

PJQ2815

20V P-Channel Enhancement Mode MOSFET

Voltage

-20 V

Current

-4.2A

Features

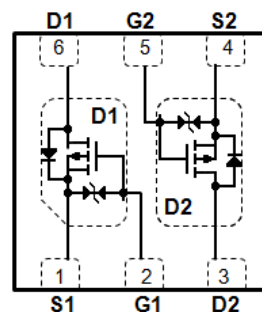
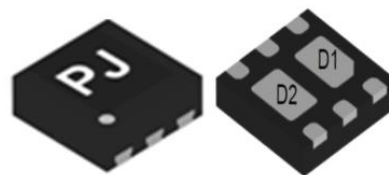
- RDS(ON) , VGS@-4.5V, ID@-4.2A<52mΩ
- RDS(ON) , VGS@-2.5V, ID@-3.3A<62mΩ
- RDS(ON) , VGS@-1.8V, ID@-2.2A<73mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- ESD Protected
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std.

(Halogen Free)

Mechanical Data

- Case: DFN2020-6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00032 ounces, 0.0093 grams
- Marking: 815

DFN2020-6L



Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

| PARAMETER | | SYMBOL | LIMIT | UNITS |
|--|----------------------|-----------------------------------|---------|-------|
| Drain-Source Voltage | | V _{DS} | -20 | V |
| Gate-Source Voltage | | V _{GS} | ±8 | V |
| Continuous Drain Current | | I _D | -4.2 | A |
| Pulsed Drain Current | | I _{DM} | -16.8 | A |
| Power Dissipation | T _a =25°C | P _D | 1.5 | W |
| | Derate above 25°C | | 12 | mW/°C |
| Operating Junction and Storage Temperature Range | | T _J , T _{STG} | -55~150 | °C |
| Typical Thermal Resistance | | R _{θJA} | 83.3 | °C/W |
| - Junction to Ambient ^(Note 3) | | | | |

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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 | -20 | - | - | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =-250uA | -0.35 | -0.55 | -0.9 | V |
| Drain-Source On-State Resistance | R _{DS(on)} | V _{GS} =-4.5V, I _D =-4.2A | - | 43 | 52 | mΩ |
| | | V _{GS} =-2.5V, I _D =-3.3A | - | 51 | 62 | |
| | | V _{GS} =-1.8V, I _D =-2.2A | - | 61 | 73 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-20V, V _{GS} =0V | - | -0.01 | -1.0 | uA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±8V, V _{DS} =0V | - | ±6 | ±10 | uA |
| Dynamic (Note 6) | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =-10V, I _D =-4.2A, V _{GS} =-4.5V (Note 1,2) | - | 24 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 1.5 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 2.5 | - | |
| Input Capacitance | C _{iss} | V _{DS} =-10V, V _{GS} =0V, f=1.0MHZ | - | 907 | - | pF |
| Output Capacitance | C _{oss} | | - | 90 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 70 | - | |
| Turn-On Delay Time | td _(on) | V _{DD} =-10V, I _D =-4.2A, V _{GS} =-4.5V, R _G =6Ω (Note 1,2) | - | 45 | - | ns |
| Turn-On Rise Time | tr | | - | 79 | - | |
| Turn-Off Delay Time | td _(off) | | - | 193 | - | |
| Turn-Off Fall Time | tf | | - | 826 | - | |
| Drain-Source Diode | | | | | | |
| Maximum Continuous Drain-Source Diode Forward Current | I _s | --- | - | - | -1.5 | A |
| Diode Forward Voltage | V _{SD} | I _s =-1.0A, V _{GS} =0V | - | -0.66 | -1.2 | V |

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. 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.
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. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

