



PJQ4465AP-AU

60V P-Channel Enhancement Mode MOSFET

Voltage

-60 V

Current

-15 A

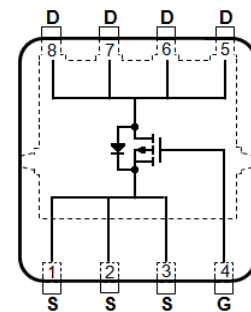
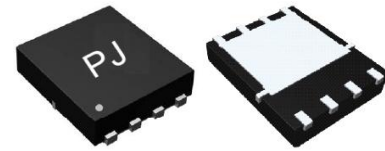
Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-5A < 48m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-3A < 65m\Omega$
- High switching speed
- Low Gate Charge
- Low reverse transfer capacitance
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 Standard

Mechanical Data

- Case : DFN3333-8L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.001 ounces, 0.03 grams

DFN3333-8L



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) | $T_C=25^\circ\text{C}$ | I_D | -15 | A |
| | $T_C=100^\circ\text{C}$ | | -10 | |
| Pulsed Drain Current (Note 1) | $T_C=25^\circ\text{C}$ | I_{DM} | -60 | |
| Power Dissipation | $T_C=25^\circ\text{C}$ | P_D | 20 | W |
| | $T_C=100^\circ\text{C}$ | | 8 | |
| Continuous Drain Current (Note 4) | $T_A=25^\circ\text{C}$ | I_D | -5 | A |
| | $T_A=70^\circ\text{C}$ | | -4 | |
| Power Dissipation | $T_A=25^\circ\text{C}$ | P_D | 2 | W |
| | $T_A=70^\circ\text{C}$ | | 1.3 | |
| Single Pulse Avalanche Energy (Note 6) | | E_{AS} | 51 | 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 | $R_{\theta JC}$ | 6.3 | $^\circ\text{C/W}$ |
| | Junction to Ambient | $R_{\theta JA}$ | 62.5 | |

- Limited only By Maximum Junction Temperature



PJQ4465AP-AU

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} | $V_{GS}=0V, I_D=-250\mu A$ | -60 | - | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1 | -1.7 | -2.5 | |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-5A$ | - | 40 | 48 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-3A$ | - | 55 | 65 | |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-60V, V_{GS}=0V$ | - | - | -1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| Dynamic (Note 7) | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=-30V, I_D=-5A,$ $V_{GS}=-10V$ (Note 2,3) | - | 22 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 4.1 | - | |
| Gate-Drain Charge | Q_{gd} | | - | 5.2 | - | |
| Input Capacitance | C_{iss} | $V_{DS}=-30V, V_{GS}=0V,$ $f=1\text{MHZ}$ | - | 1256 | - | pF |
| Output Capacitance | C_{oss} | | - | 87 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 59 | - | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=-30V, I_D=-1A,$ $V_{GS}=-10V, R_G=6\Omega$ (Note 2,3) | - | 13 | - | ns |
| Turn-On Rise Time | t_r | | - | 42 | - | |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 65 | - | |
| Turn-Off Fall Time | t_f | | - | 16 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I_S | --- | - | - | -15 | A |
| Diode Forward Voltage | V_{SD} | $I_S=-1A, V_{GS}=0V$ | - | -0.7 | -1 | V |

