



PJD25N06A

60V N-Channel Enhancement Mode MOSFET

Voltage

60 V

Current

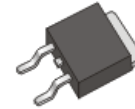
25 A

Features

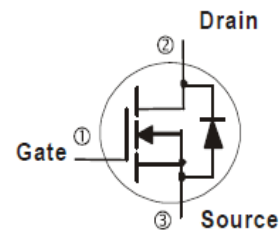
- $R_{DS(ON)}$, $V_{GS}@10V, I_D@15A < 34m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_D@10A < 40m\Omega$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std.. (Halogen Free)

Mechanical Data

- Case : TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0104 ounces, 0.297grams



TO-252AA



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 | V |
| Continuous Drain Current | $T_C=25^\circ\text{C}$ | I_D | 25 | A |
| | $T_C=100^\circ\text{C}$ | | 16 | |
| Pulsed Drain Current ^(Note 1) | | I_{DM} | 100 | |
| Power Dissipation | $T_C=25^\circ\text{C}$ | P_D | 40 | W |
| | $T_C=100^\circ\text{C}$ | | 16 | |
| Continuous Drain Current | $T_A=25^\circ\text{C}$ | I_D | 5.5 | A |
| | $T_A=70^\circ\text{C}$ | | 4.4 | A |
| Power Dissipation | | P_D | 2.0 | W |
| Power Dissipation | | | $T_A=70^\circ\text{C}$ | |
| Single Pulse Avalanche Energy ^(Note 6) | | E_{AS} | 24 | mJ |
| Operating Junction and Storage Temperature Range | | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |
| Typical Thermal Resistance ^(Note 4,5) | Junction to Case | $R_{\theta JC}$ | 3.1 | $^\circ\text{C/W}$ |
| | Junction to Ambient | $R_{\theta JA}$ | 62.5 | |

- 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. | 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 | 1.0 | 1.83 | 2.5 | V |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =10V, I _D =15A | - | 28 | 34 | mΩ |
| | | V _{GS} =4.5V, I _D =10A | - | 33 | 40 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =60V, V _{GS} =0V | - | - | 1.0 | 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 =20A, V _{GS} =10V (Note 1,2) | - | 20 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 3.8 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 3.9 | - | |
| Input Capacitance | C _{iss} | V _{DS} =25V, V _{GS} =0V, f=1.0MHZ | - | 1173 | - | pF |
| Output Capacitance | C _{oss} | | - | 63 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 44 | - | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} =15V, I _D =1A, V _{GS} =10V, R _G =6Ω (Note 1,2) | - | 7.1 | - | ns |
| Turn-On Rise Time | t _r | | - | 25 | - | |
| Turn-Off Delay Time | t _{d(off)} | | - | 31 | - | |
| Turn-Off Fall Time | t _f | | - | 20 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | --- | - | - | 25 | A |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | - | 0.72 | 1.2 | 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=0.1mH, I_{AS}=22A, V_{DD}=25V, V_{GS}=10V
7. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

