



PJX8806

20V N-Channel Enhancement Mode MOSFET – ESD Protected

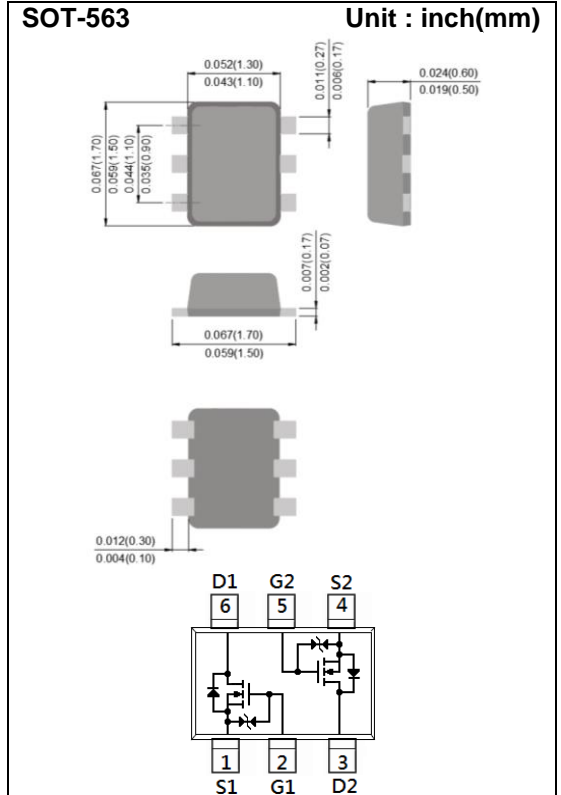
Voltage 20 V **Current** 800mA

Features

- $R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@500mA=0.4\Omega$
- $R_{DS(ON)}, V_{GS}@2.5V, I_{DS}@300mA=0.7\Omega$
- $R_{DS(ON)}, V_{GS}@1.8V, I_{DS}@100mA=1.2\Omega(\text{typ})$
- Advanced Trench Process Technology
- Specially Designed for Load Switch or PWM application.
- ESD Protected
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-563 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0026 grams
- Marking : X06



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | LIMIT | UNITS |
|--|-----------------|---------------------------------|--------------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current | I_D | 800 | mA |
| Pulsed Drain Current | I_{DM} | 3000 | mA |
| Power Dissipation | PD | $T_A=25^\circ\text{C}$ | 350 |
| | | Derate above 25°C | 2.8 |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |
| Typical Thermal Resistance | $R_{\theta JA}$ | 357 | $^\circ\text{C/W}$ |
| - Junction to Ambient ^(Note 3) | | | |



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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 | 0.4 | 0.63 | 1.0 | V |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =4.5V, I _D =500mA | - | 0.35 | 0.4 | Ω |
| | | V _{GS} =2.5V, I _D =300mA | - | 0.6 | 0.7 | |
| | | V _{GS} =1.8V, I _D =100mA | - | 1.2 | - | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =16V, V _{GS} =0V | - | 0.02 | 1 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±10V, V _{DS} =0V | - | ±2 | ±10 | uA |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =10V, I _D =500mA, V _{GS} =4.5V ^(Note 1,2) | - | 0.92 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 0.31 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 0.08 | - | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f=1.0MHZ | - | 50 | - | pF |
| Output Capacitance | C _{oss} | | - | 10 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 8.5 | - | |
| Switching | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} =10V, I _D =500mA, V _{GS} =4.5V, R _G =6Ω ^(Note 1,2) | - | 4 | - | ns |
| Turn-On Rise Time | t _r | | - | 20 | - | |
| Turn-Off Delay Time | t _{d(off)} | | - | 12 | - | |
| Turn-Off Fall Time | t _f | | - | 25 | - | |
| 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 | - | 0.91 | 1.3 | V |

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%
2. Essentially independent of operating temperature typical characteristics.
3. R_{θJA} 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 square pad of copper



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TYPICAL CHARACTERISTIC CURVES

