

PJW3P06A

60V P-Channel Enhancement Mode MOSFET

Voltage

-60 V

Current

-3 A

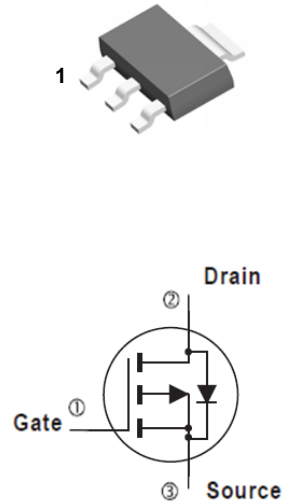
Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-2A < 190m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-1.5A < 240m\Omega$
- High switching speed
- Improved dv/dt capability
- Low gate charge
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-223 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.123grams

SOT-223



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

| PARAMETER | | SYMBOL | LIMIT | UNIT |
|---|------------------|-----------------|----------|--------------|
| Drain-Source Voltage | | V_{DS} | -60 | V |
| Gate-Source Voltage | | V_{GS} | ± 20 | |
| Continuous Drain Current ^(Note 4) | $T_A=25^\circ C$ | I_D | -3 | A |
| | $T_A=70^\circ C$ | | -2.4 | |
| Pulsed Drain Current ^(Note 1) | | I_{DM} | -12 | |
| Power Dissipation | $T_A=25^\circ C$ | P_D | 3.1 | W |
| | $T_A=70^\circ C$ | | 2 | |
| Single Pulse Avalanche Energy ^(Note 6) | | E_{AS} | 32 | mJ |
| Operating Junction and Storage Temperature Range | | T_J, T_{STG} | -55~150 | $^\circ C$ |
| Typical Thermal Resistance | | $R_{\theta JA}$ | 40.3 | $^\circ C/W$ |
| - Junction to Ambient ^(Note 4,5) | | | | |

- Limited only By Maximum Junction Temperature

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Electrical Characteristics (T_A=25°C unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---------------------|---|------|-------|------|------|
| 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 | -1.88 | -2.5 | |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =-10V, I _D =-2A | - | 140 | 190 | mΩ |
| | | V _{GS} =-4.5V, I _D =-1.5A | - | 190 | 240 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-60V, V _{GS} =0V | - | - | -1 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±20V, V _{DS} =0V | - | - | ±100 | nA |
| Dynamic (Note 7) | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =-30V, I _D =-2A, V _{GS} =-10V(Note 2,3) | - | 8.3 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 1.8 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 1.6 | - | |
| Input Capacitance | C _{iss} | V _{DS} =-30V, V _{GS} =0V, f=1MHZ | - | 430 | - | pF |
| Output Capacitance | C _{oss} | | - | 33 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 29 | - | |
| Turn-On Delay Time | td(on) | V _{DD} =-30V, I _D =-1A, V _{GS} =-10V, R _G =6Ω(Note 2,3) | - | 5.1 | - | ns |
| Turn-On Rise Time | tr | | - | 20 | - | |
| Turn-Off Delay Time | td(off) | | - | 36 | - | |
| Turn-Off Fall Time | tf | | - | 11 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | --- | - | - | -2 | A |
| Diode Forward Voltage | V _{SD} | I _S =-1A, V _{GS} =0V | - | -0.78 | -1 | V |

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J = 25°C.
4. The maximum current rating is package limited.
5. 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 inch² with 2oz.square pad of copper.
6. The test condition is L=1mH, I_{AS}=-8A, V_{DD}=-25V, V_{GS}=-10V.
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