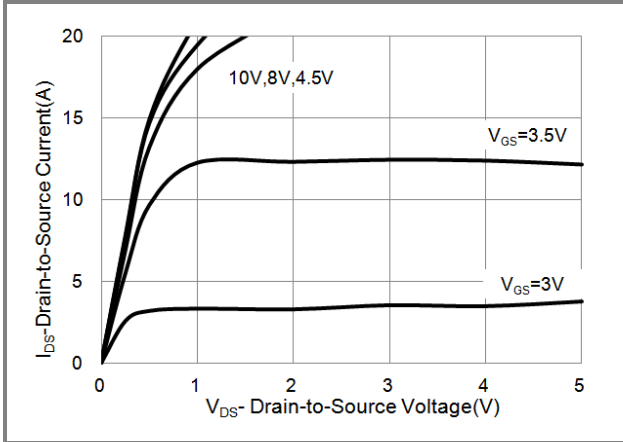


Fig.1 Output Characteristics

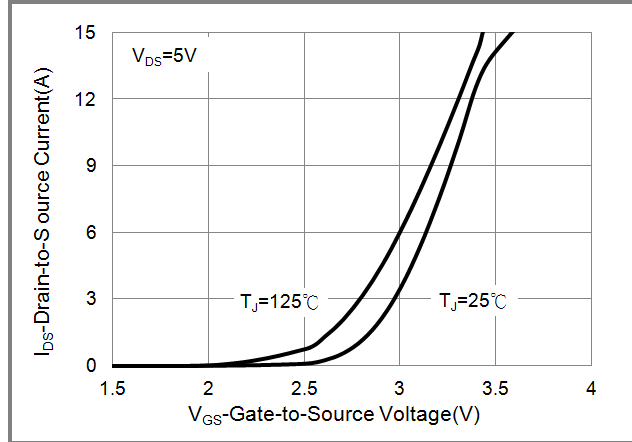


Fig.2 Transfer Characteristics

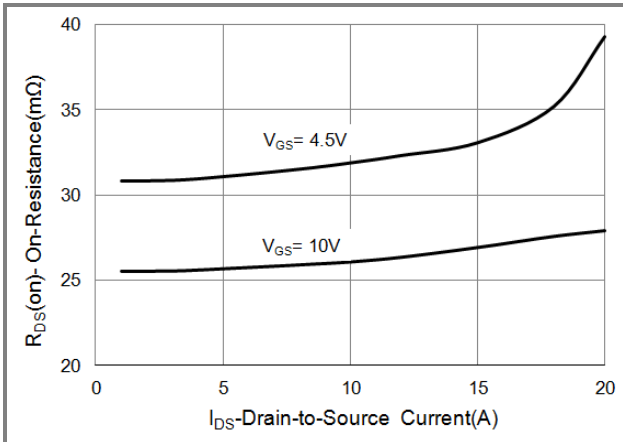


Fig.3 On-Resistance vs. Drain Current

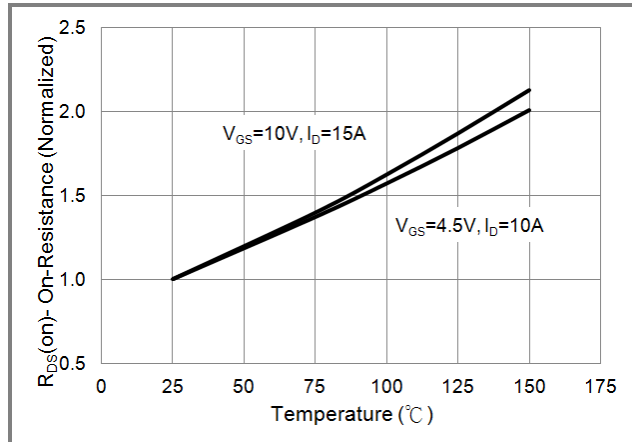


Fig.4 On-Resistance vs. Junction temperature

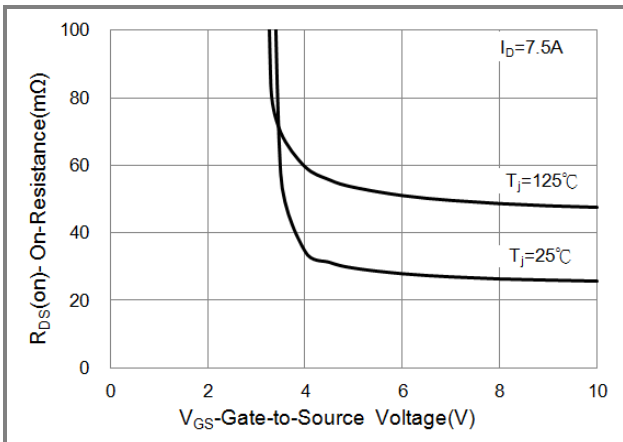


Fig.5 On-Resistance Variation with V_GS.

