



# PJQ1906

## 30V N-Channel Enhancement Mode MOSFET

**Voltage** 30 V **Current** 300mA

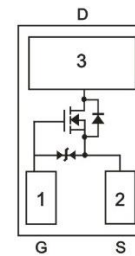
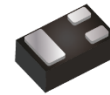
### Features

- Advanced Trench Process Technology
- ESD Protected
- Specially Designed for Switch Load
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : DFN1006-3L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0007 grams

DFN1006-3L



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V <sub>DS</sub>	30	V
Gate-Source Voltage		V <sub>GS</sub>	±10	
Continuous Drain Current <sup>(Note 4)</sup>		I <sub>D</sub>	300	mA
Pulsed Drain Current <sup>(Note 1)</sup>		I <sub>DM</sub>	600	
Power Dissipation	T <sub>A</sub> =25°C	P <sub>D</sub>	700	mW
	Derate above 25°C		5.6	mW/°C
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Typical Thermal Resistance		R <sub>θJA</sub>	175	°C/W
- Junction to Ambient <sup>(Note 5)</sup>				



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.4	0.75	1.0	
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =300mA	-	0.7	1.2	Ω
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =200mA	-	0.8	1.6	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =100mA	-	0.9	2.0	
		V <sub>GS</sub> =1.5V, I <sub>D</sub> =50mA	-	1.1	3.0	
		V <sub>GS</sub> =1.2V, I <sub>D</sub> =20mA	-	1.5	4.0	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V	-	-	±10	
<b>Dynamic</b> (Note 6)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =300mA, V <sub>GS</sub> =4.5V	-	0.9	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.3	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	0.2	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1.0MHZ	-	45	-	pF
Output Capacitance	C <sub>oss</sub>		-	14	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	0.8	-	
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, I <sub>D</sub> =300mA, V <sub>GS</sub> =4V, R <sub>G</sub> =10Ω(Notes 1,2)	-	8.3	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	5.7	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	35	-	
Turn-Off Fall Time	t <sub>f</sub>		-	12	-	
<b>Drain-Source Diode</b>						
Diode Forward Current	I <sub>S</sub>	---	-	-	300	mA
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =300mA, V <sub>GS</sub> =0V	-	0.9	1.3	V

Notes :

1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T<sub>J</sub>(MAX)=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub> =25°C.
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. Guaranteed by design, not subject to production testing.



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## TYPICAL CHARACTERISTIC CURVES

