



PJC7401

30V P-Channel Enhancement Mode MOSFET

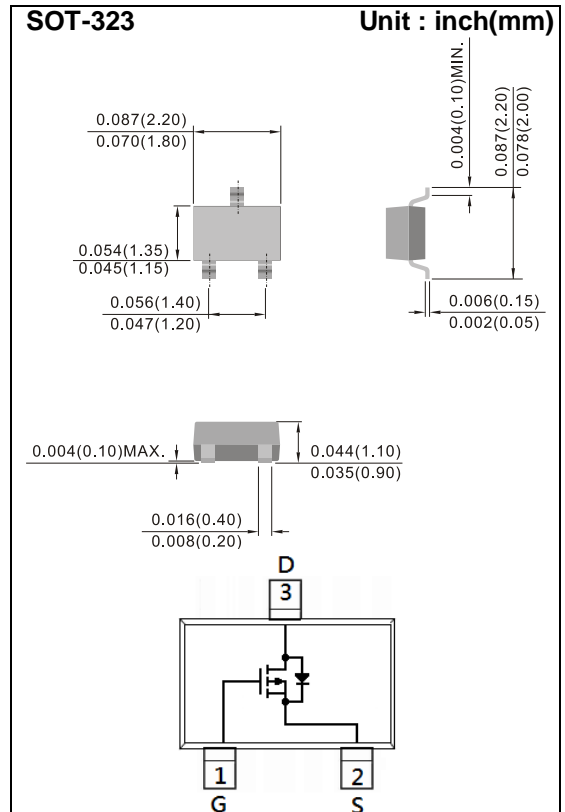
Voltage **-30 V** **Current** **-1.5A**

Features

- RDS(ON) , VGS@-10V, ID@-1.5A<115mΩ
- RDS(ON) , VGS@-4.5V, ID@-1.1A<130mΩ
- RDS(ON) , VGS@-2.5V, ID@-0.6A<180mΩ
- 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-323 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00018 ounces, 0.005 grams
- Marking: C01



Maximum Ratings and Thermal Characteristics (T_A=25°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 | -1.5 | A |
| Pulsed Drain Current | I _{DM} | -6 | A |
| Power Dissipation | P _D | T _a =25°C | 350 |
| | | Derate above 25°C | 2.8 |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~150 | °C |
| Typical Thermal resistance | R _{θJA} | 357 | °C/W |
| - Junction to Ambient (Note 3) | | | |



PJC7401

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---|--------------|---|------|----------|-----------|------------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=-250\mu A$ | -30 | - | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.5 | -0.96 | -1.3 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-1.5A$ | - | 105 | 115 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-1.1A$ | - | 115 | 130 | |
| | | $V_{GS}=-2.5V, I_D=-0.6A$ | - | 145 | 180 | |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-30V, V_{GS}=0V$ | - | -0.01 | -1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 12V, V_{DS}=0V$ | - | ± 10 | ± 100 | nA |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=-15V, I_D=-1.5A,$ $V_{GS}=-10V$ (Note 1,2) | - | 11 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 0.85 | - | |
| Gate-Drain Charge | Q_{gd} | | - | 1.4 | - | |
| Input Capacitance | C_{iss} | $V_{DS}=-15V, V_{GS}=0V,$ $f=1.0MHz$ | - | 443 | - | pF |
| Output Capacitance | C_{oss} | | - | 38 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 25 | - | |
| Switching | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=-15V, I_D=-1.5A,$ $V_{GS}=-10V,$ $R_G=6\Omega$ (Note 1,2) | - | 2.5 | - | ns |
| Turn-On Rise Time | t_r | | - | 32 | - | |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 161 | - | |
| Turn-Off Fall Time | t_f | | - | 73 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I_S | --- | - | - | -0.5 | A |
| Diode Forward Voltage | V_{SD} | $I_S=-1A, V_{GS}=0V$ | - | -0.79 | -1.2 | V |

NOTES:

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
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



