

PJC7439-AU

60V P-Channel Enhancement Mode MOSFET

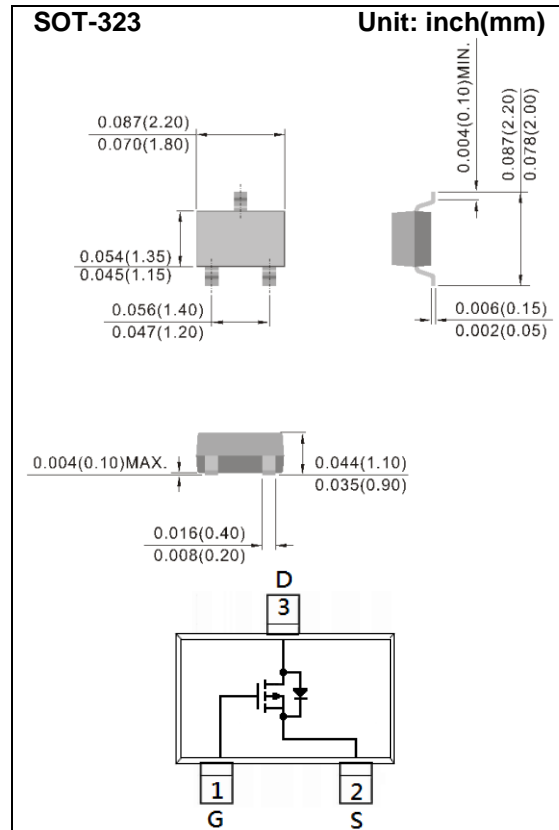
Voltage **-60 V** **Current** **-250mA**

Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-500mA < 4\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-200mA < 6\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-50mA < 13\Omega$
- Advanced Trench Process Technology
- Specially Designed for Relay driver, Speed line drive, etc.
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 standard

Mechanical Data

- Case : SOT-323 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.00018 ounces, 0.005 grams



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

| PARAMETER | SYMBOL | LIMIT | UNITS |
|--|---------------------------------|---------|----------------------|
| Drain-Source Voltage | V_{DS} | -60 | V |
| Gate-Source Voltage | V_{GS} | +20 | |
| Continuous Drain Current (Note 4) | I_D | -250 | mA |
| Pulsed Drain Current (Note 1) | I_{DM} | -1000 | |
| Power Dissipation | $T_A=25^\circ\text{C}$ | 350 | mW |
| | Derate above 25°C | 2.8 | mW/ $^\circ\text{C}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |
| Typical Thermal Resistance | $R_{\theta JA}$ | 357 | $^\circ\text{C/W}$ |
| - Junction to Ambient (Note 3,4) | | | |

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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 | -60 | - | - | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =-250uA | -1 | -1.5 | -2.5 | |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =-10V, I _D =-500mA | - | 2.4 | 4 | Ω |
| | | V _{GS} =-4.5V, I _D =-200mA | - | 2.65 | 6 | |
| | | V _{GS} =-2.5V, I _D =-50mA | - | 4.5 | 13 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-48V, V _{GS} =0V | - | - | -1 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±20V, V _{DS} =0V | - | - | ±100 | nA |
| Dynamic (Note 5) | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =-25V, I _D =-100mA, V _{GS} =-4.5V | - | 1.1 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 0.3 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 0.2 | - | |
| Input Capacitance | C _{iss} | V _{DS} =-25V, V _{GS} =0V, f=1.0MHZ | - | 51 | - | pF |
| Output Capacitance | C _{oss} | | - | 15 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 2.2 | - | |
| Turn-On Delay Time | td _(on) | V _{DD} =-25V, I _D =-100mA, V _{GS} =-10V, R _G =6Ω (Note 1,2) | - | 4.8 | - | ns |
| Turn-On Rise Time | tr | | - | 19 | - | |
| Turn-Off Delay Time | td _(off) | | - | 52 | - | |
| Turn-Off Fall Time | tf | | - | 32 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | --- | - | - | -250 | mA |
| Diode Forward Voltage | V _{SD} | I _S =-500mA, V _{GS} =0V | - | -0.95 | -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 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

