



PJS6400

30V N-Channel Enhancement Mode MOSFET

Voltage

30 V

Current

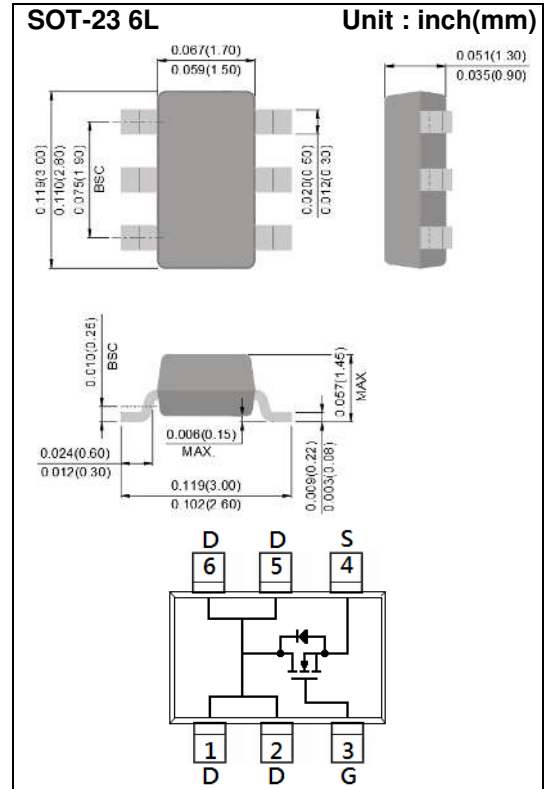
6.4A

Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@6.4A < 37m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_D@4.5A < 43m\Omega$
- $R_{DS(ON)}$, $V_{GS}@2.5V$, $I_D@2.9A < 59m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: SOT-23 6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.014 grams
- Marking: S00



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

| PARAMETER | SYMBOL | LIMIT | UNITS | |
|--|-----------------|---------------------------------|--------------------|----------------------|
| Drain-Source Voltage | V_{DS} | 30 | V | |
| Gate-Source Voltage | V_{GS} | ± 12 | V | |
| Continuous Drain Current | I_D | 6.4 | A | |
| Pulsed Drain Current | I_{DM} | 25.6 | A | |
| Power Dissipation | P_D | $T_a=25^\circ\text{C}$ | 2 | W |
| | | Derate above 25°C | 16 | mW/ $^\circ\text{C}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ | |
| Typical Thermal Resistance | $R_{\theta JA}$ | 62.5 | $^\circ\text{C/W}$ | |
| - 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 | 30 | - | - | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 0.5 | 0.85 | 1.3 | V |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =10V, I _D =6.4A | - | 29 | 37 | mΩ |
| | | V _{GS} =4.5V, I _D =4.5A | - | 32 | 43 | |
| | | V _{GS} =2.5V, I _D =2.9A | - | 42 | 59 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =30V, V _{GS} =0V | - | 0.01 | 1 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±12V, V _{DS} =0V | - | ±10 | ±100 | nA |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =15V, I _D =6.4A, V _{GS} =10V(Notes 1,2) | - | 6 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 1.3 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 1.7 | - | |
| Input Capacitance | C _{iss} | V _{DS} =15V, V _{GS} =0V, f=1.0MHZ | - | 490 | - | pF |
| Output Capacitance | C _{oss} | | - | 44 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 32 | - | |
| Switching | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} =15V, I _D =6.4A, V _{GS} =10V, R _G =6Ω(Notes 1,2) | - | 3.2 | - | ns |
| Turn-On Rise Time | t _r | | - | 63 | - | |
| Turn-Off Delay Time | t _{d(off)} | | - | 79 | - | |
| Turn-Off Fall Time | t _f | | - | 81 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | --- | - | - | 2.0 | A |
| Diode Forward Voltage | V _{SD} | I _S =1.0A, V _{GS} =0V | - | 0.74 | 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

