



PJX8802

20V N-Channel Enhancement Mode MOSFET – ESD Protected

Voltage

20 V

Current

0.7A

Features

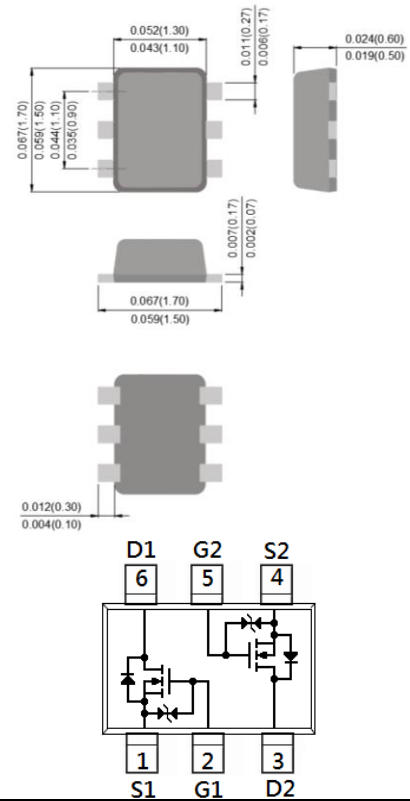
- RDS(ON) , VGS@4.5V, ID@0.7A<150mΩ
- RDS(ON) , VGS@2.5V, ID@0.5A<220mΩ
- RDS(ON) , VGS@1.8V, ID@0.2A<400mΩ
- Advanced Trench Process Technology
- Specially Designed for Load Switch or PWM application.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-563 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0026 grams
- Marking : X02

SOT-563

Unit : inch(mm)



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} | ±8 | V |
| Continuous Drain Current | I _D | 0.7 | A |
| Pulsed Drain Current | I _{DM} | 2.8 | A |
| Power Dissipation | PD | T _a =25°C | 300 |
| | | Derate above 25°C | 2.4 |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~150 | °C |
| Typical Thermal Resistance | R _{θJA} | 417 | °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 | 0.5 | 0.78 | 1.0 | V |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =4.5V, I _D =0.7A | - | 129 | 150 | mΩ |
| | | V _{GS} =2.5V, I _D =0.5A | - | 167 | 220 | |
| | | V _{GS} =1.8V, I _D =0.2A | - | 260 | 400 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =20V, V _{GS} =0V | - | 0.01 | 1 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±8V, V _{DS} =0V | - | ±2 | ±10 | uA |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =10V, I _D =0.7A, V _{GS} =4.5V(Notes 1,2) | - | 1.6 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 0.3 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 0.4 | - | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f=1.0MHZ | - | 92 | - | pF |
| Output Capacitance | C _{oss} | | - | 25 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 9 | - | |
| Switching | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} =10V, I _D =0.7A, V _{GS} =4.5V, R _G =6Ω(Notes 1,2) | - | 6 | - | ns |
| Turn-On Rise Time | t _r | | - | 26 | - | |
| Turn-Off Delay Time | t _{d(off)} | | - | 41 | - | |
| Turn-Off Fall Time | t _f | | - | 31 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | --- | - | - | 0.4 | A |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | - | 0.89 | 1.2 | 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 FR-4 with 2oz. square pad of copper
4. The maximum current rating is package limited



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TYPICAL CHARACTERISTIC CURVES

