

# PJD60P08-AU

## 80V P-Channel Enhancement Mode MOSFET

**Voltage**

**-80 V**

**Current**

**-49 A**

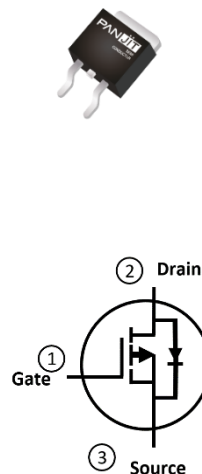
### Features

- $R_{DS(ON)}$ ,  $V_{GS}@-10V$ ,  $I_D@-20A < 28m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@-7V$ ,  $I_D@-10A < 32m\Omega$
- 100% UIS tested
- Reliable and Rugged
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : TO-252AA Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.3217 grams

TO-252AA



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

| PARAMETER                                          |                     | SYMBOL          | LIMIT    | UNIT         |
|----------------------------------------------------|---------------------|-----------------|----------|--------------|
| Drain-Source Voltage                               |                     | $V_{DS}$        | -80      | V            |
| Gate-Source Voltage                                |                     | $V_{GS}$        | $\pm 20$ |              |
| Continuous Drain Current <sup>(Note 3)</sup>       | $T_C=25^\circ C$    | $I_D$           | -49      | A            |
|                                                    | $T_C=100^\circ C$   |                 | -34      |              |
| Pulsed Drain Current <sup>(Note 1)</sup>           | $T_C=25^\circ C$    | $I_{DM}$        | -140     |              |
| Power Dissipation                                  | $T_C=25^\circ C$    | $P_D$           | 143      | W            |
|                                                    | $T_C=100^\circ C$   |                 | 71       |              |
| Continuous Drain Current <sup>(Note 4)</sup>       | $T_A=25^\circ C$    | $I_D$           | -7       | A            |
|                                                    | $T_A=70^\circ C$    |                 | -6       |              |
| Power Dissipation                                  | $T_A=25^\circ C$    | $P_D$           | 3        | W            |
|                                                    | $T_A=70^\circ C$    |                 | 2.1      |              |
| Single Pulse Avalanche Current <sup>(Note 5)</sup> |                     | $I_{AS}$        | -23      | A            |
| Single Pulse Avalanche Energy <sup>(Note 5)</sup>  |                     | $E_{AS}$        | 265      | mJ           |
| Operating Junction and Storage Temperature Range   |                     | $T_J, T_{STG}$  | -55~175  | $^\circ C$   |
| Thermal Resistance <sup>(Note 4)</sup>             | Junction to Case    | $R_{\theta JC}$ | 1.05     | $^\circ C/W$ |
|                                                    | Junction to Ambient | $R_{\theta JA}$ | 50       |              |