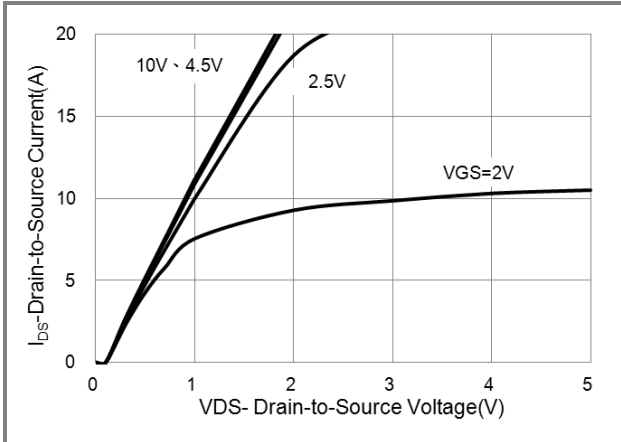


Fig.1 On-Region Characteristics

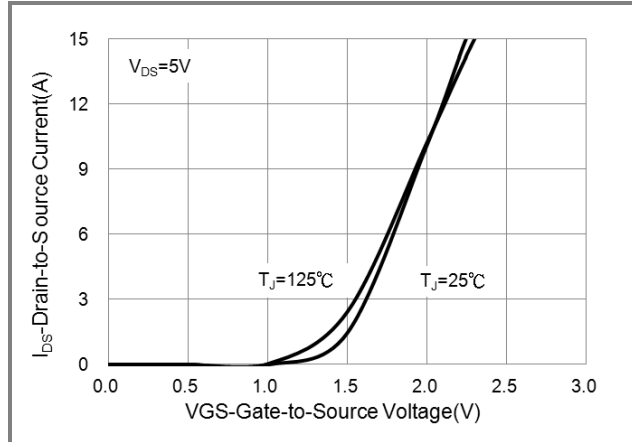


Fig.2 Transfer Characteristics

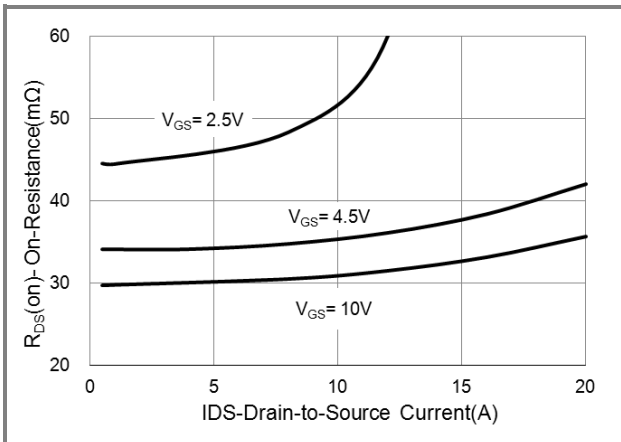


Fig.3 On-Resistance vs. Drain Current

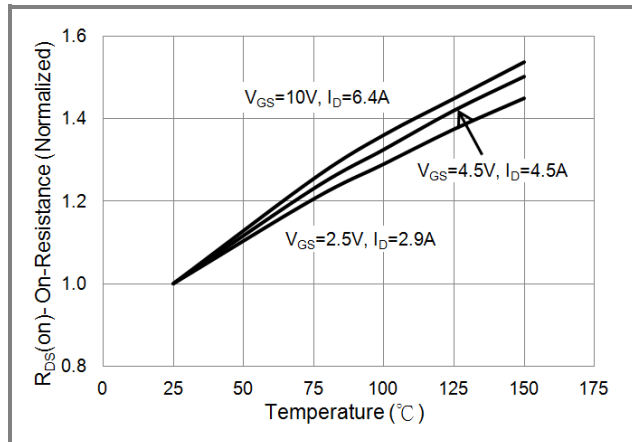


Fig.4 On-Resistance vs. Junction temperature

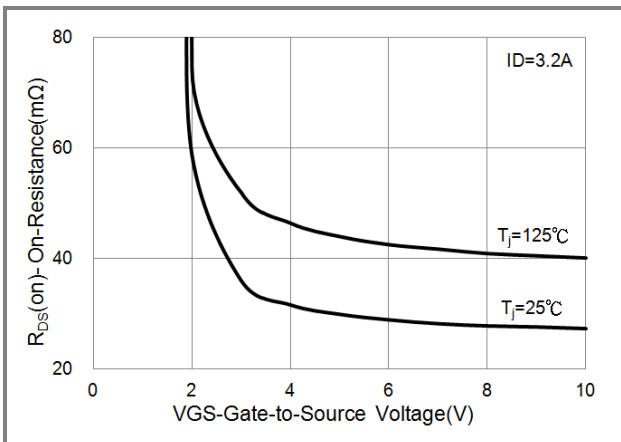


Fig.5 On-Resistance Variation with VGS.