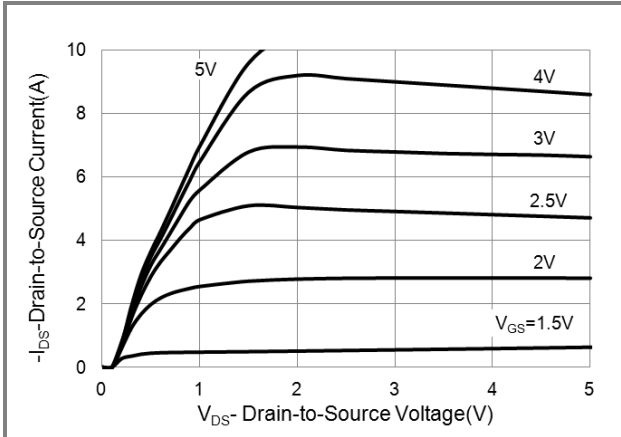


Fig.1 On-Region Characteristics

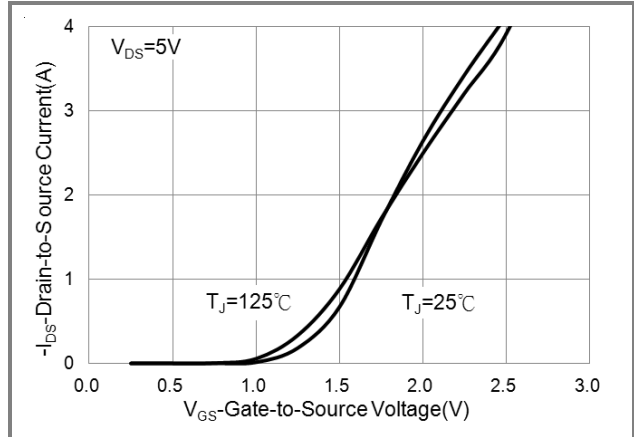


Fig.2 Transfer Characteristics

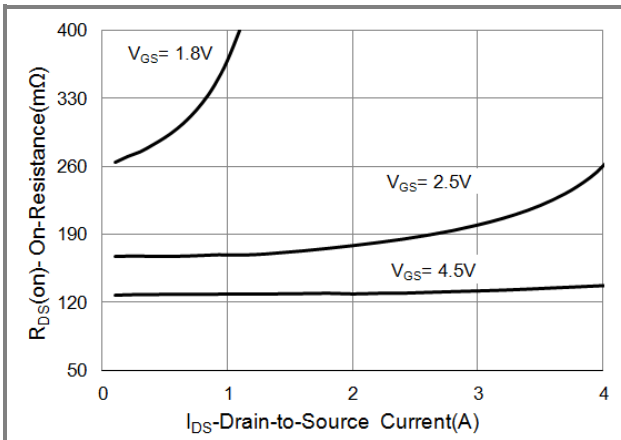


Fig.3 On-Resistance vs. Drain Current

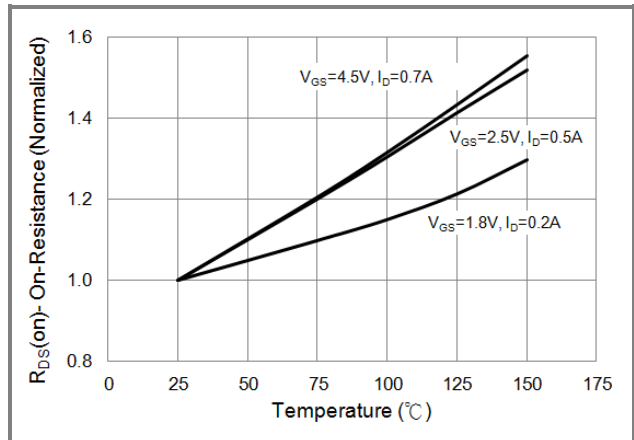


Fig.4 On-Resistance vs. Junction temperature

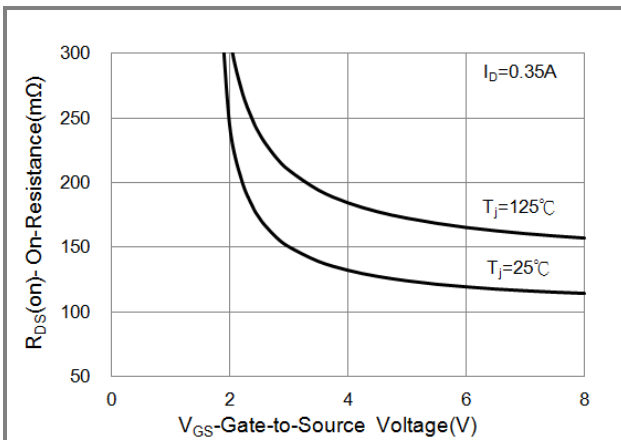


Fig.5 On-Resistance Variation with VGS.