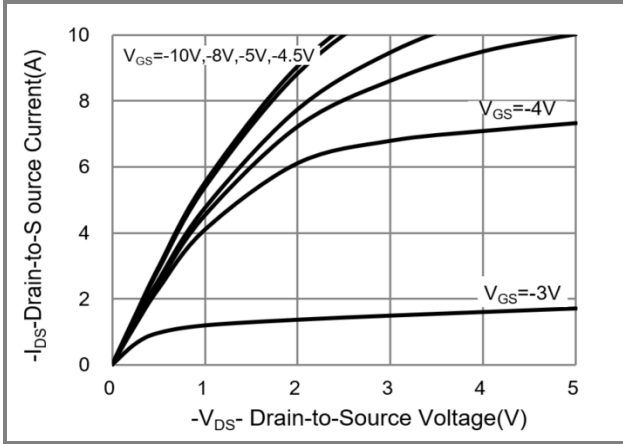


Fig.1 Output Characteristics

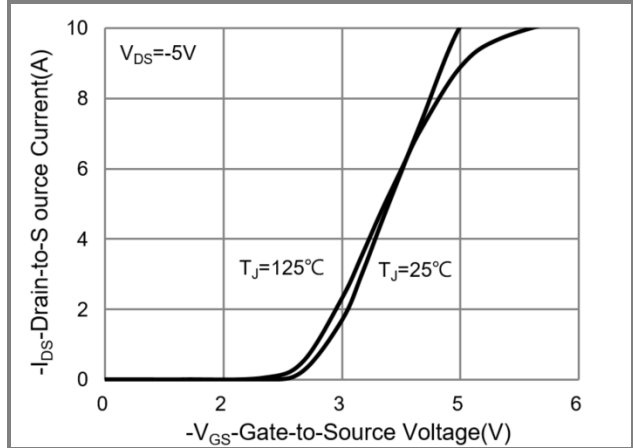


Fig.2 Transfer Characteristics

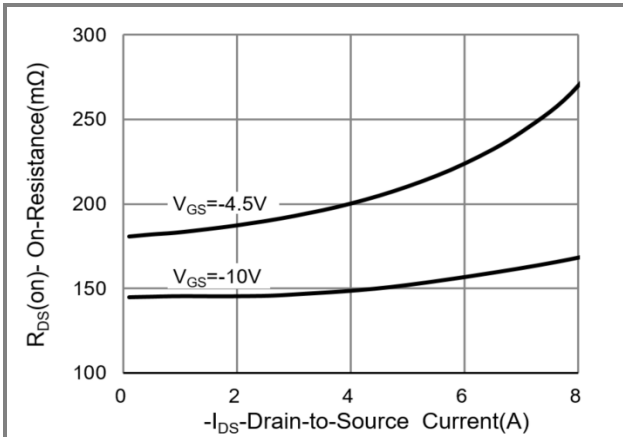


Fig.3 On-Resistance vs. Drain Current

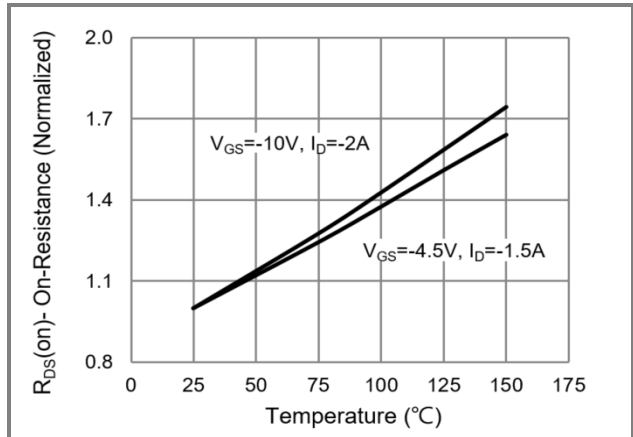


Fig.4 On-Resistance vs. Junction temperature

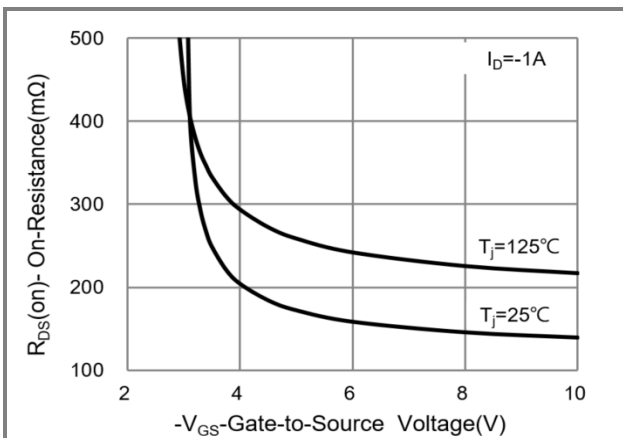


Fig.5 On-Resistance Variation with V_{GS}

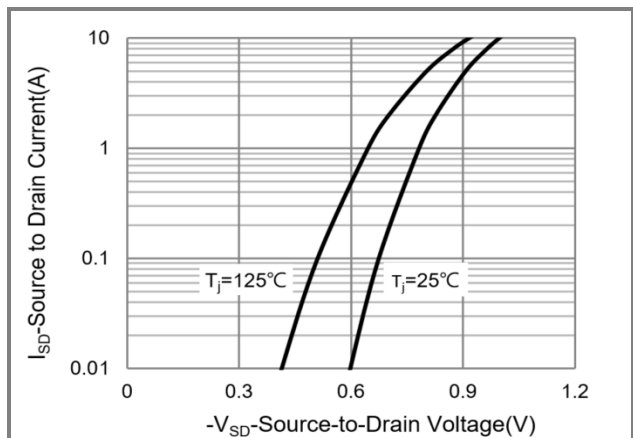


Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