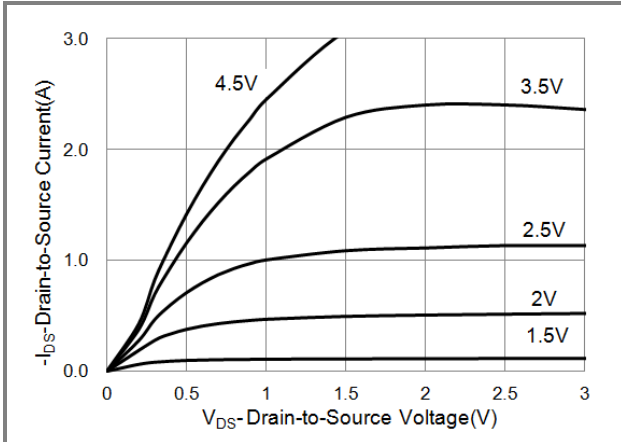


Fig.1 On-Region Characteristics

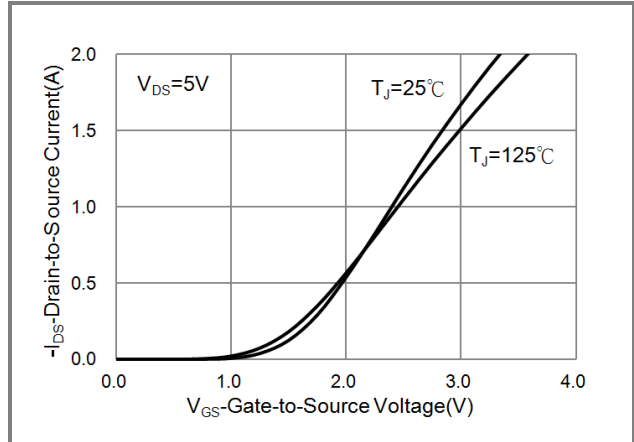


Fig.2 Transfer Characteristics

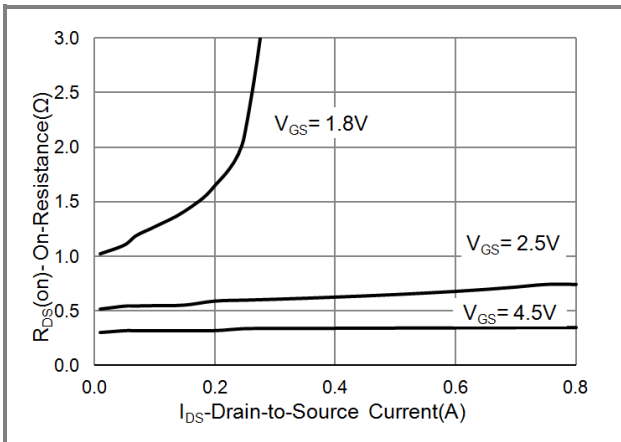


Fig.3 On-Resistance vs. Drain Current

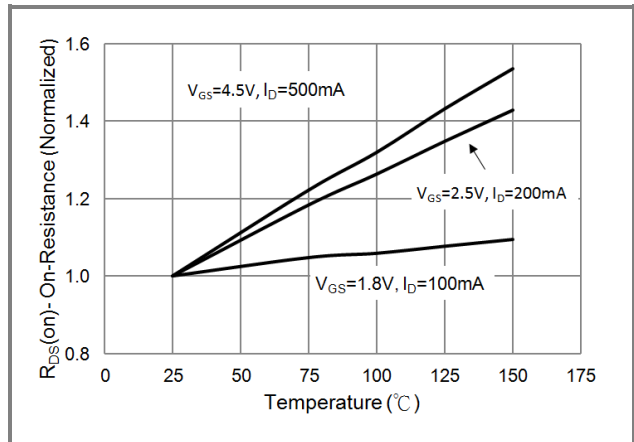


Fig.4 On-Resistance vs. Junction temperature

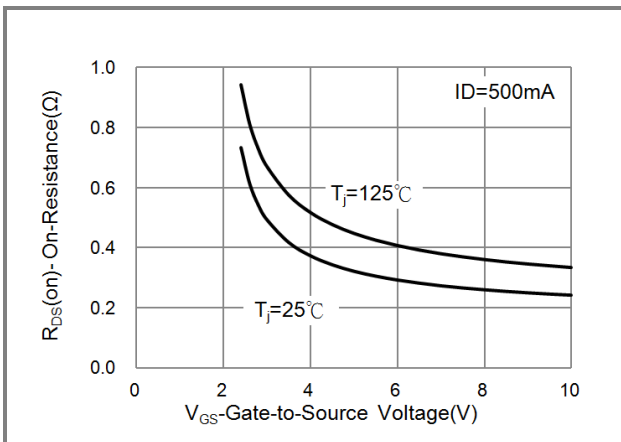


Fig.5 On-Resistance Variation with VGS.