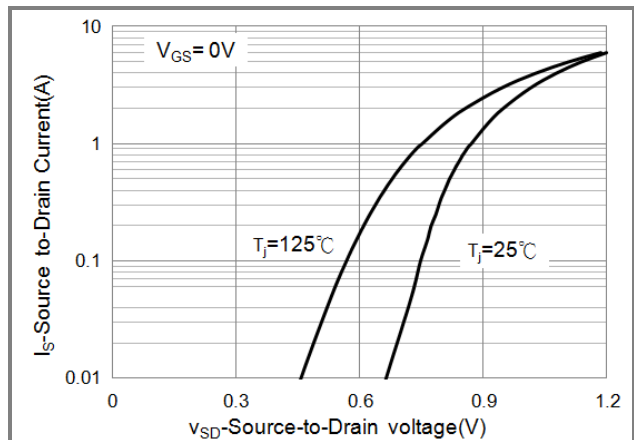


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

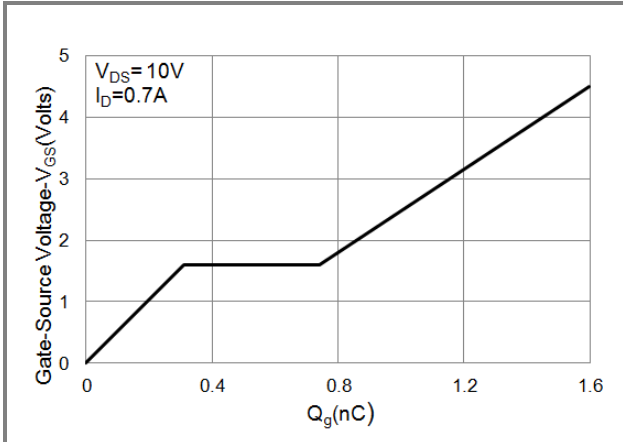


Fig.7 Gate-Charge Characteristics

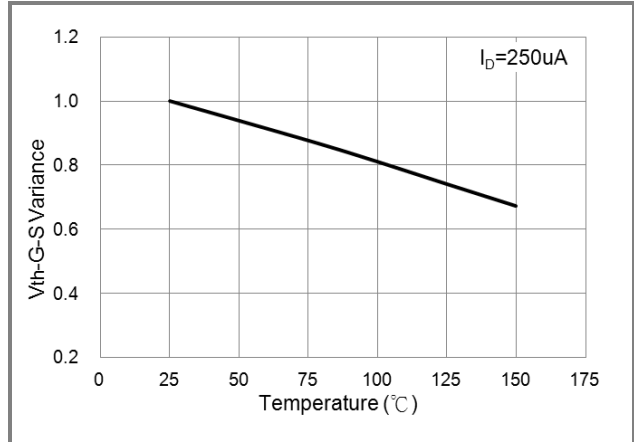


Fig.8 Threshold Voltage Variation with Temperature

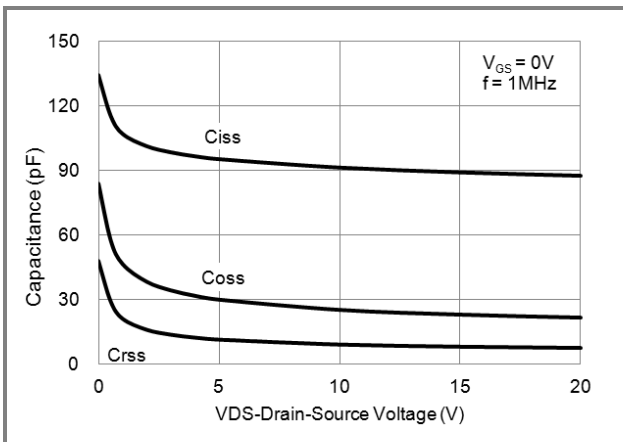


Fig.9 Capacitance vs. Drain-Source Voltage

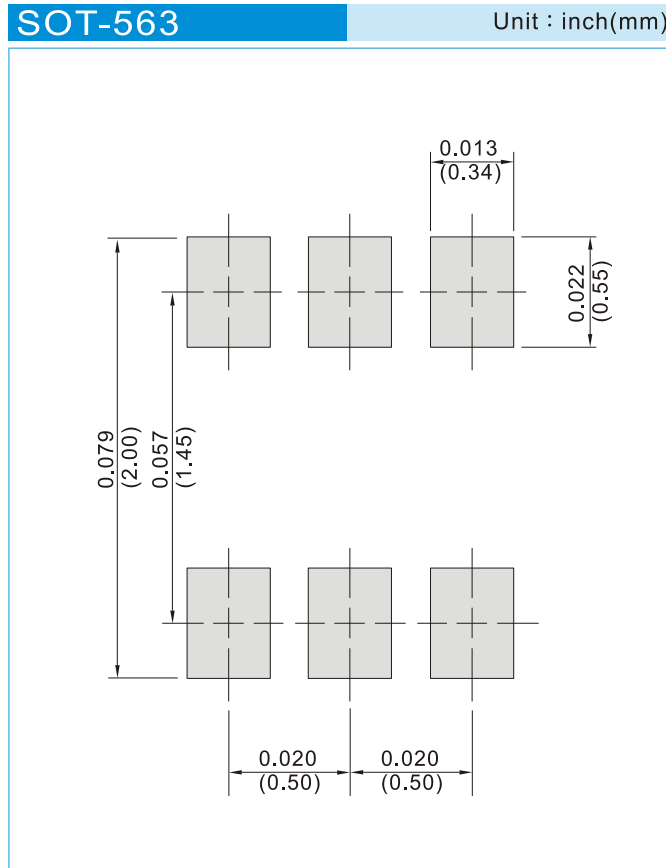


PJX8802

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|--------------------|---------|--------------------------------|
| PJX8802_R1_00002 | SOT-563 | 4K pcs / 7" reel | X02 | Halogen free RoHS compliant |
| PJX8802_R2_00002 | SOT-563 | 10K pcs / 13" reel | X02 | Halogen free RoHS compliant |

Mounting Pad Layout





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