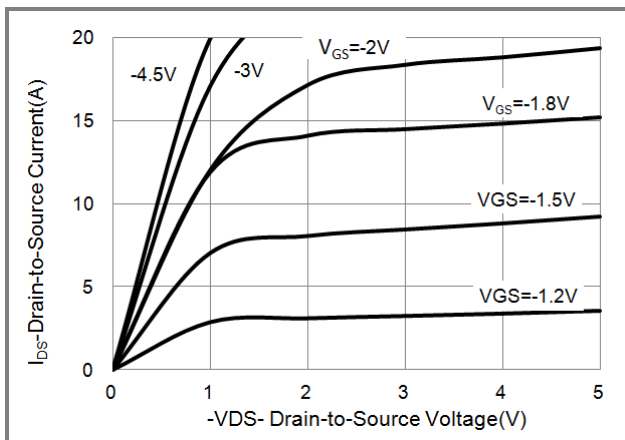


Fig.1 On-Region Characteristics

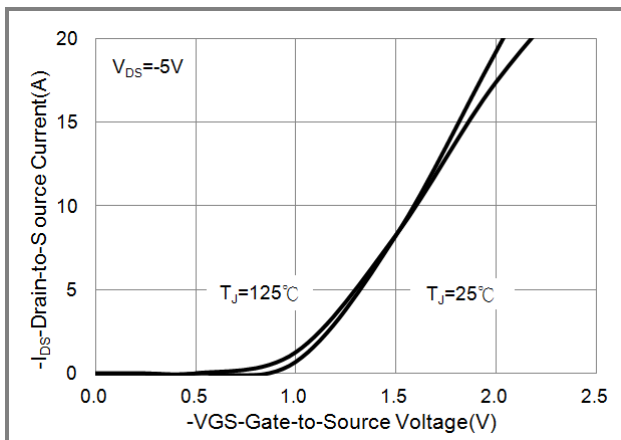


Fig.2 Transfer Characteristics

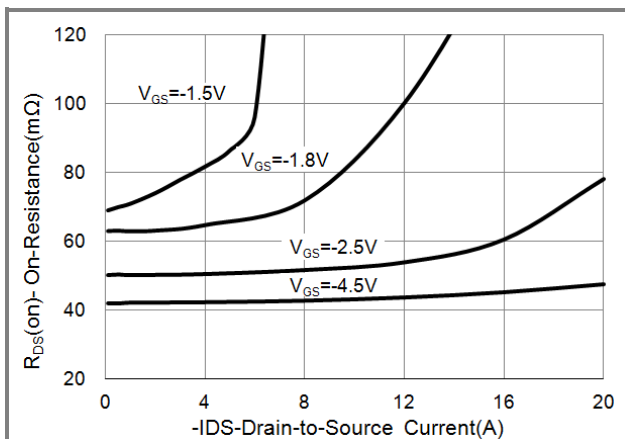


Fig.3 On-Resistance vs. Drain Current

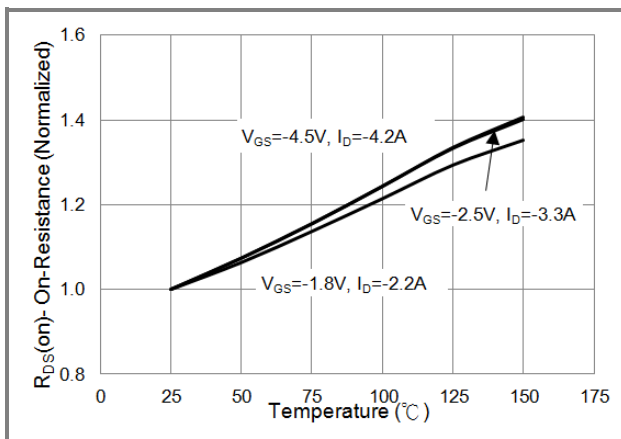


Fig.4 On-Resistance vs. Junction temperature

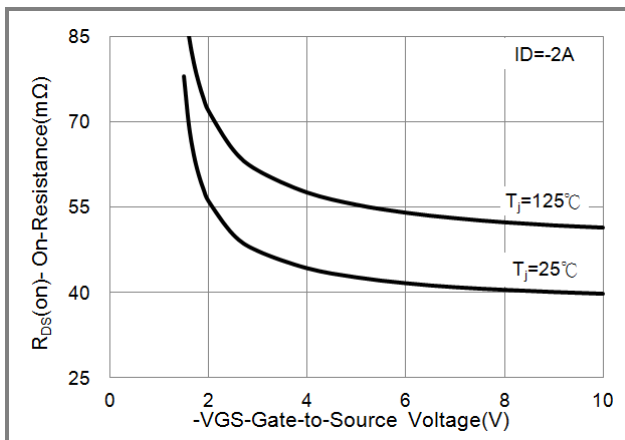


Fig.5 On-Resistance Variation with VGS.