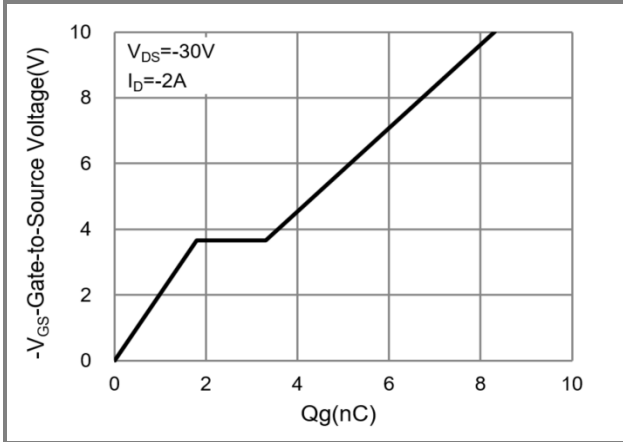


Fig.7 Gate-Charge Characteristics

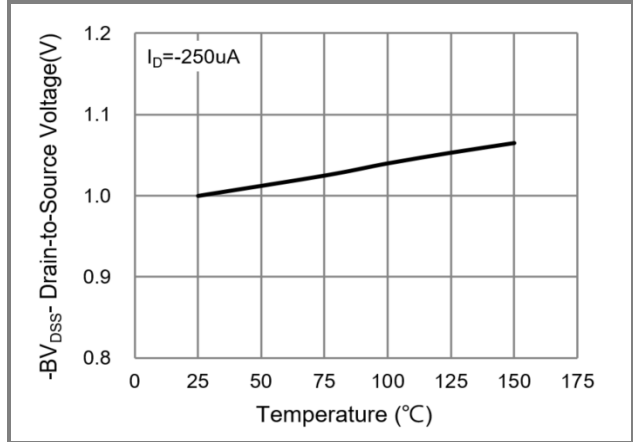


Fig.8 Breakdown Voltage Variation vs. Temperature

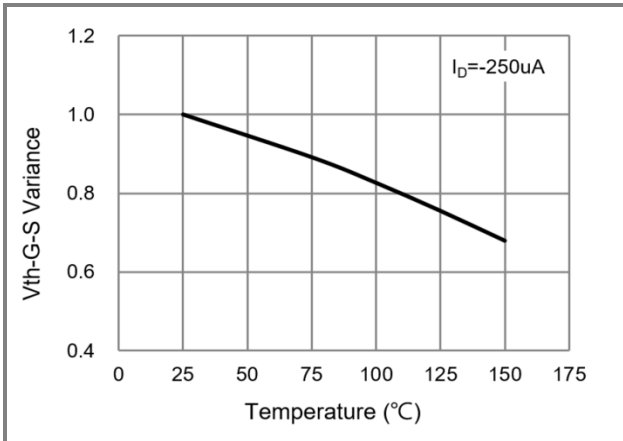


Fig.9 Threshold Voltage Variation with Temperature

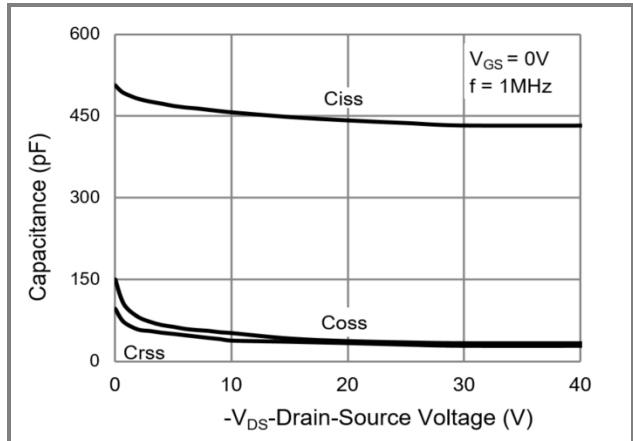


Fig.10 Capacitance vs. Drain-Source Voltage

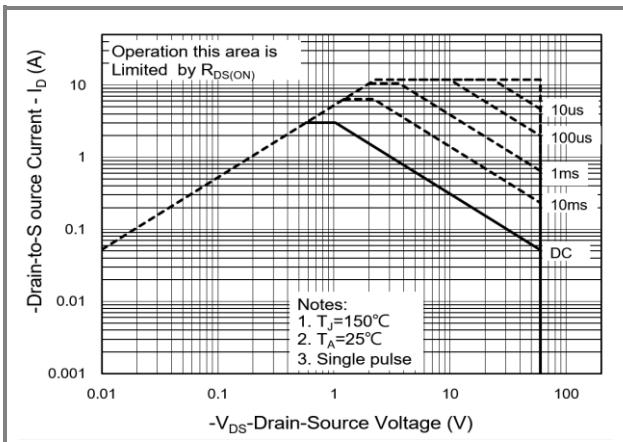


Fig.11 Maximum Safe Operating Area

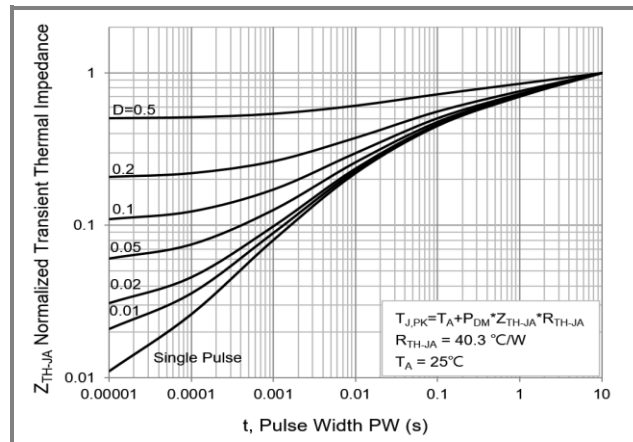