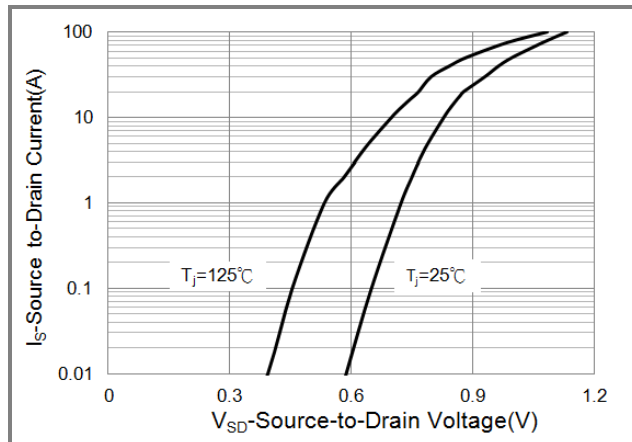


Fig.6 Source-Drain Diode Forward Voltage



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TYPICAL CHARACTERISTIC CURVES

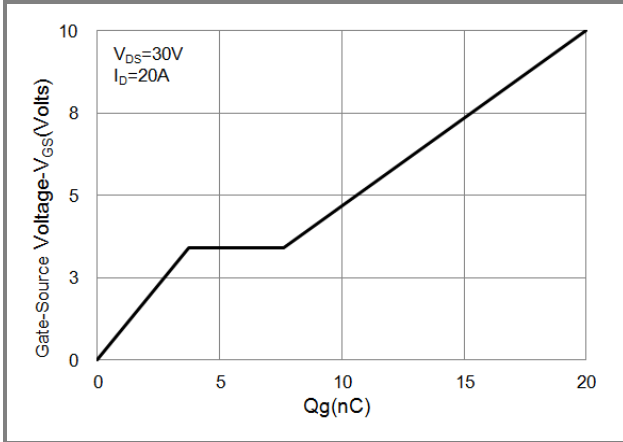


Fig.7 Gate-Charge Characteristics

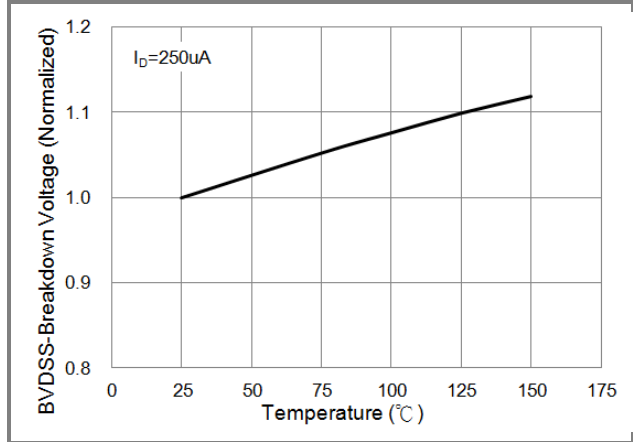


Fig.8 Breakdown Voltage Variation vs. Temperature