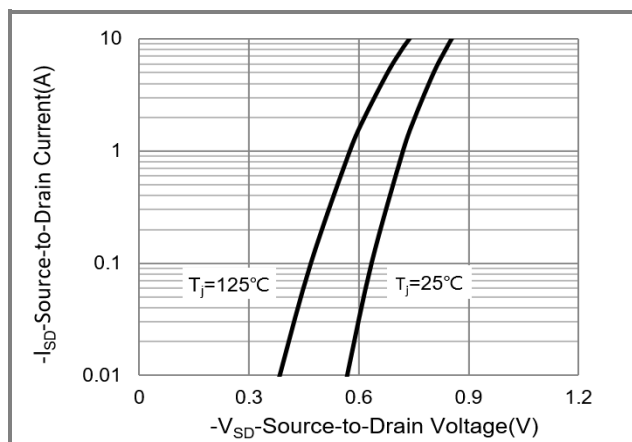
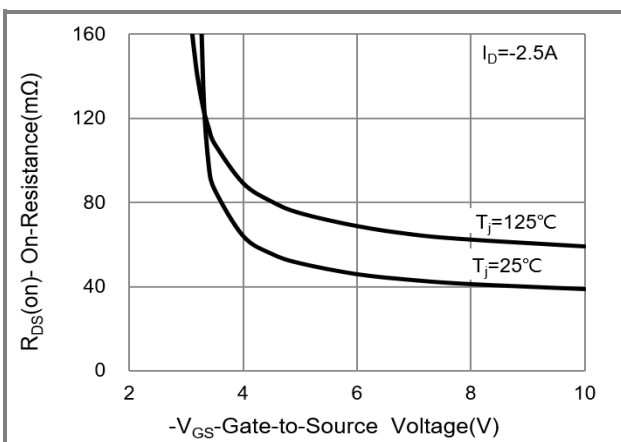
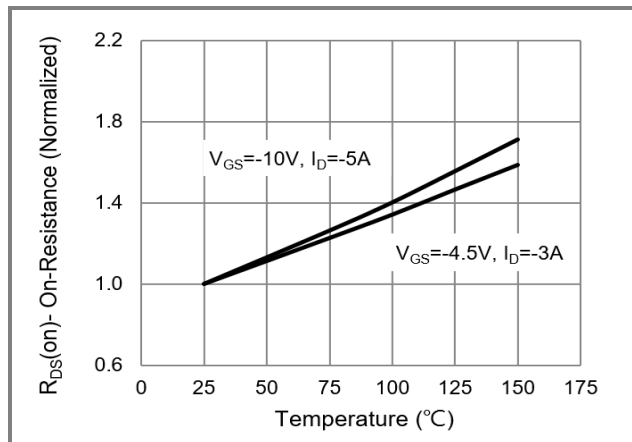
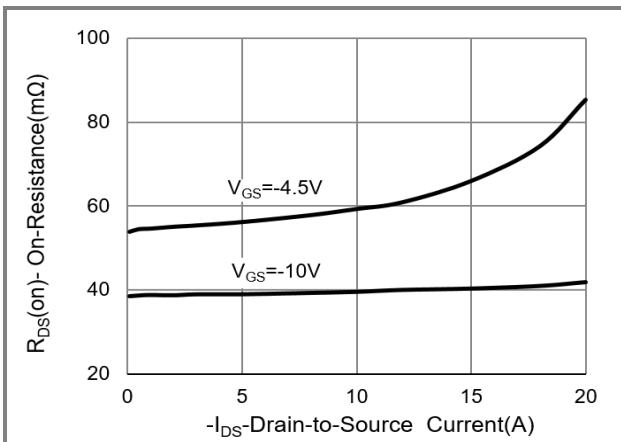
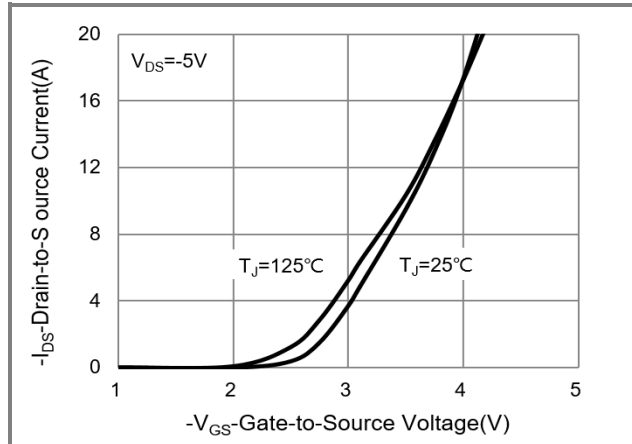
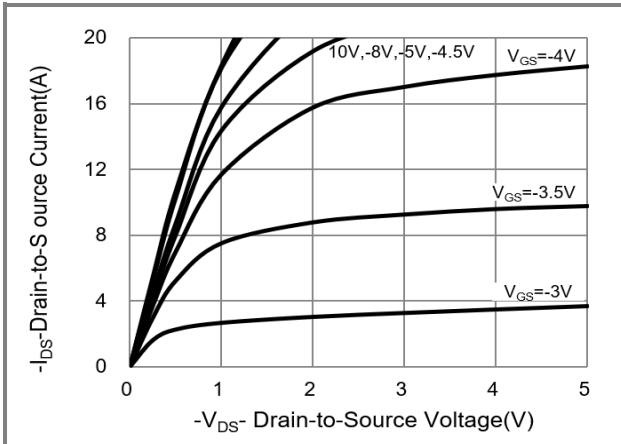
NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ\text{C}$.
4. The maximum current rating is package limited.
5. $R_{\theta JA}$ 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 inch² with 2oz.square pad of copper.
6. $L=0.1\text{mH}, I_{AS}=-32A, V_{GS}=-10V, V_{DS}=-25V, R_G=25\text{ ohm}$.
7. Guaranteed by design, not subject to production testing.