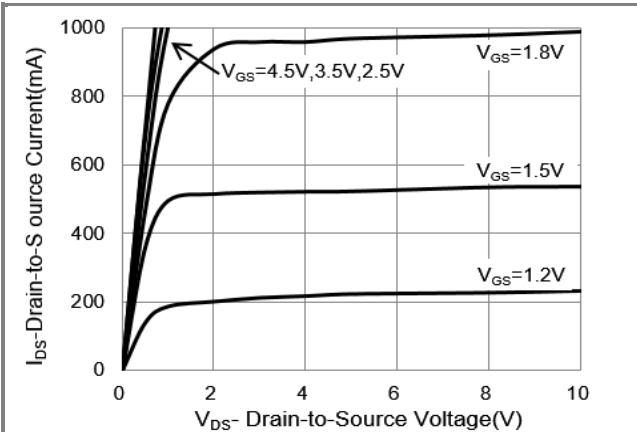


Fig.1 Output Characteristics

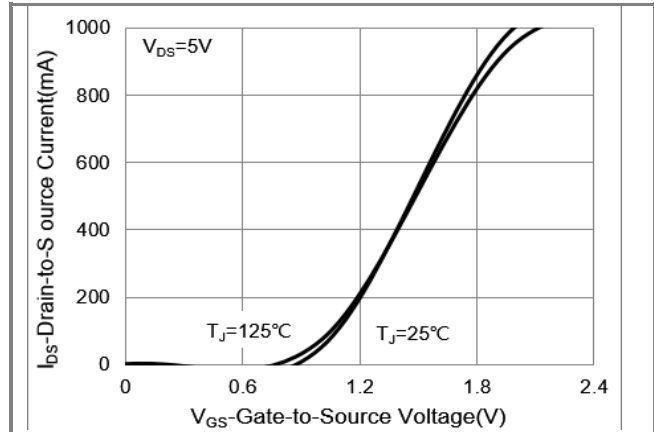


Fig.2 Transfer Characteristics

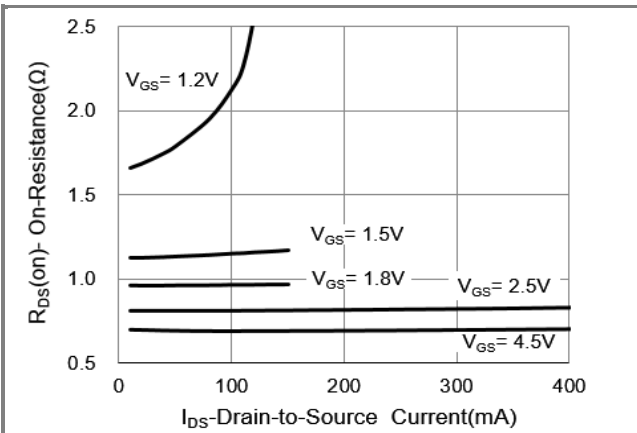


Fig.3 On-Resistance vs. Drain Current

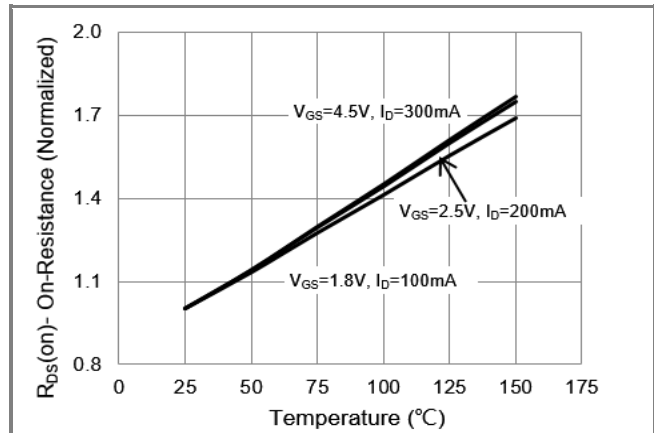


Fig.4 On-Resistance vs. Junction temperature

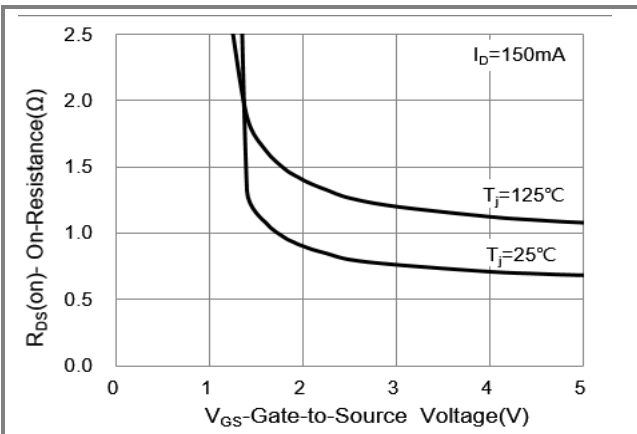


Fig.5 On-Resistance Variation with VGS