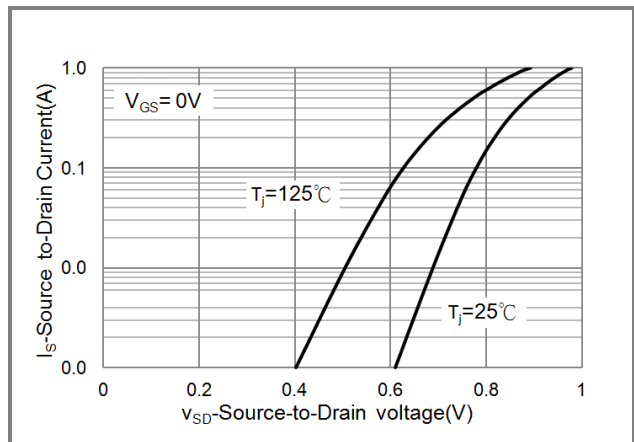


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

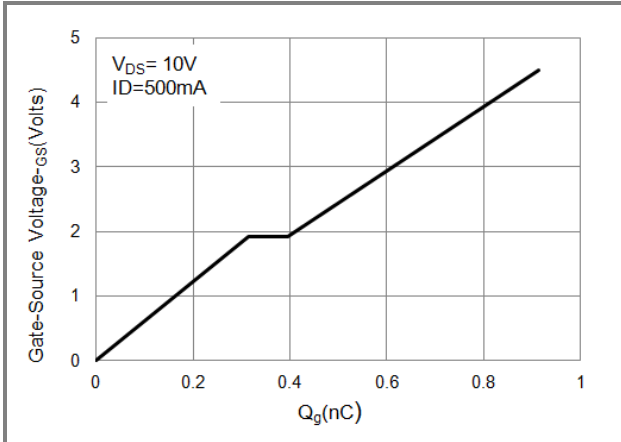


Fig.7 Gate-Charge Characteristics

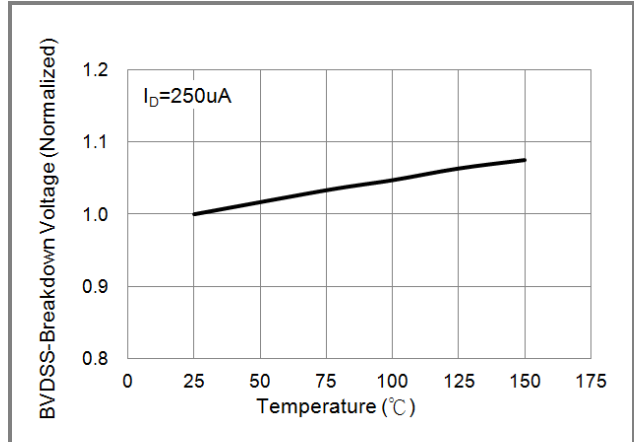


Fig.8 Breakdown Voltage Variation vs. Temperature

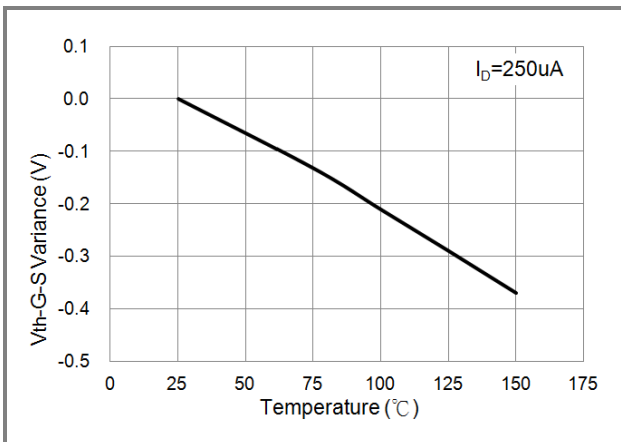


Fig.9 Threshold Voltage Variation with Temperature

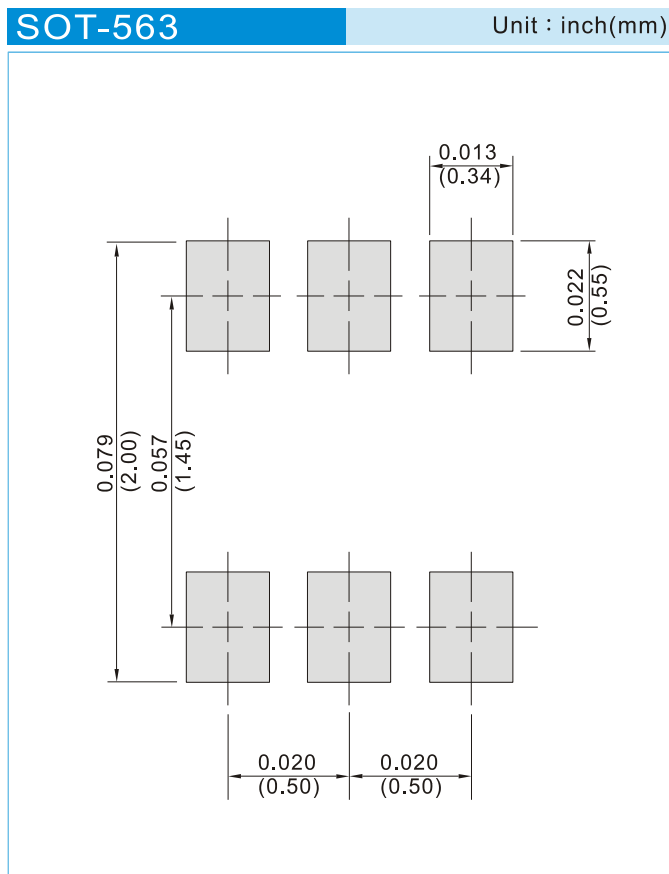


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Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|--------------------|---------|--------------------------------|
| PJX8806_R1_00001 | SOT-563 | 4K pcs / 7" reel | X06 | Halogen free RoHS compliant |
| PJX8806_R2_00001 | SOT-563 | 10K pcs / 13" reel | X06 | Halogen free RoHS compliant |

Mounting Pad Layout





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