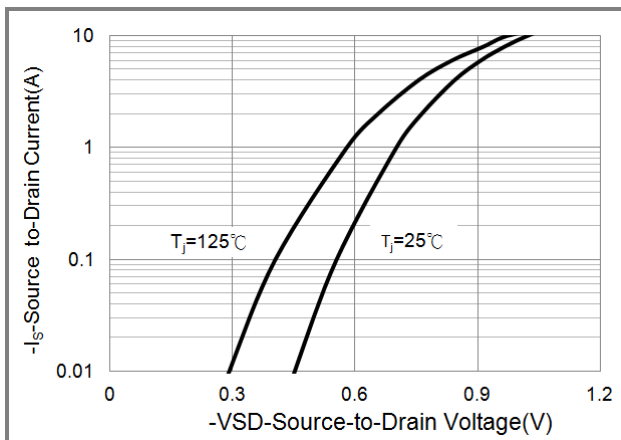


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

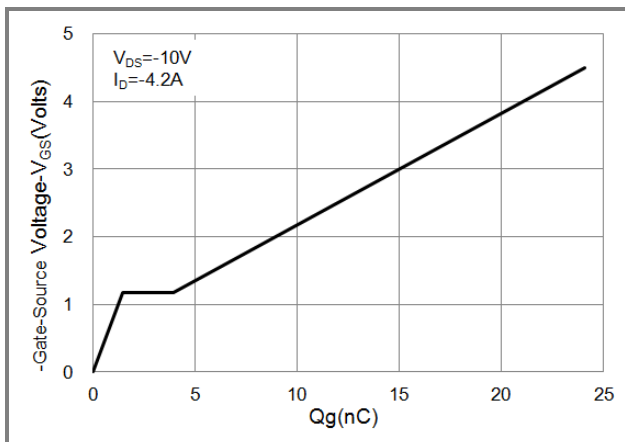


Fig.7 Gate-Charge Characteristics

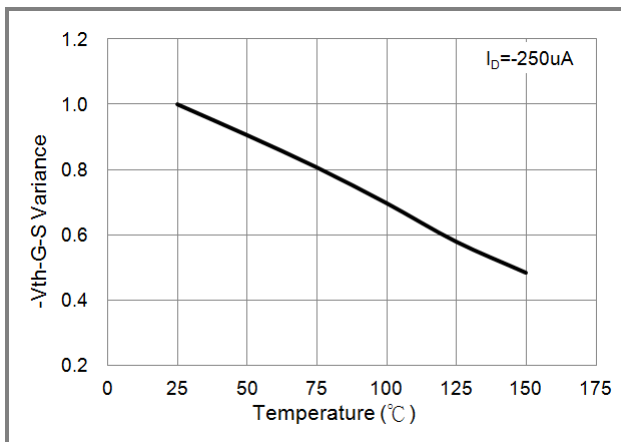


Fig.8 Threshold Voltage Variation with Temperature.