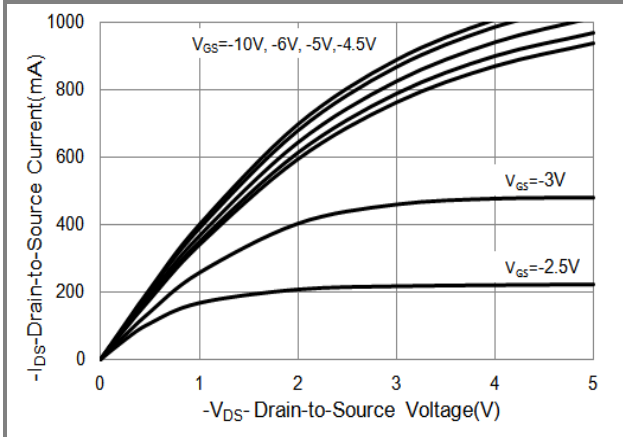


Fig.1 On-Region Characteristics

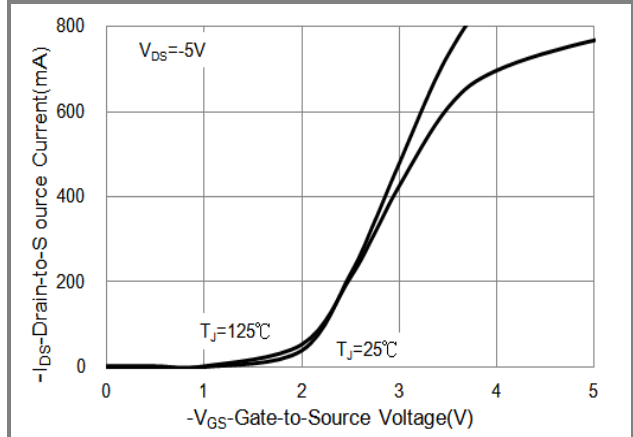


Fig.2 Transfer Characteristics

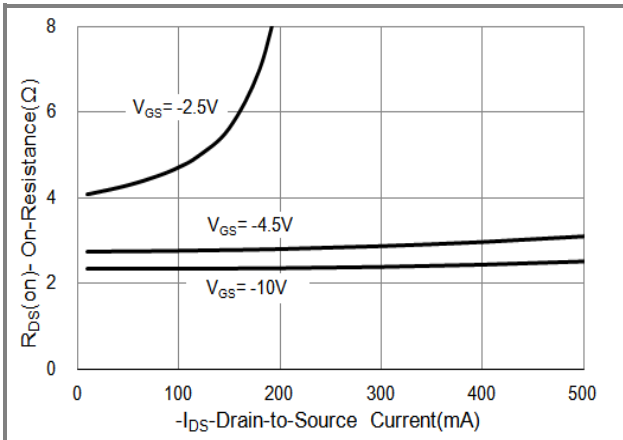


Fig.3 On-Resistance vs. Drain Current

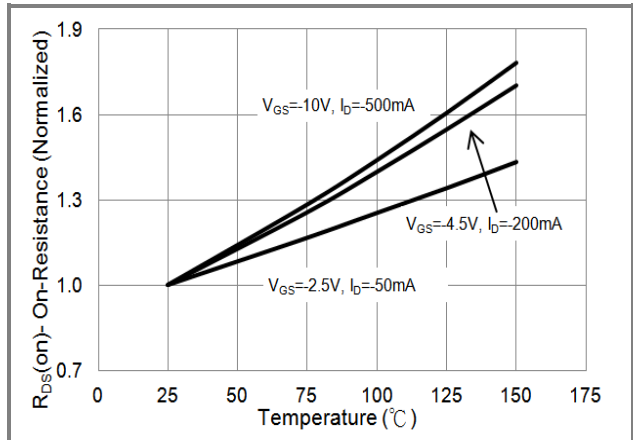


