

PJQ1900

20V N-Channel Enhancement Mode MOSFET

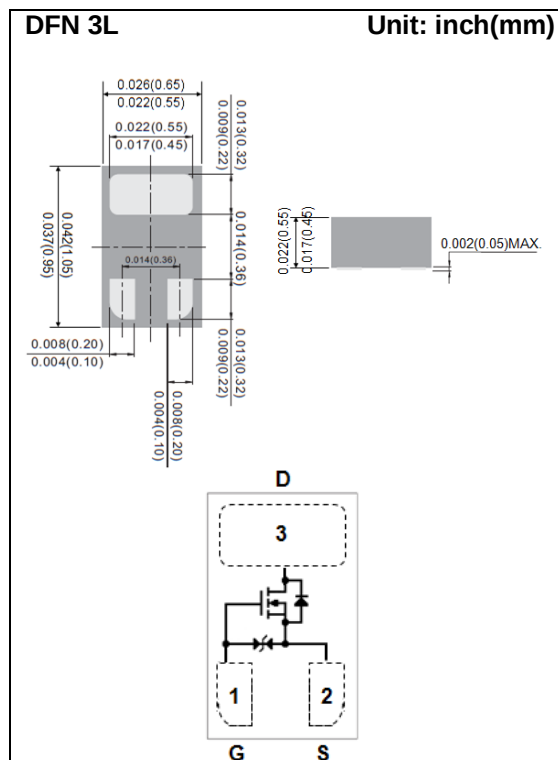
Voltage	20 V	Current	1.2 A
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Features

- Low Voltage Drive (1.2V).
- 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: DFN 3L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00004 ounces, 0.0011 grams
- Marking: 0



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltage		V _{GS}	±10	V
Continuous Drain Current	T _A =25°C	I _D	1.2	A
	T _{sp} =25°C (Note 3)		2.0	
Pulsed Drain Current, tp≤10us		I _{DM}	4.0	A
Power Dissipation	T _A =25°C	P _D	900	mW
	Derate above 25°C		7.2	mW/°C
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Typical Thermal resistance		R _{θJA}	139	°C/W
- Junction to Ambient, t<10s (Note 4)				



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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	0.3	0.65	0.9	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =600mA	-	300	400	mΩ
		V _{GS} =2.5V, I _D =200mA	-	350	650	
		V _{GS} =1.8V, I _D =100mA	-	400	800	
		V _{GS} =1.5V, I _D =50mA	-	500	1200	
		V _{GS} =1.2V, I _D =20mA	-	1000	3000	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	-	±0.5	±10	uA
Dynamic (Note 6)						
Total Gate Charge	Q _g	V _{DS} =10V, I _D =300mA, V _{GS} =4.5V (Note 2)	-	1.4	-	nC
Gate-Source Charge	Q _{gs}		-	0.22	-	
Gate-Drain Charge	Q _{gd}		-	0.21	-	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1.0MHZ	-	67	-	pF
Output Capacitance	C _{oss}		-	19	-	
Reverse Transfer Capacitance	C _{rss}		-	6	-	
Turn-On Delay Time	td _(on)	V _{DD} =10V, I _D =150mA, V _{GS} =4.0V, R _G =10Ω (Note 1,2)	-	2.8	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	td _(off)		-	23	-	
Turn-Off Fall Time	tf		-	23	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	300	mA
Diode Forward Voltage	V _{SD}	I _S =300mA, V _{GS} =0V	-	0.87	1.3	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%
2. Essentially independent of operating temperature typical characteristics.
3. T_{sp} is the temperature at the soldering point of the source lead.
4. 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 1inch FR-4 with 2oz. square pad of copper.
5. The maximum current rating is package limited
6. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