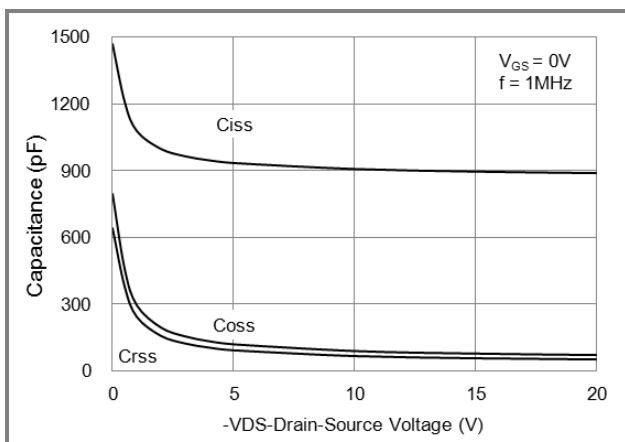


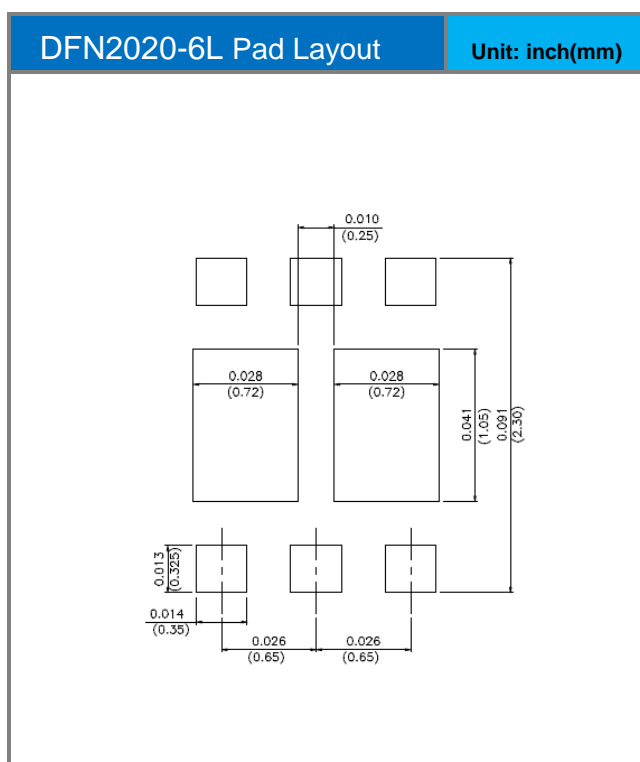
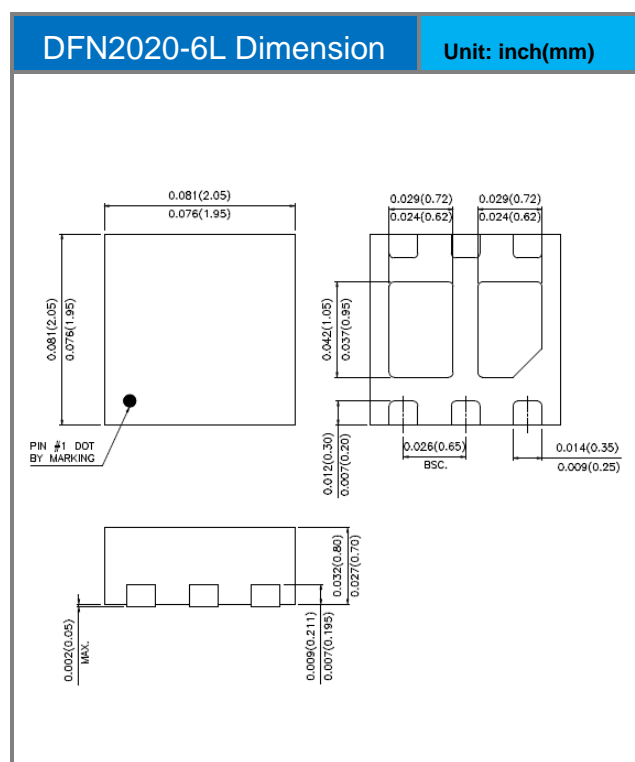
Fig.9 Capacitance vs. Drain-Source Voltage.

PJQ2815

Product and Packing Information

| Part No. | Package Type | Packing Type | Marking |
|----------|--------------|------------------|---------|
| PJQ2815 | DFN2020-6L | 3K pcs / 7" reel | 815 |

Mounting Pad Layout



PJQ2815

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