PJC7401

TYPICAL CHARACTERISTIC CURVES

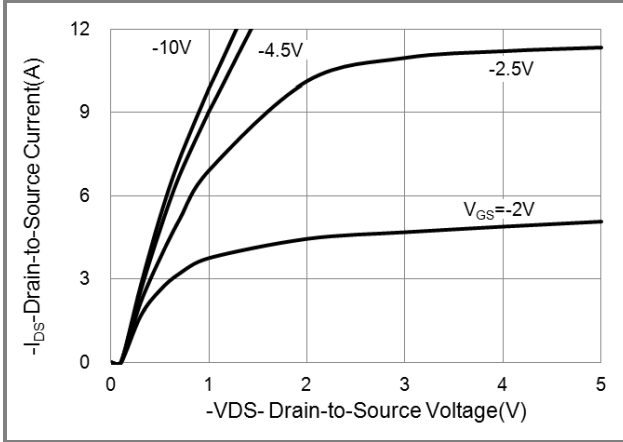


Fig.1 On-Region Characteristics

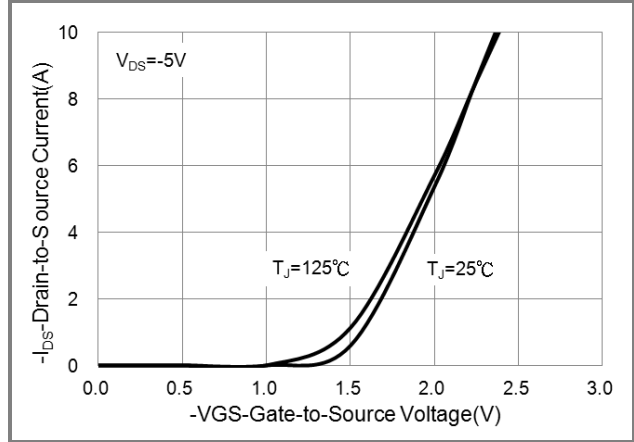


Fig.2 Transfer Characteristics

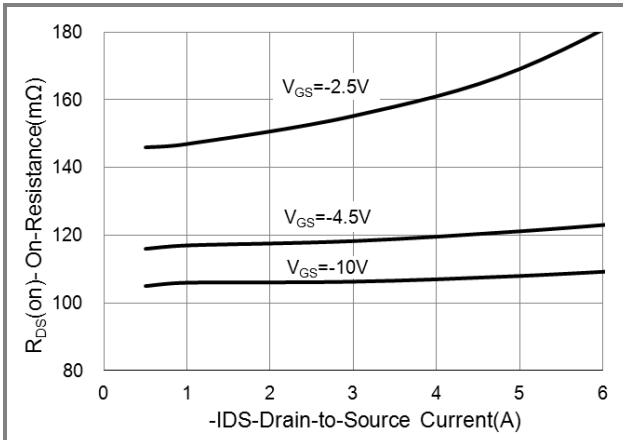


Fig.3 On-Resistance vs. Drain Current

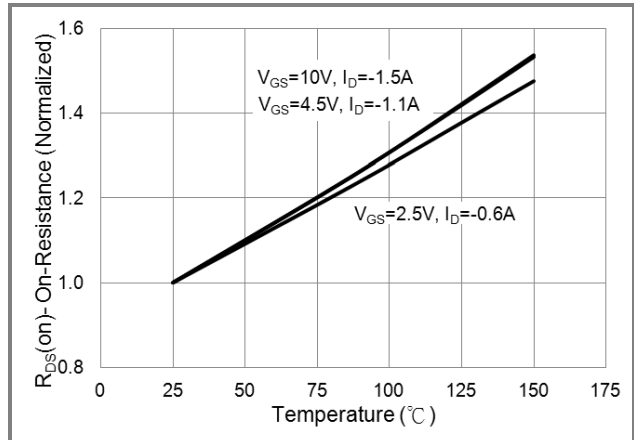


Fig.4 On-Resistance vs. Junction temperature

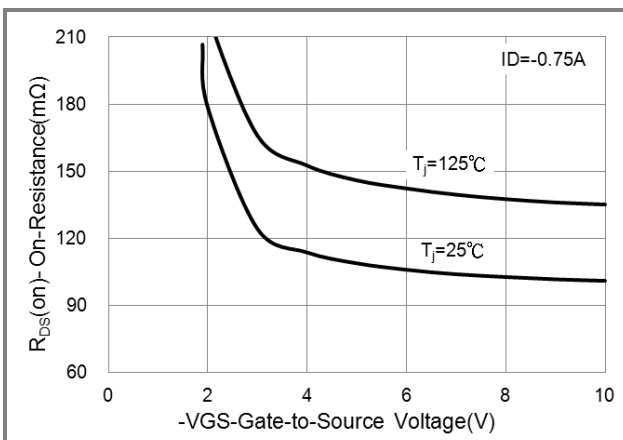


Fig.5 On-Resistance Variation with VGS.

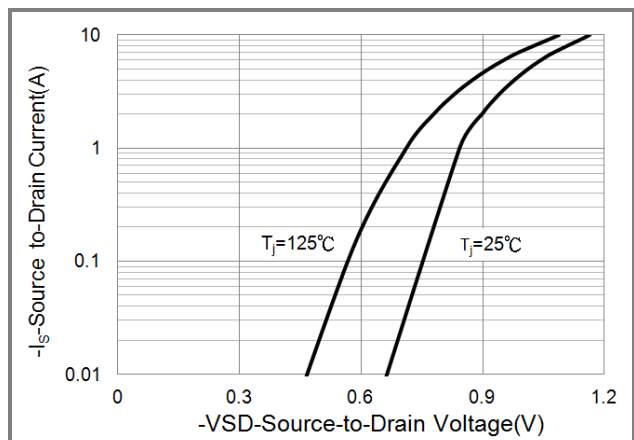


Fig.6 Body Diode Characteristics



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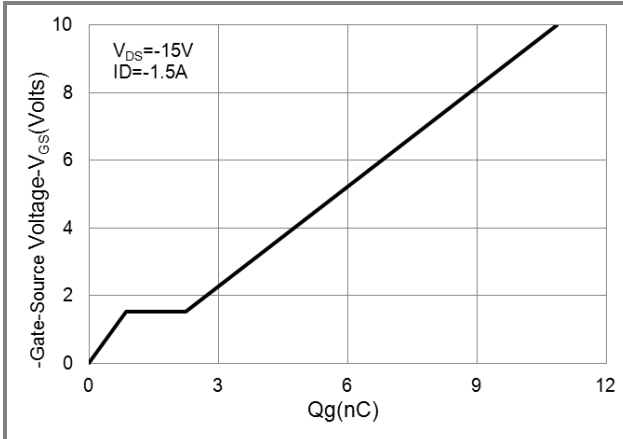