PJQ4465AP-AU

TYPICAL CHARACTERISTIC CURVES





PJQ4465AP-AU

TYPICAL CHARACTERISTIC CURVES

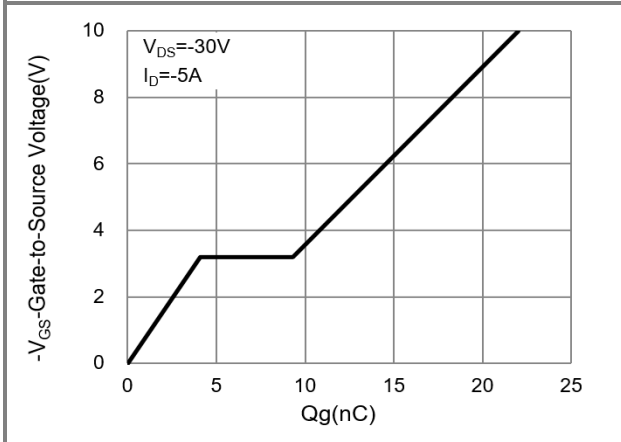


Fig.7 Gate-Charge Characteristics

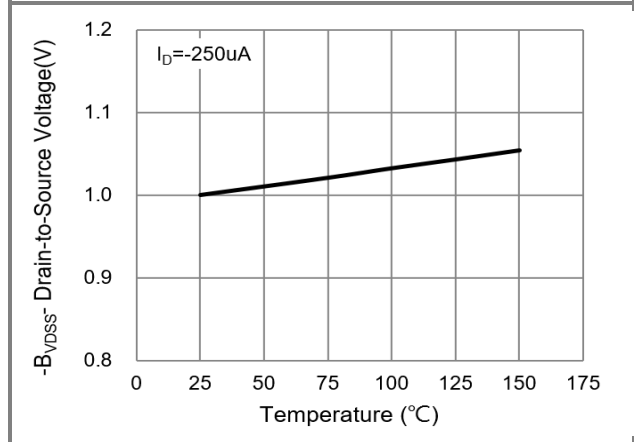


Fig.8 Breakdown Voltage Variation vs. Temperature

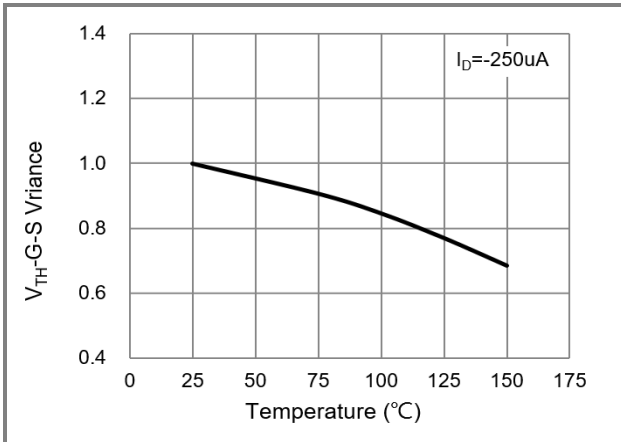


Fig.9 Threshold Voltage Variation with Temperature

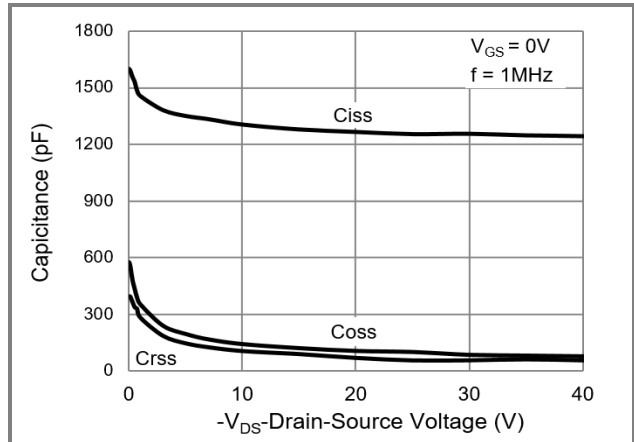


Fig.10 Capacitance vs. Drain-Source Voltage

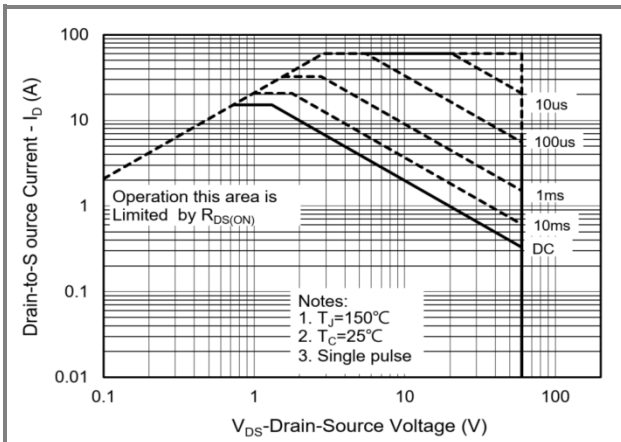