Fig.4 On-Resistance vs. Junction temperature

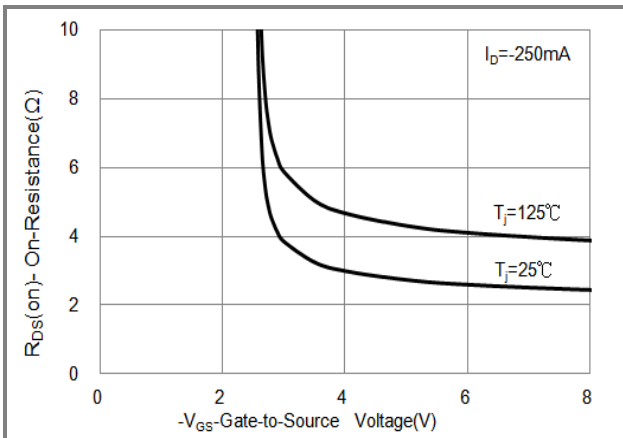


Fig.5 On-Resistance Variation with VGS

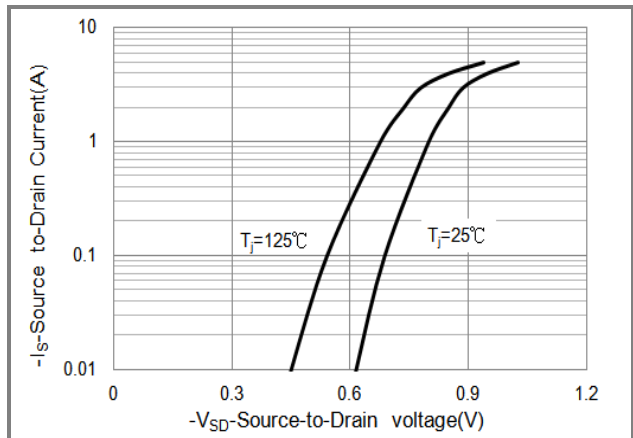


Fig.6 Body Diode Characteristics

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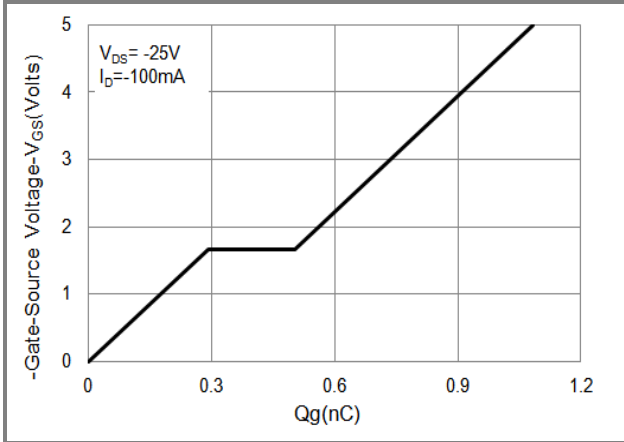