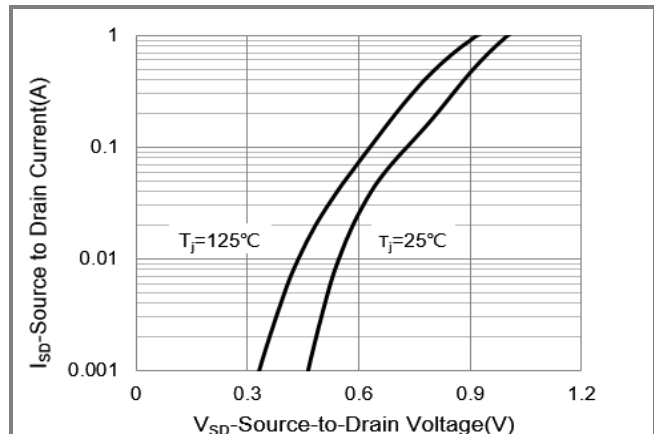
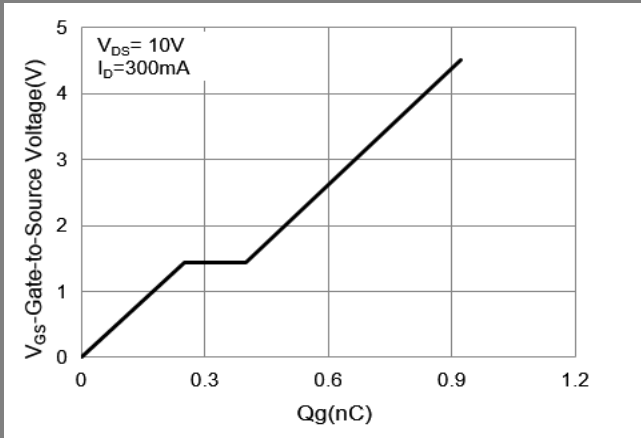


Fig.6 Source-Drain Diode Forward Voltage

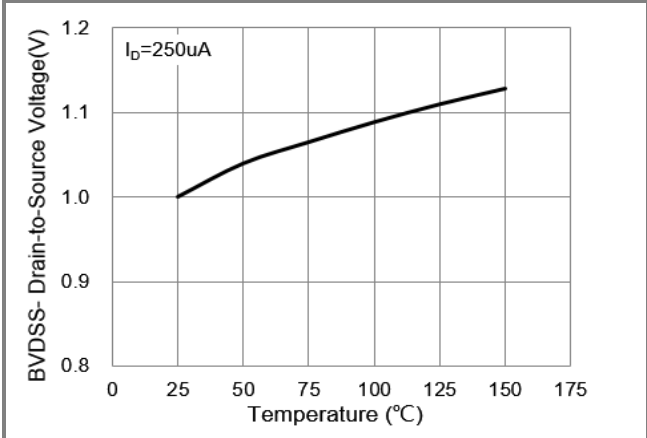


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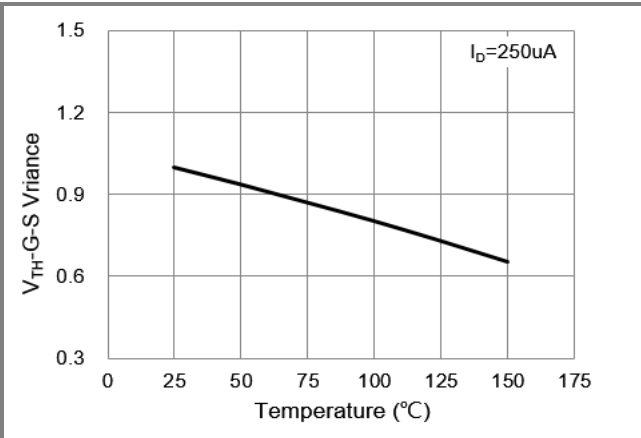
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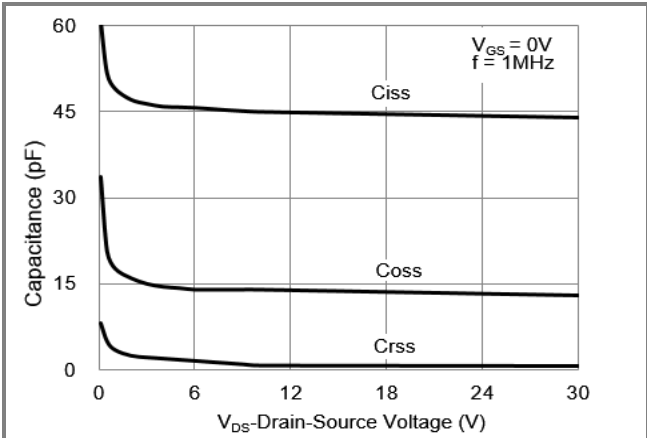
**Fig.7 Gate-Charge Characteristics**