Fig.11 Maximum Safe Operating Area

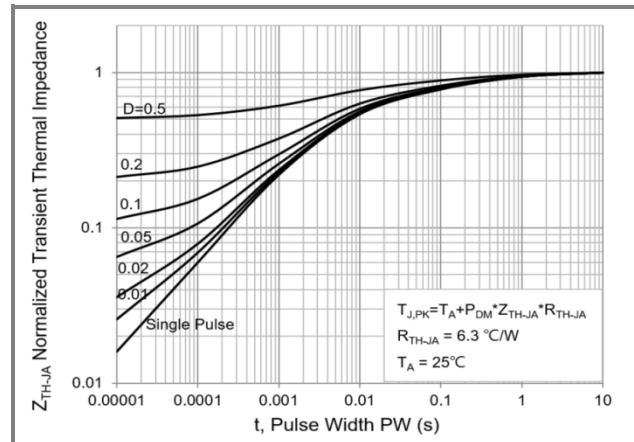


Fig.12 Normalized Transient Thermal Impedance

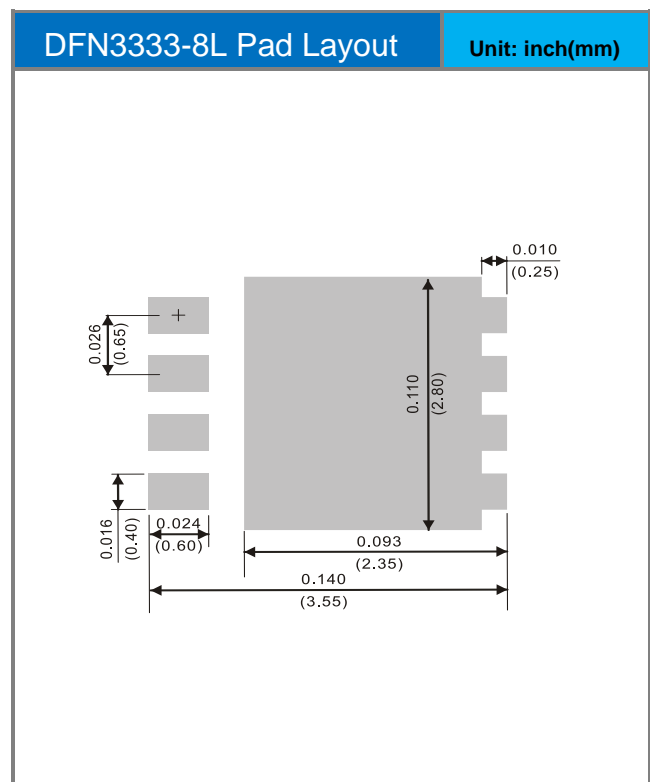
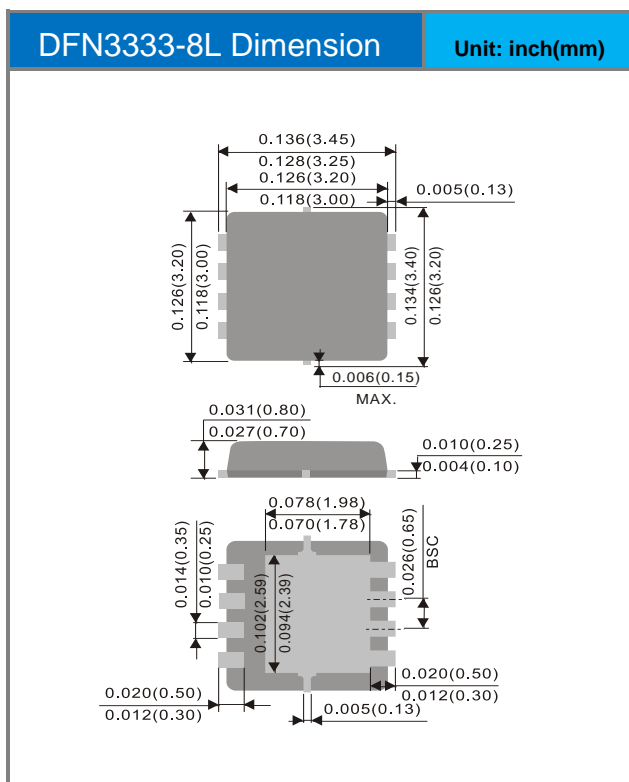


PJQ4465AP-AU

Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|-------------------|---------|--------------|
| PJQ4465AP-AU_R2_000A1 | DFN3333-8L | 5K pcs / 13" reel | 4465 | Halogen free |

Packaging Information & Mounting Pad Layout





PJQ4465AP-AU

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