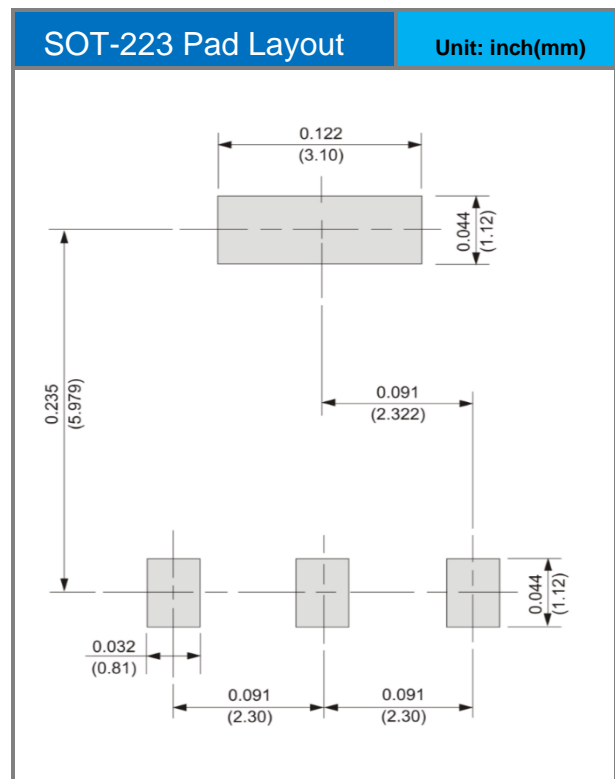
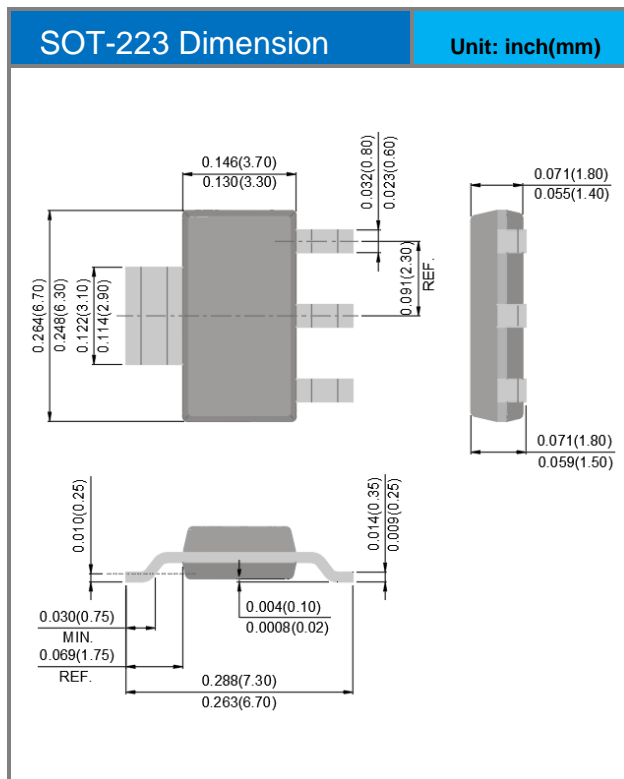
Fig.12 Normalized Transient Thermal Impedance

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Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|----------|--------------|---------------------|---------|
| PJW3P06A | SOT-223 | 2.5K pcs / 13" reel | W3P06A |

Packaging Information & Mounting Pad Layout



PJW3P06A

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