**Fig.8 Breakdown Voltage Variation vs. Temperature**



**Fig.9 Threshold Voltage Variation with Temperature**



**Fig.10 Capacitance vs. Drain-Source Voltage**

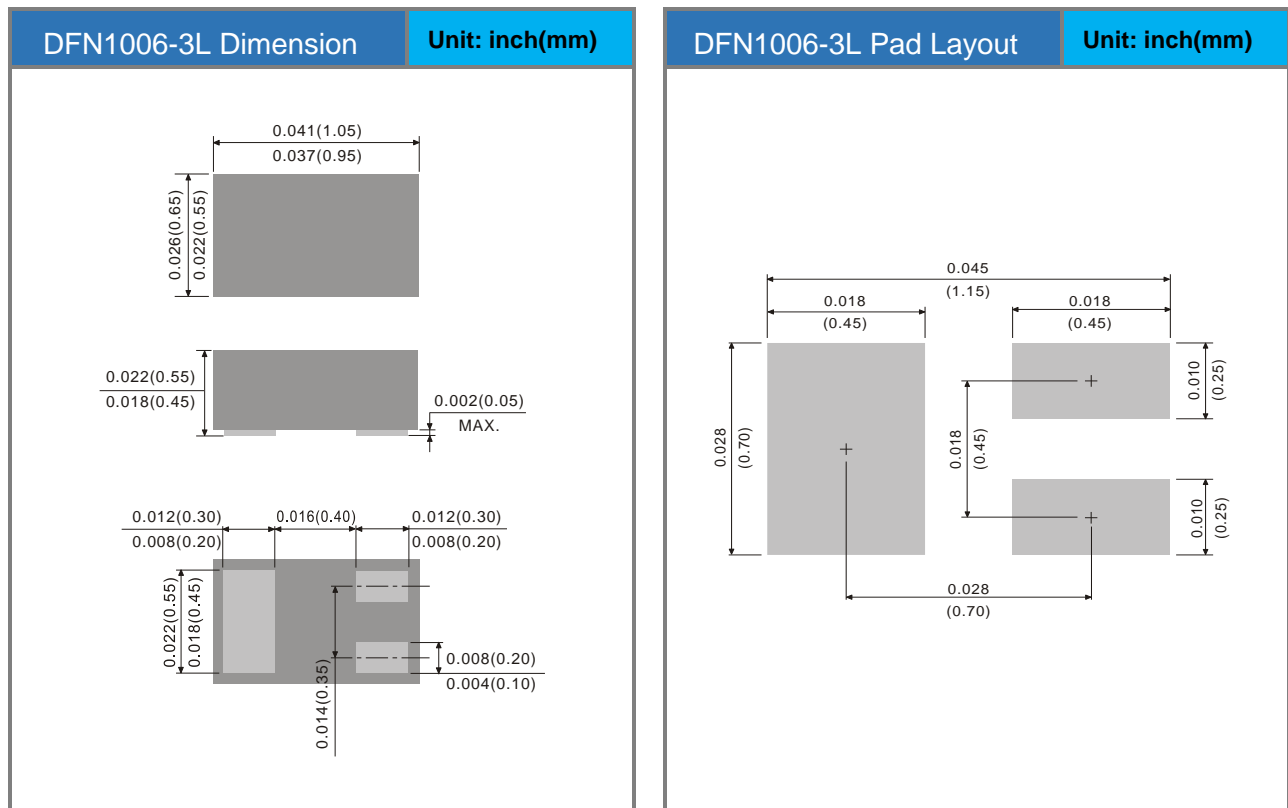


# PJQ1906

## Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ1906_R1_00201	DFN1006-3L	10K pcs / 7" reel	6	Halogen free RoHS compliant

## Packaging Information & Mounting Pad Layout





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