



PJQ2815

20V P-Channel Enhancement Mode MOSFET

Voltage **-20 V** **Current** **-4.2A**

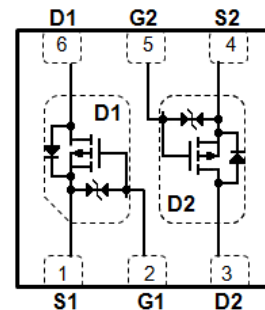
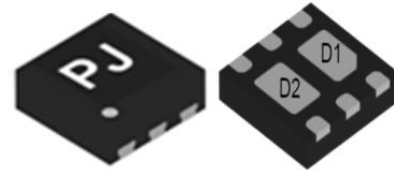
Features

- 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	P _D	T _a =25°C	1.5
		Derate above 25°C	12
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)			



PJQ2815

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}	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-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	m Ω
		$V_{GS}=-2.5V, I_D=-3.3A$	-	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	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	-	± 6	± 10	μA
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}	$V_{DS}=-10V, V_{GS}=0V,$ $f=1.0\text{MHZ}$	-	907	-	pF
Output Capacitance	C_{oss}		-	90	-	
Reverse Transfer Capacitance	C_{rss}		-	70	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-4.2A,$ $V_{GS}=-4.5V,$ $R_G=6\Omega$ (Note 1,2)	-	45	-	ns
Turn-On Rise Time	t_r		-	79	-	
Turn-Off Delay Time	$t_{d(off)}$		-	193	-	
Turn-Off Fall Time	t_f		-	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 $\leq 300\mu s$, Duty cycle $\leq 2\%$
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 $T_J(\text{MAX})=150^{\circ}\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}\text{C}$.
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. Guaranteed by design, not subject to production testing.