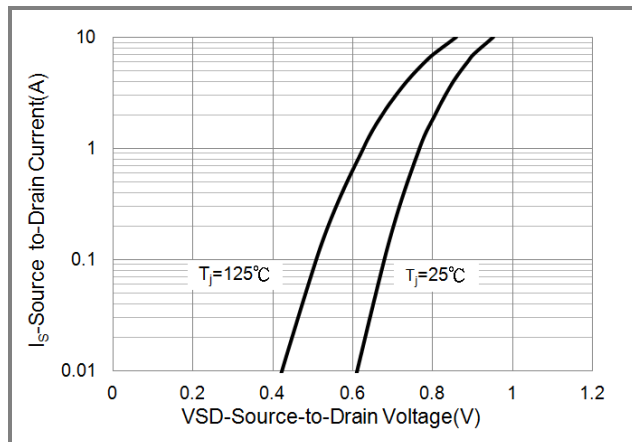


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

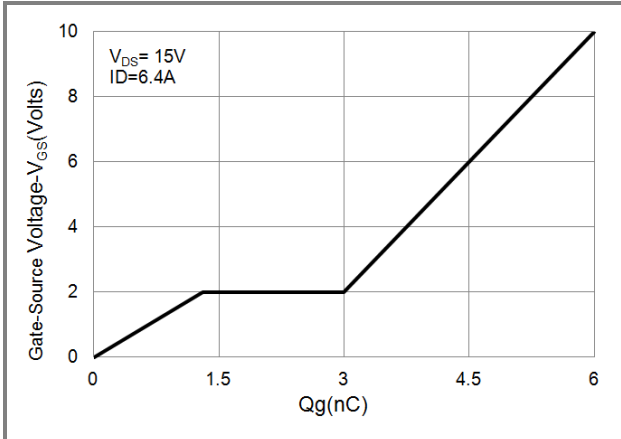


Fig.7 Gate-Charge Characteristics

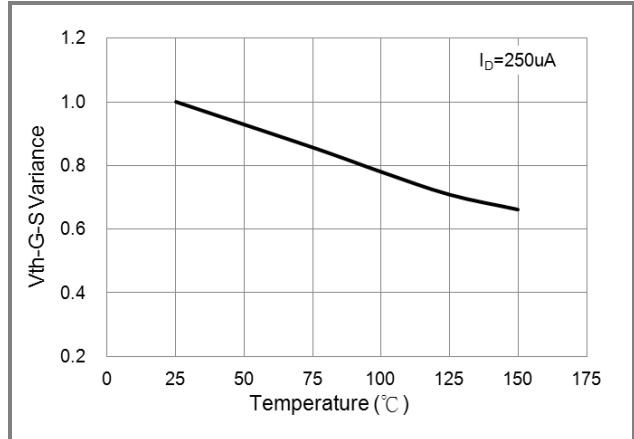


Fig.8 Threshold Voltage Variation with Temperature.

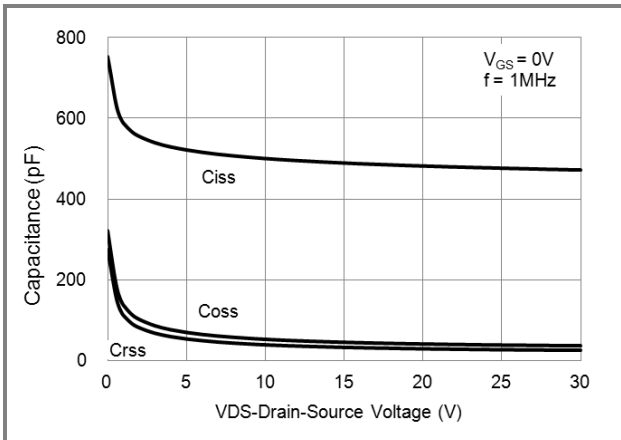


Fig.9 Capacitance vs. Drain-Source Voltage.

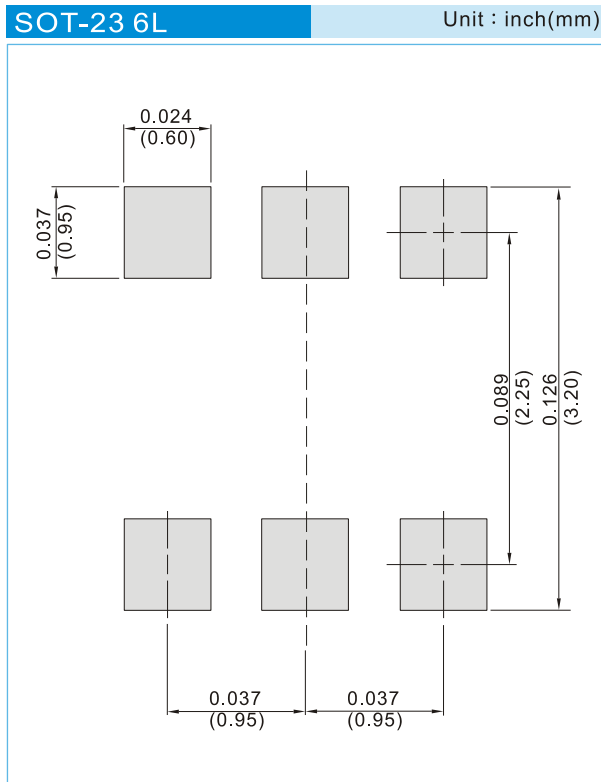


PJS6400

PART NO. PACKING CODE VERSION

| Part No. Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|--------------------|---------|--------------------------------|
| PJS6400_S1_00001 | SOT-23 6L | 3K pcs / 7" reel | S00 | Halogen free RoHS compliant |
| PJS6400_S2_00001 | SOT-23 6L | 10K pcs / 13" reel | S00 | Halogen free RoHS compliant |

MOUNTING PAD LAYOUT





PJS6400

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