# PJD60P08-AU

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

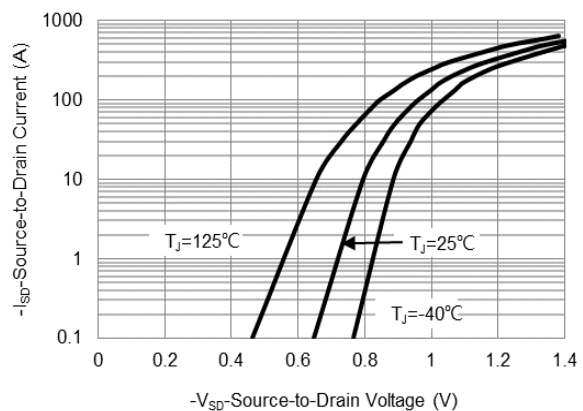
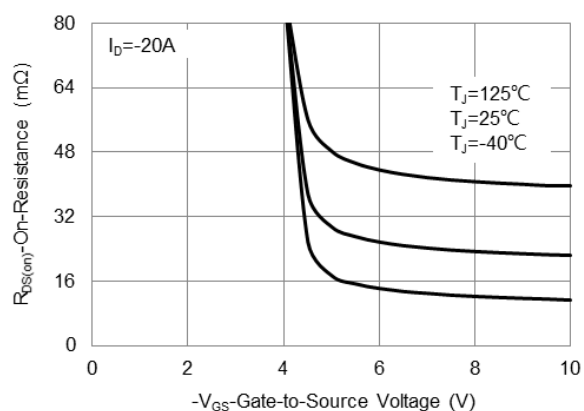
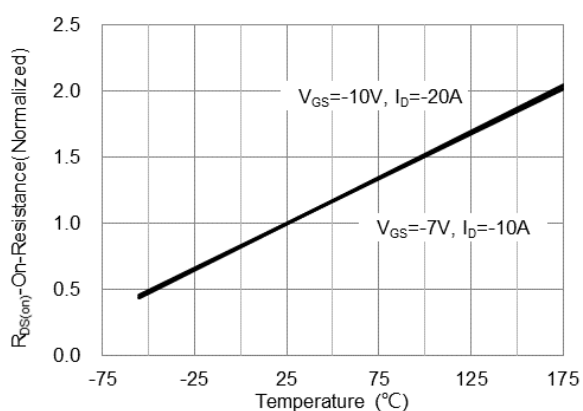
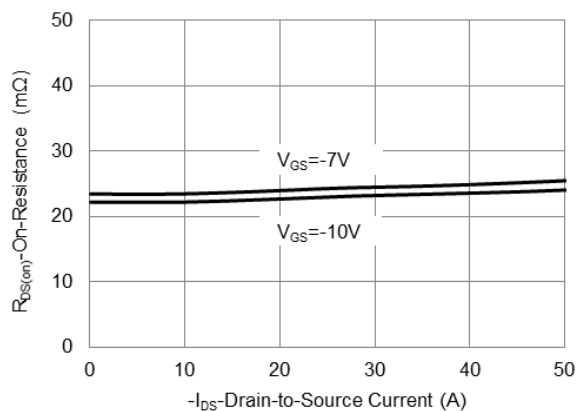
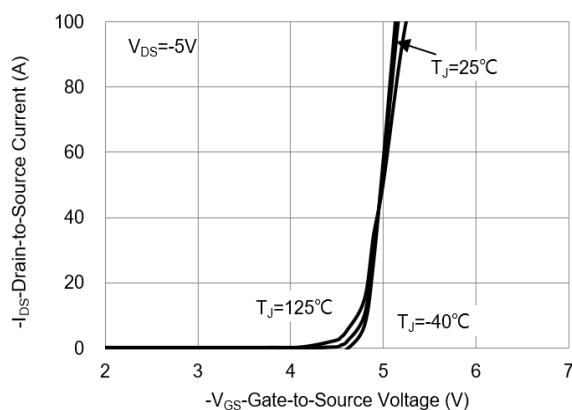
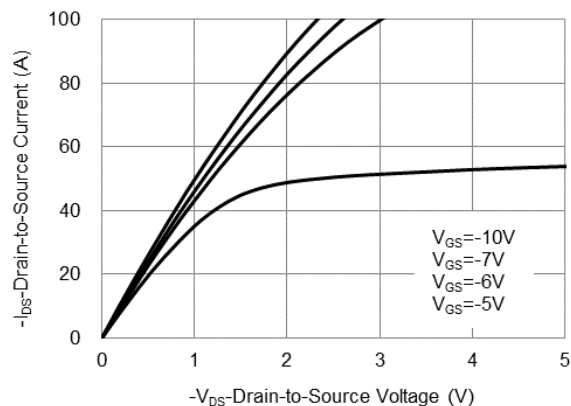
| PARAMETER                        | SYMBOL              | TEST CONDITION                                                                                        | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|---------------------|-------------------------------------------------------------------------------------------------------|------|------|------|------|
| Static                           |                     |                                                                                                       |      |      |      |      |
| Drain-Source Breakdown Voltage   | BV <sub>DSS</sub>   | V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA                                                           | -80  | -    | -    | V    |
| Gate Threshold Voltage           | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA                                             | -2.1 | -2.8 | -3.5 |      |
| Drain-Source On-State Resistance | R <sub>DS(on)</sub> | V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A                                                           | -    | 22   | 28   | mΩ   |
|                                  |                     | V <sub>GS</sub> =-7V, I <sub>D</sub> =-10A                                                            | -    | 24   | 32   |      |
| Zero Gate Voltage Drain Current  | I <sub>DSS</sub>    | V <sub>DS</sub> =-80V, V <sub>GS</sub> =0V                                                            | -    | -    | -1   | uA   |
| Gate-Source Leakage Current      | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V                                                            | -    | -    | ±100 | nA   |
| Dynamic <sup>(Note 6)</sup>      |                     |                                                                                                       |      |      |      |      |
| Total Gate Charge                | Q <sub>g</sub>      | V <sub>DS</sub> =-40V, I <sub>D</sub> =-20A,<br>V <sub>GS</sub> =-10V                                 | -    | 101  | 133  | nC   |
| Gate-Source Charge               | Q <sub>gs</sub>     |                                                                                                       | -    | 27   | -    |      |
| Gate-Drain Charge                | Q <sub>gd</sub>     |                                                                                                       | -    | 15   | -    |      |