PJQ2815

TYPICAL CHARACTERISTIC CURVES

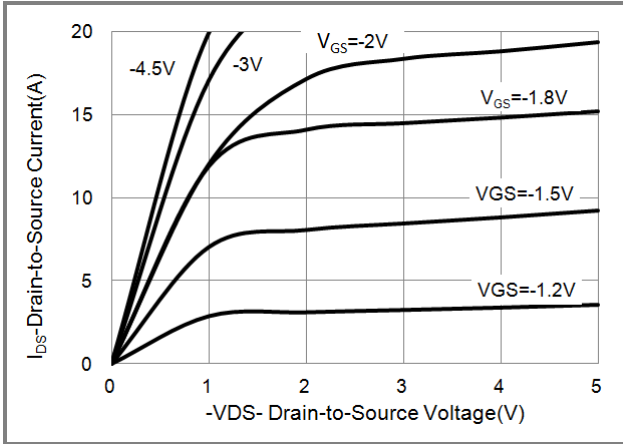


Fig.1 On-Region Characteristics

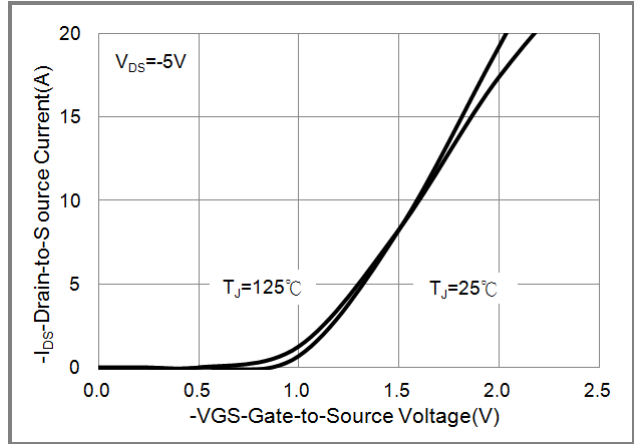


Fig.2 Transfer Characteristics

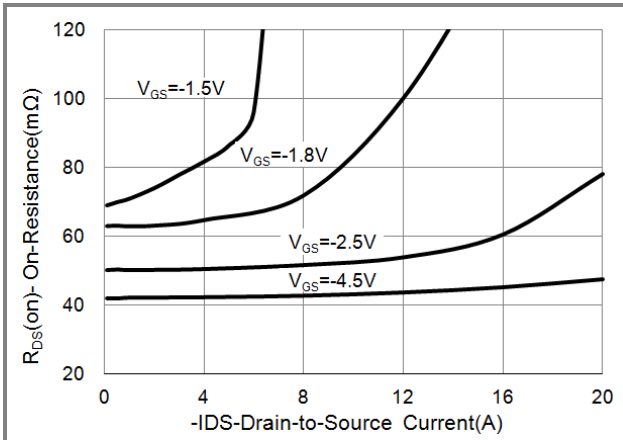


Fig.3 On-Resistance vs. Drain Current

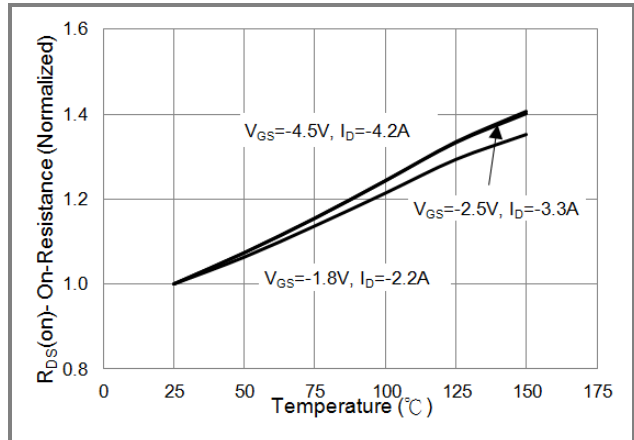


Fig.4 On-Resistance vs. Junction temperature

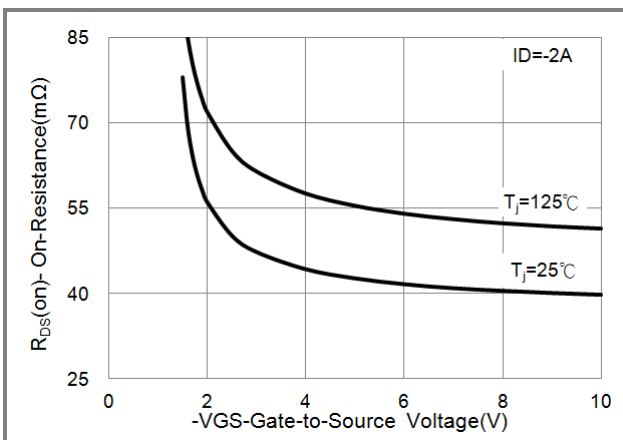


Fig.5 On-Resistance Variation with VGS.

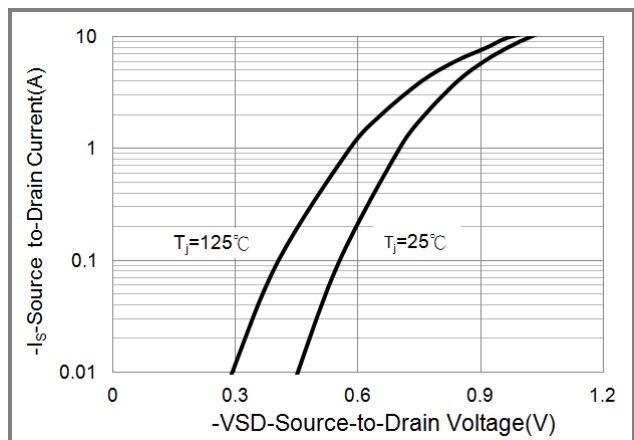


Fig.6 Body Diode Characteristics



PJQ2815

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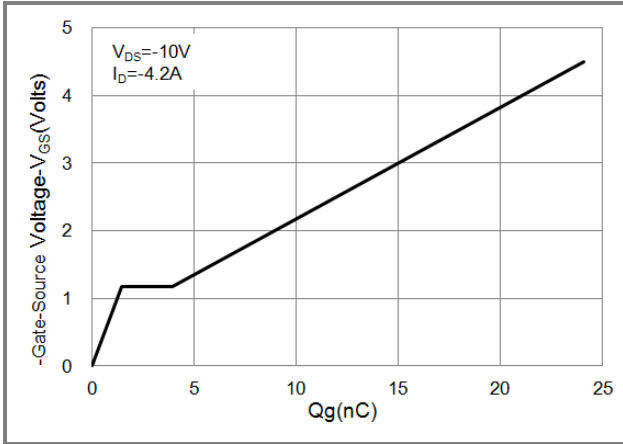


Fig.7 Gate-Charge Characteristics

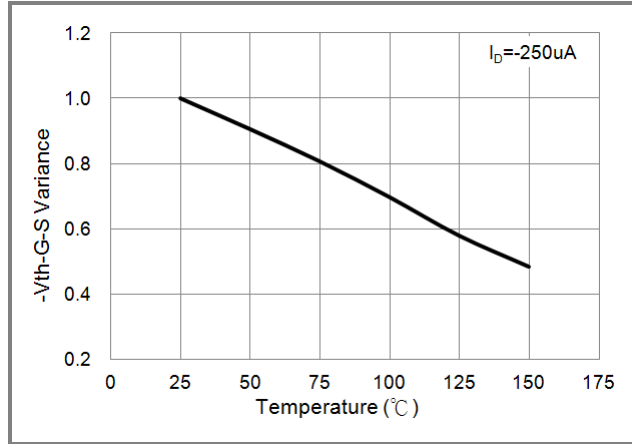


Fig.8 Threshold Voltage Variation with Temperature.