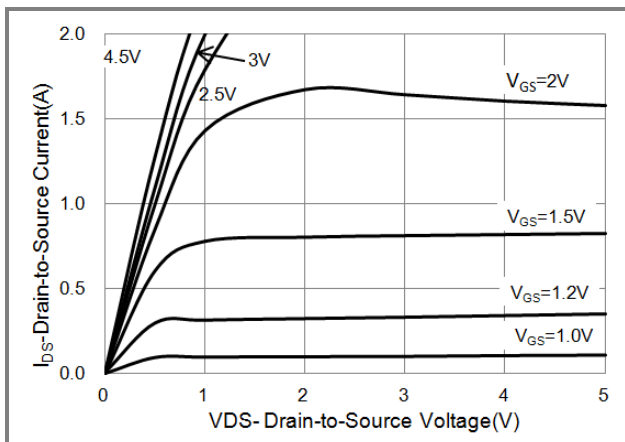


Fig.1 On-Region Characteristics

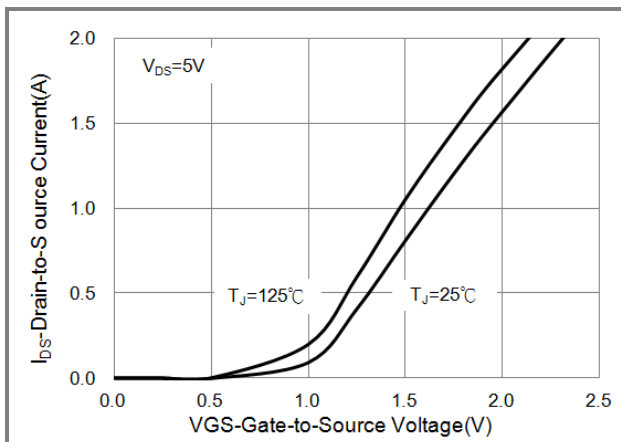


Fig.2 Transfer Characteristics

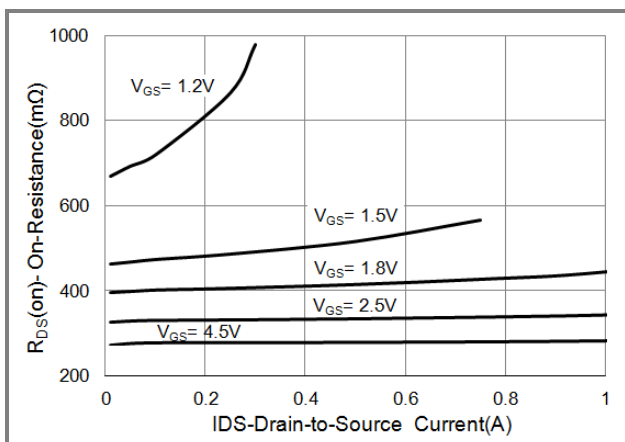


Fig.3 On-Resistance vs. Drain Current

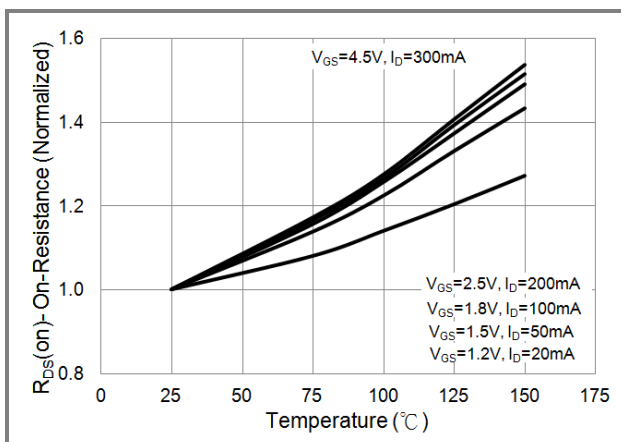


Fig.4 On-Resistance vs. Junction temperature

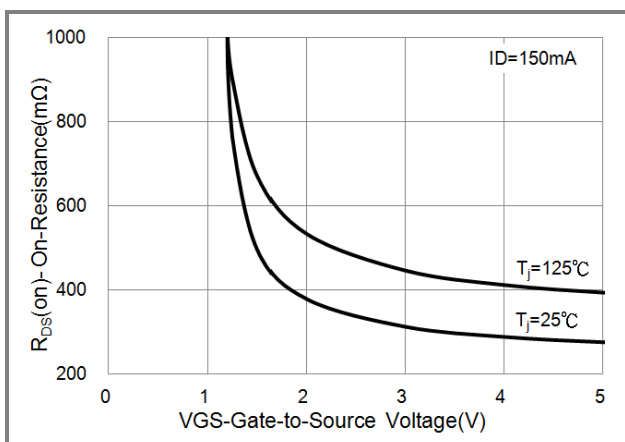


Fig.5 On-Resistance Variation with VGS.