| Input Capacitance                | C <sub>iss</sub>    | V <sub>DS</sub> =-40V, V <sub>GS</sub> =0V,<br>f=1MHz                                                 | -    | 6864 | 8930 | pF   |
| Output Capacitance               | C <sub>oss</sub>    |                                                                                                       | -    | 225  | 340  |      |
| Reverse Transfer Capacitance     | C <sub>rss</sub>    |                                                                                                       | -    | 136  | 210  |      |
| Gate resistance                  | R <sub>g</sub>      | f=1MHz                                                                                                | -    | 3.6  | -    | Ω    |
| Turn-On Delay Time               | td <sub>(on)</sub>  | V <sub>DS</sub> =-40V, I <sub>D</sub> =-20A,<br>V <sub>GS</sub> =-10V, R <sub>G</sub> =3Ω<br>(Note 2) | -    | 22   | -    | ns   |
| Turn-On Rise Time                | tr                  |                                                                                                       | -    | 24   | -    |      |
| Turn-Off Delay Time              | td <sub>(off)</sub> |                                                                                                       | -    | 62   | -    |      |
| Turn-Off Fall Time               | tf                  |                                                                                                       | -    | 17   | -    |      |
| Drain-Source Diode               |                     |                                                                                                       |      |      |      |      |
| Diode Forward Current            | I <sub>S</sub>      | T <sub>C</sub> =25°C<br>(Package Limit)                                                               | -    | -    | -49  | A    |
| Pulsed Diode Forward Current     | I <sub>SM</sub>     |                                                                                                       | -    | -    | -140 |      |
| Diode Forward Voltage            | V <sub>SD</sub>     | I <sub>S</sub> =-20A, V <sub>GS</sub> =0V                                                             | -    | -0.8 | -1.3 | V    |
| Reverse Recovery Time            | T <sub>rr</sub>     | V <sub>DD</sub> =-40V,V <sub>GS</sub> =0V                                                             | -    | 33   | -    | ns   |
| Reverse Recovery Charge          | Q <sub>rr</sub>     | I <sub>S</sub> =-20A,dI <sub>S</sub> /dt=100A/us                                                      | -    | 43   | -    | nC   |