Fig.7 Gate-Charge Characteristics

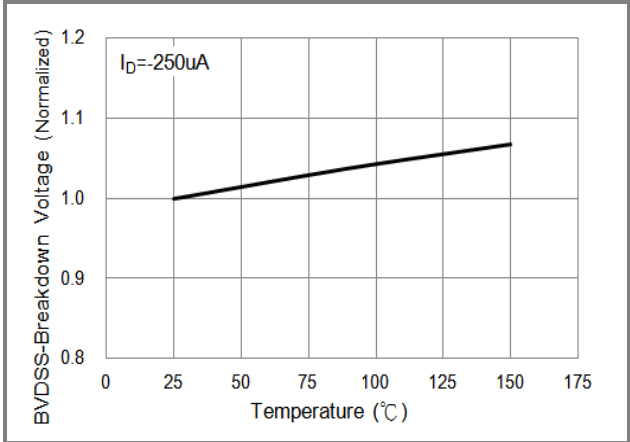


Fig.8 Breakdown Voltage Variation vs. Temperature

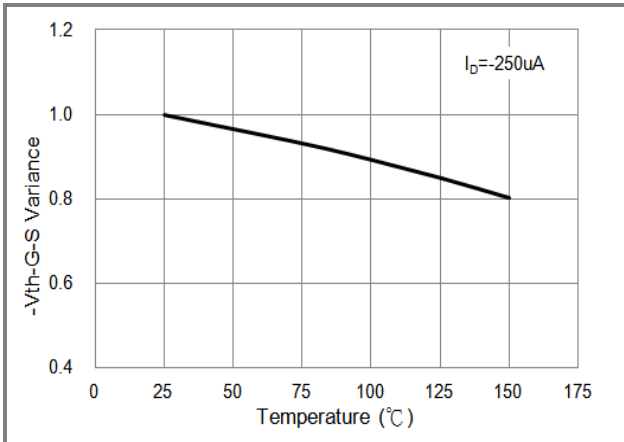


Fig.9 Threshold Voltage Variation with Temperature

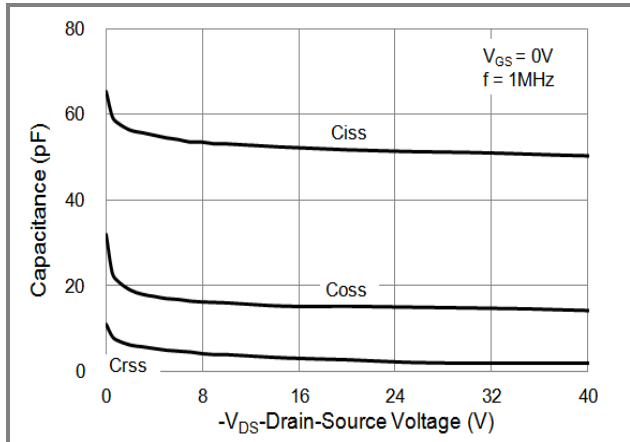


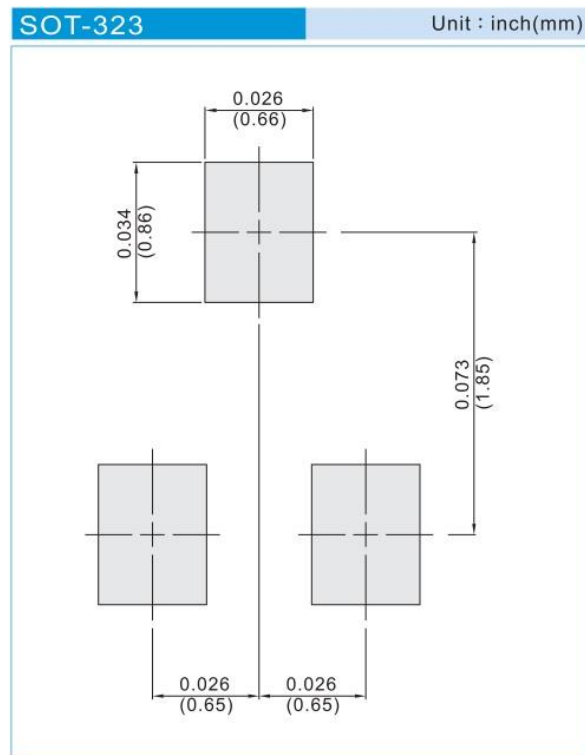
Fig.10 Capacitance vs. Drain-Source Voltage

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Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|------------|--------------|------------------|---------|
| PJC7439-AU | SOT-323 | 3K pcs / 7" reel | C39 |

Mounting Pad Layout



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