-563 | 8K pcs / 7” reel | X07 | Halogen free |
| PJX8807_R2_00002 | SOT-563 | 20K pcs / 13” reel | X07 | Halogen free |

## MOUNTING PAD LAYOUT

SOT-563 Unit : inch(mm)



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