### NOTES :

1. Pulse width≤300us, Duty cycle≤2%.
2. Essentially independent of operating temperature typical characteristics.
3. The maximum current rating is package limited.
4. R<sub>θJA</sub> 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<sup>2</sup> with 2oz.square pad of copper.
5. E<sub>AS</sub> is calculated based on the condition of L=1mH, I<sub>AS</sub>=-23A, V<sub>DD</sub>=-30V, V<sub>GS</sub>=-10V. 100% test at L=0.5mH, I<sub>AS</sub>=-24A in production.
6. Guaranteed by design, not subject to production testing.

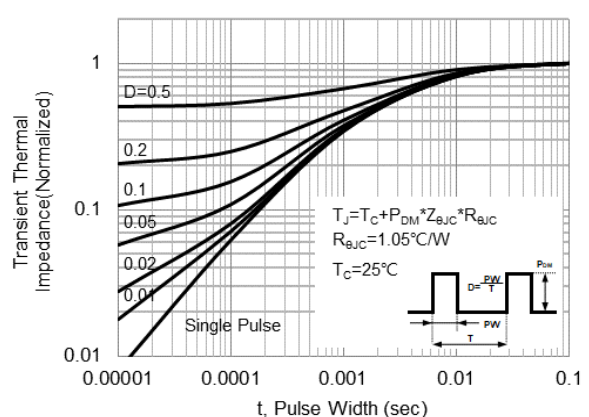
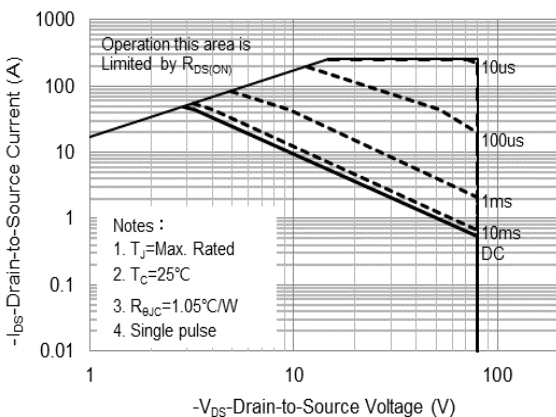
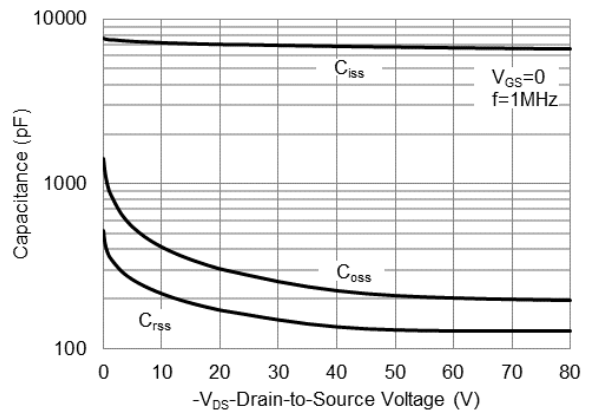
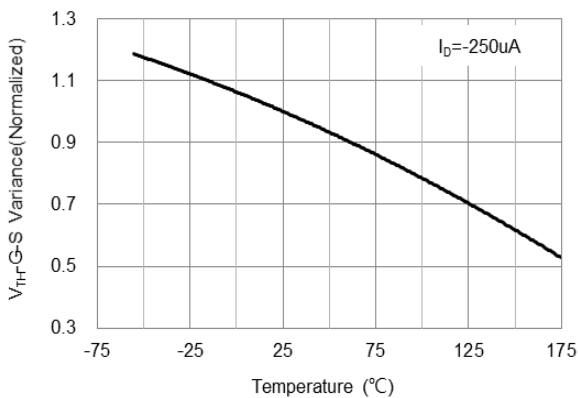
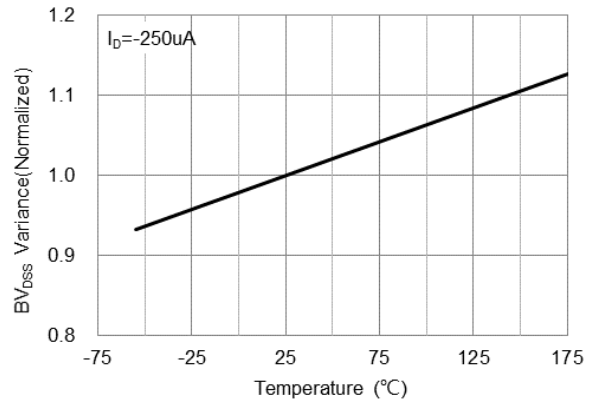
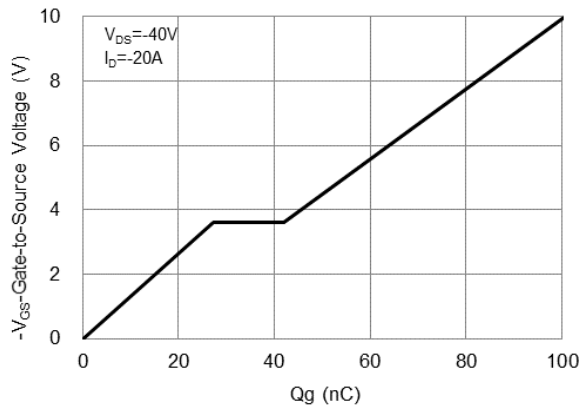
# PJD60P08-AU