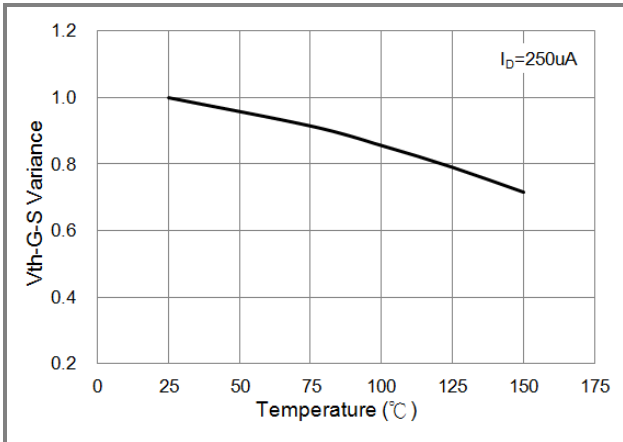


Fig.9 Threshold Voltage Variation with Temperature

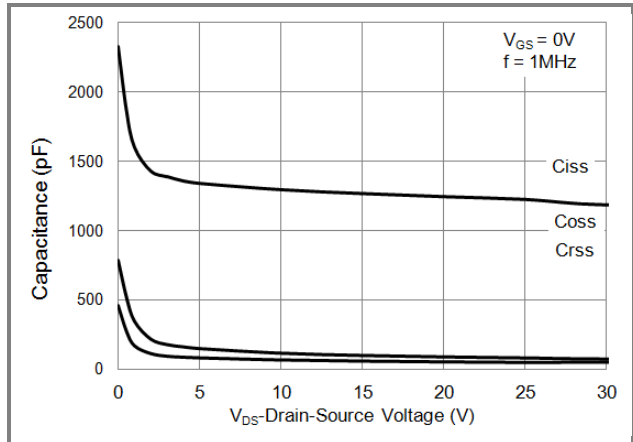


Fig.10 Capacitance vs. Drain-Source Voltage

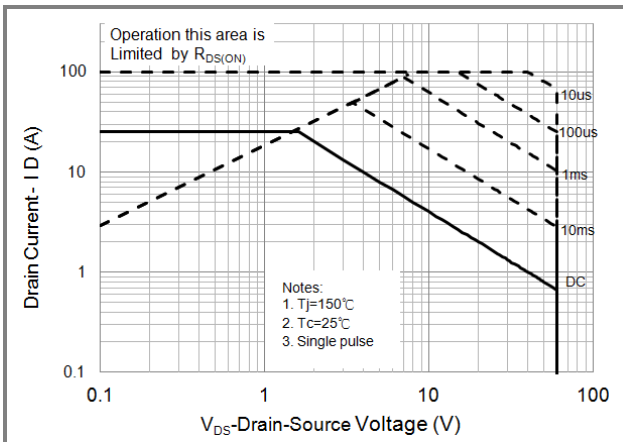


Fig.11 Maximum Safe Operating Area



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TYPICAL CHARACTERISTIC CURVES