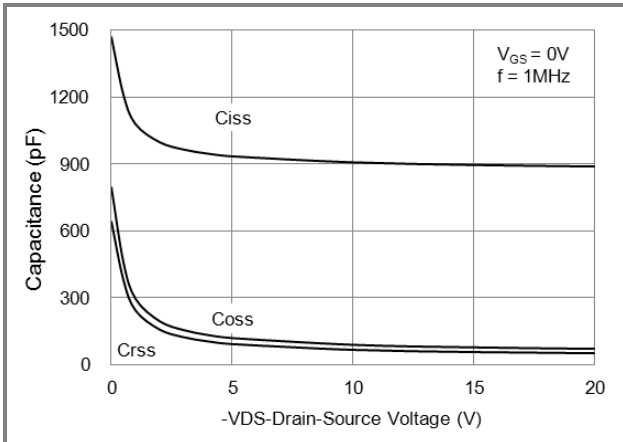


Fig.9 Capacitance vs. Drain-Source Voltage.

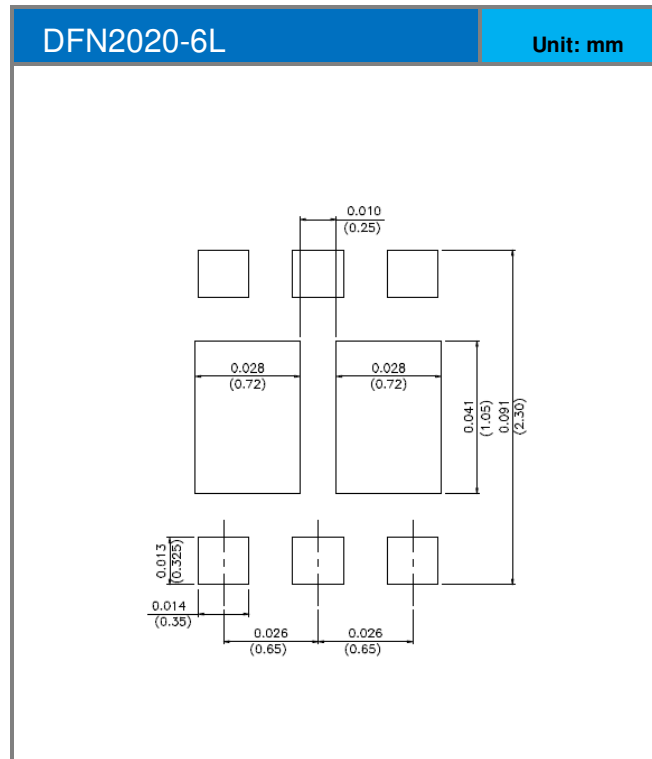
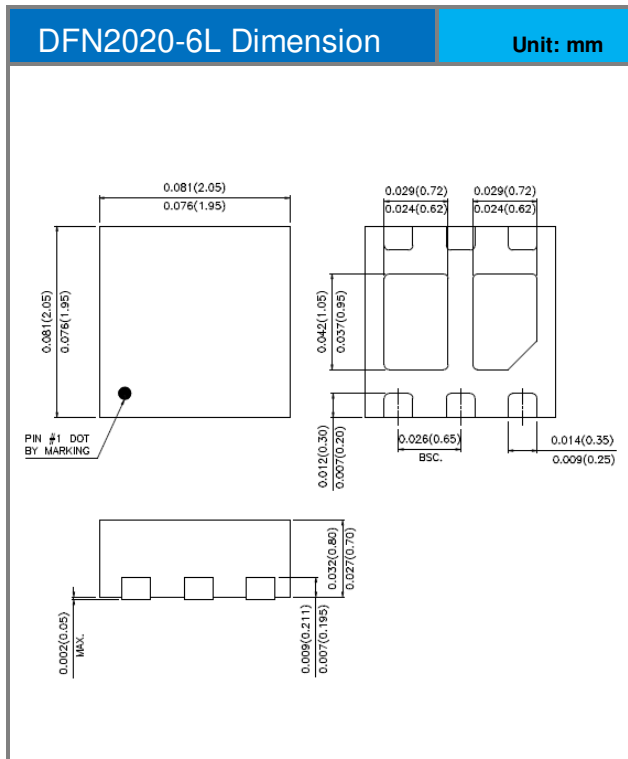


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PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJQ2815_R1_00001	DFN2020-6L	3K pcs / 7" reel	815	Halogen free

MOUNTING PAD LAYOUT





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