Fig.7 Gate-Charge Characteristics

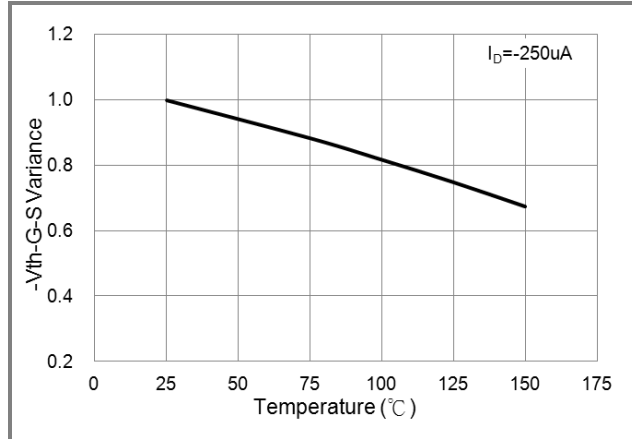


Fig.8 Threshold Voltage Variation with Temperature.

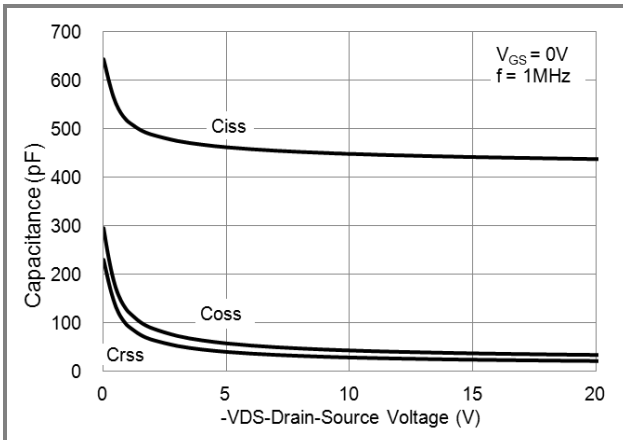


Fig.9 Capacitance vs. Drain-Source Voltage.

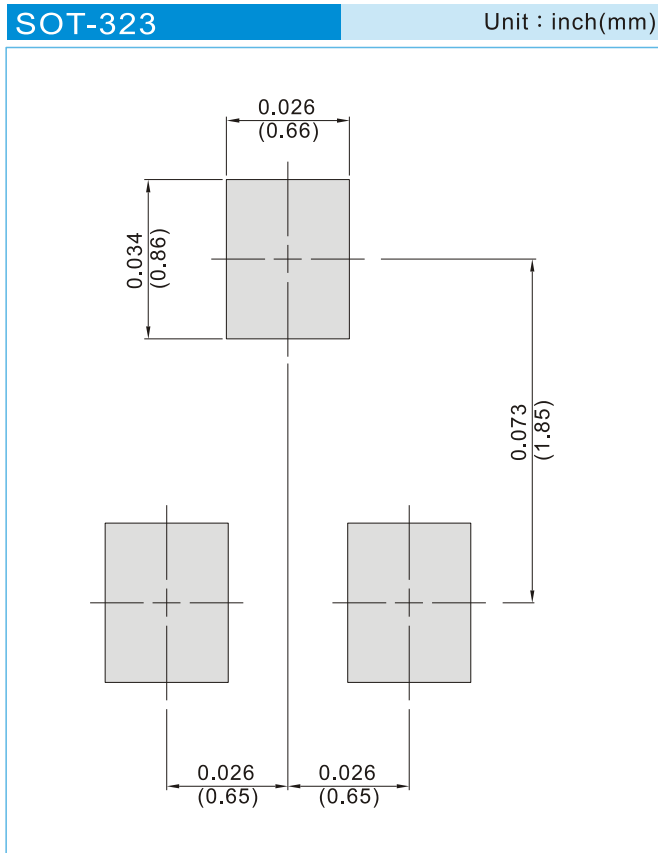


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PART NO PACKING CODE VERSION

| Part No Packing Code | Package Type | Packing type | Marking | Version |
|----------------------|--------------|--------------------|---------|--------------|
| PJC7401_R1_00001 | SOT-323 | 3K pcs / 7" reel | C01 | Halogen free |
| PJC7401_R2_00001 | SOT-323 | 12K pcs / 13" reel | C01 | Halogen free |

MOUNTING PAD LAYOUT





PJC7401

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