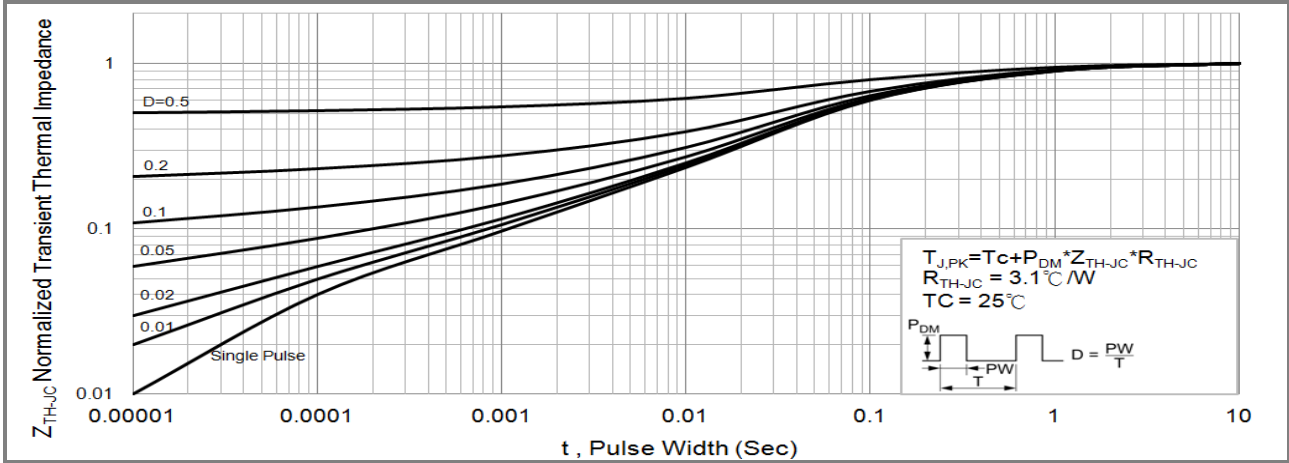
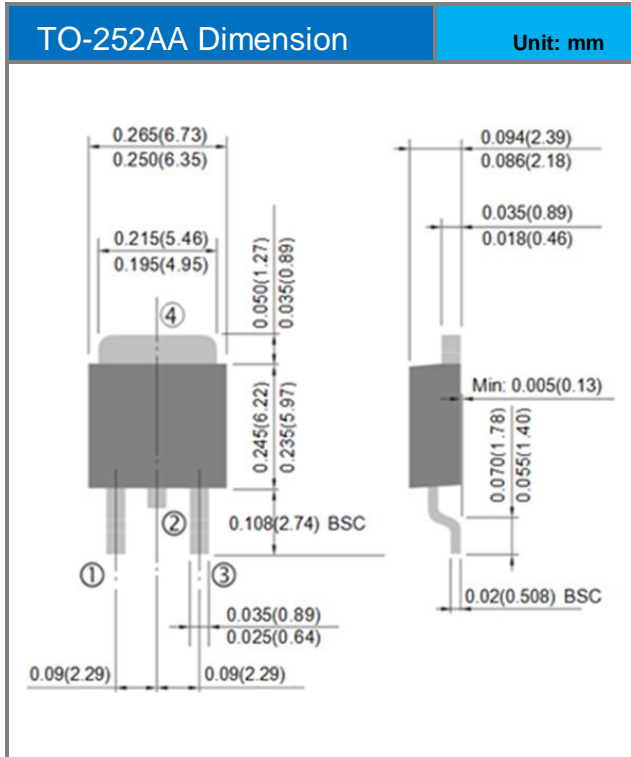


Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width



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Packaging Information



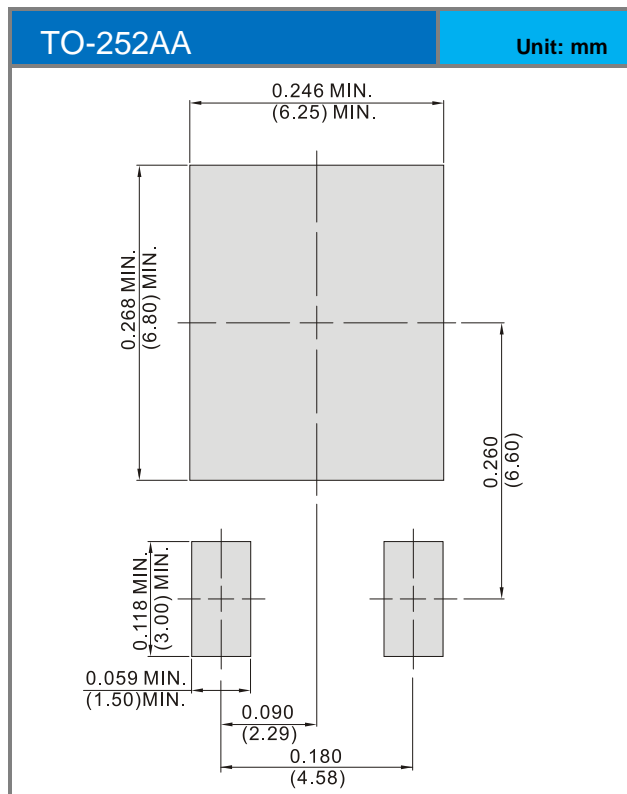


PJD25N06A

PART NO PACKING CODE VERSION

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|----------------------|--------------|---------------------|---------|--------------|
| PJD25N06A_L2_00001 | TO-252AA | 3,000pcs / 13" reel | D25N06A | Halogen free |

MOUNTING PAD LAYOUT





PJD25N06A

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