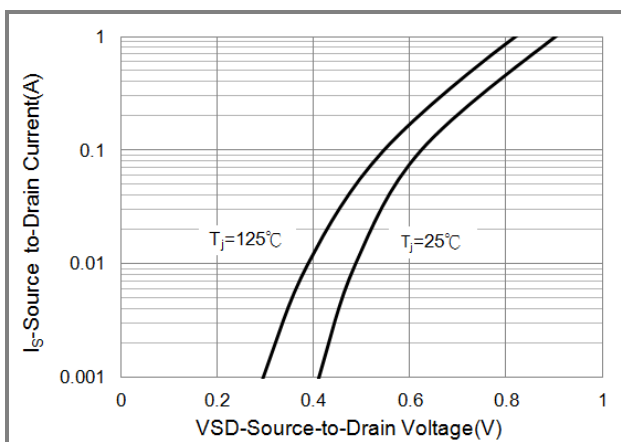


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

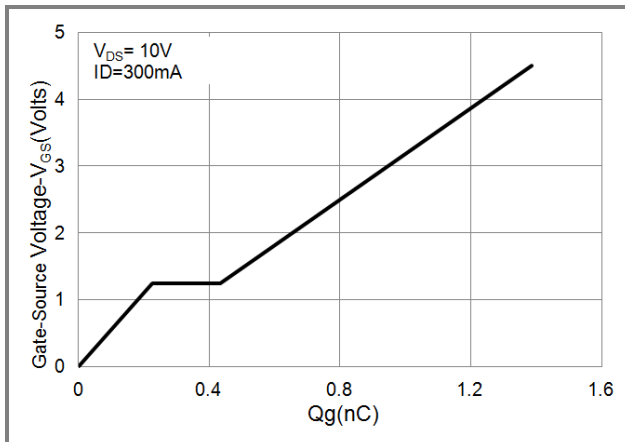


Fig.7 Gate-Charge Characteristics

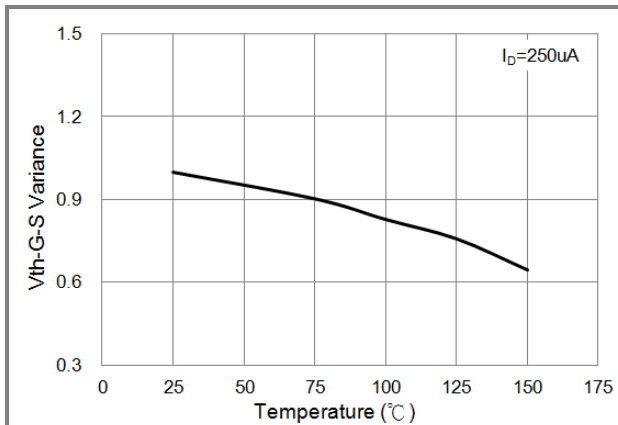


Fig.8 Threshold Voltage Variation with Temperature.

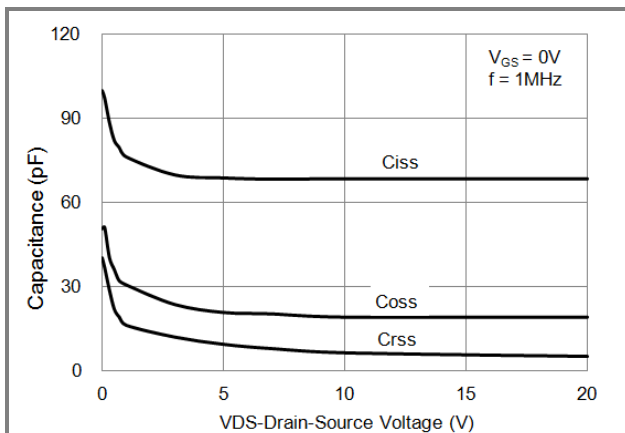


Fig.9 Capacitance vs. Drain-Source Voltage.

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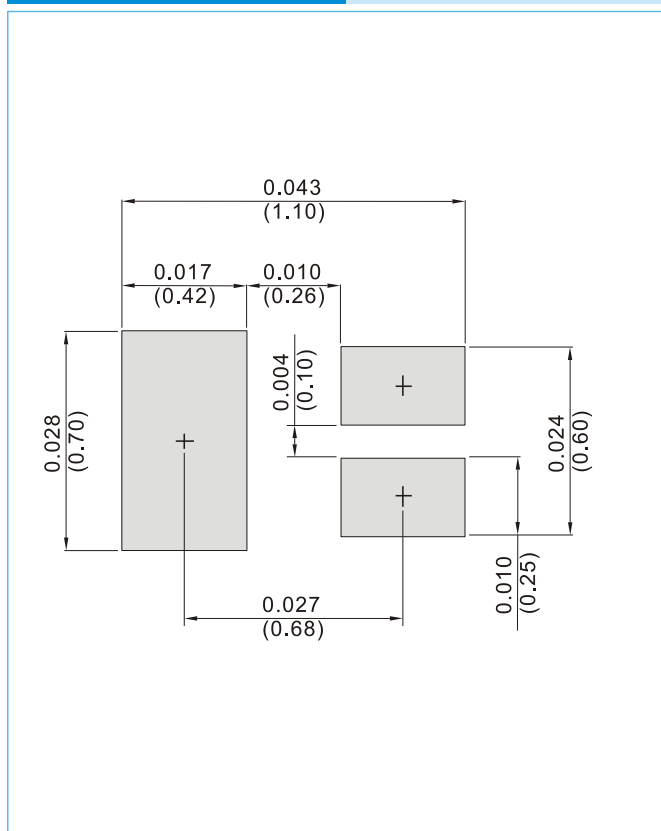
PART NO PACKING CODE VERSION

PART NO PACKING CODE	Package Type	Packing type	Marking	Version
PJQ1900_R1_00001	DFN 3L	8K pcs / 7" reel	0	Halogen free

MOUNTING PAD LAYOUT

DFN 3L

Unit : inch(mm)





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