## TYPICAL CHARACTERISTIC CURVES



# PJD60P08-AU

## TYPICAL CHARACTERISTIC CURVES

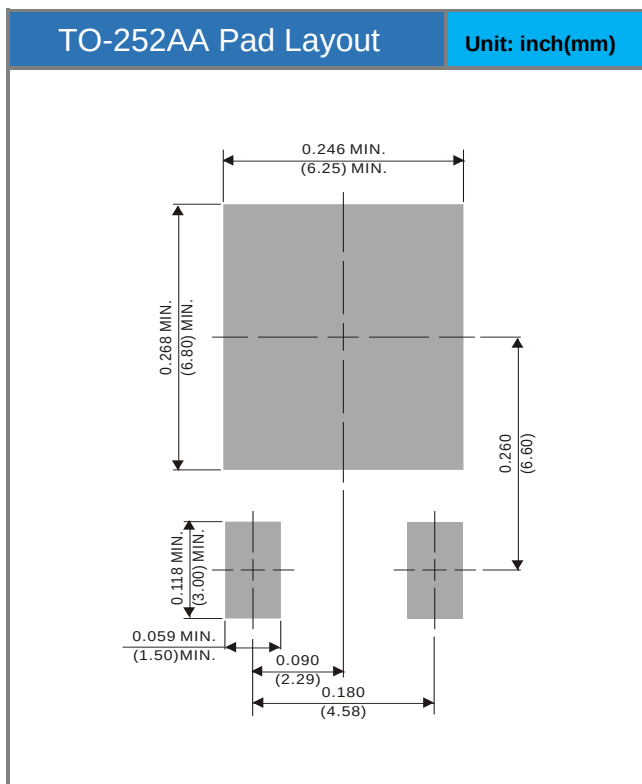
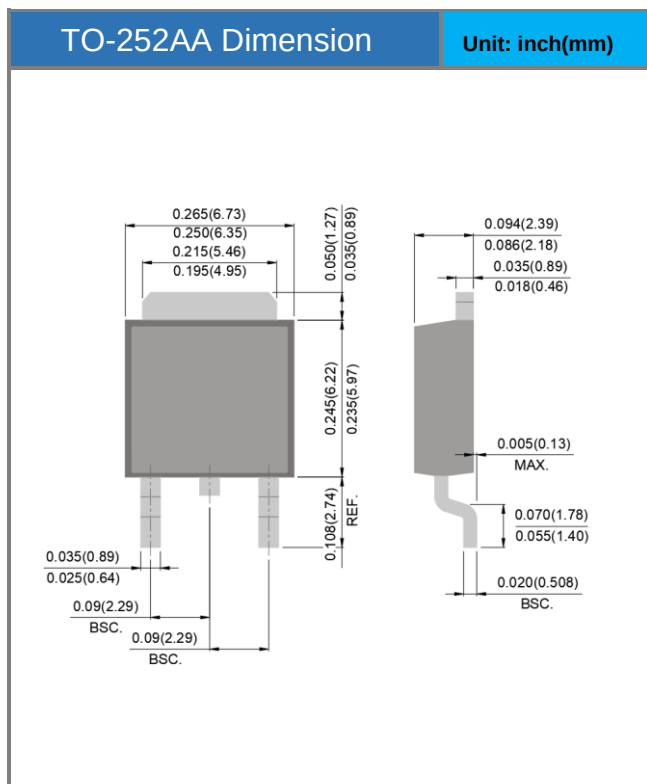


# PJD60P08-AU

## Product and Packing Information

| Part No.    | Package Type | Packing Type      | Marking |
|-------------|--------------|-------------------|---------|
| PJD60P08-AU | TO-252AA     | 3K pcs / 13" reel | D60P08  |

## Packaging Information & Mounting Pad Layout



## PJD60P08-AU

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