



# PJL9801

## 30V P-Channel Enhancement Mode MOSFET

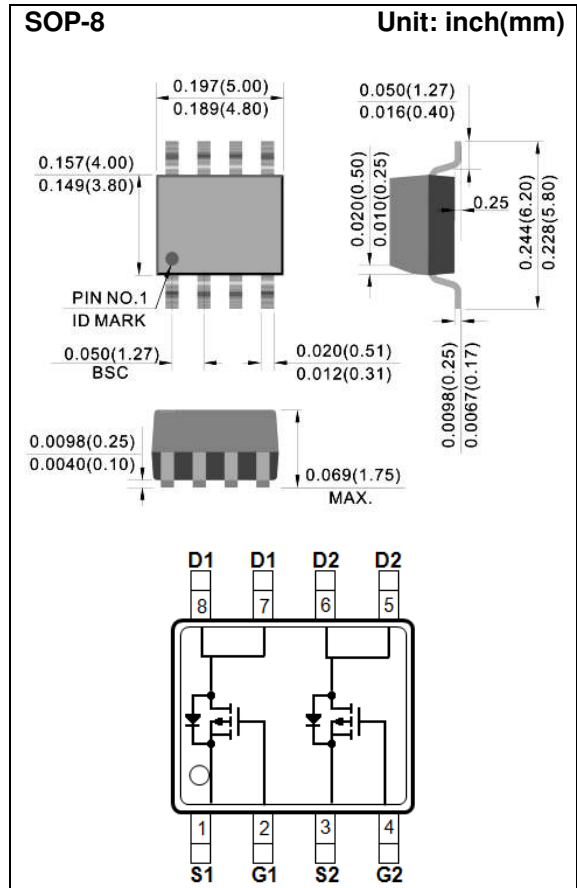
**Voltage**    **-30 V**    **Current**    **-5A**

### Features

- $R_{DS(ON)}$  ,  $V_{GS}@-10V$ ,  $I_{D}@-5.0A < 54m\Omega$
- $R_{DS(ON)}$  ,  $V_{GS}@-4.5V$ ,  $I_{D}@-3.5A < 61m\Omega$
- $R_{DS(ON)}$  ,  $V_{GS}@-2.5V$ ,  $I_{D}@-2.5A < 82m\Omega$
- Advanced Trench Process Technology
- High density cell design for ultra low on-resistance
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. (Halogen Free)

### Mechanical Data

- Case: SOP-8 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0029 ounces, 0.083 grams
- Marking: L9801



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		$V_{DS}$	-30	V
Gate-Source Voltage		$V_{GS}$	$\pm 12$	V
Continuous Drain Current		$I_D$	5	A
Pulsed Drain Current		$I_{DM}$	20	A
Power Dissipation	$T_a=25^\circ C$	$P_D$	2	W
	Derate above $25^\circ C$		16	mW/ $^\circ C$
Operating Junction and Storage Temperature Range		$T_J, T_{STG}$	-55~150	$^\circ C$
Typical Thermal resistance		$R_{\theta JA}$	62.5	$^\circ C/W$
- Junction to Ambient <sup>(Note 3)</sup>				



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## Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.97	-1.3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-5.0A$	-	45	54	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3.5A$	-	51	61	
		$V_{GS}=-2.5V, I_D=-2.5A$	-	67	82	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$	-	-0.01	-1.0	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$	-	$\pm 10$	$\pm 100$	nA
<b>Dynamic</b> (Note 5)						
Total Gate Charge	$Q_g$	$V_{DS}=-15V, I_D=-5.0A,$ $V_{GS}=4.5V$ (Note 1,2)	-	9.1	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.8	-	
Gate-Drain Charge	$Q_{gd}$		-	2.6	-	
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V,$ $f=1.0\text{MHZ}$	-	816	-	pF
Output Capacitance	$C_{oss}$		-	64	-	
Reverse Transfer Capacitance	$C_{rss}$		-	42	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-15V, I_D=-5.0A,$ $V_{GS}=-10V,$ $R_G=6\Omega$ (Note 1,2)	-	5	-	ns
Turn-On Rise Time	$t_r$		-	45	-	
Turn-Off Delay Time	$t_{d(off)}$		-	66	-	
Turn-Off Fall Time	$t_f$		-	10	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_S$	---	-	-	-2	A
Diode Forward Voltage	$V_{SD}$	$I_S=-1.0A, V_{GS}=0V$	-	0.77	-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.  $R_{\theta JA}$  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 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

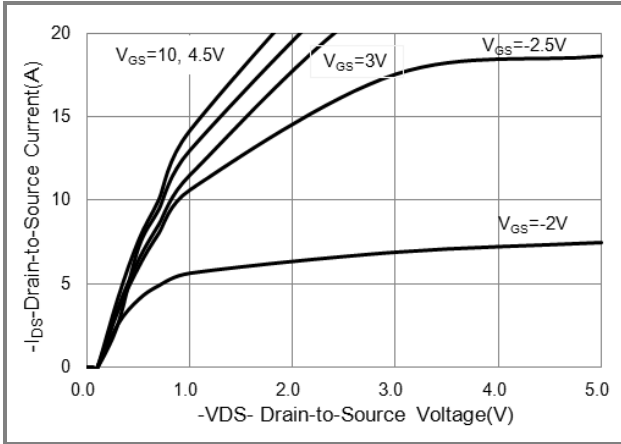


Fig.1 On-Region Characteristics

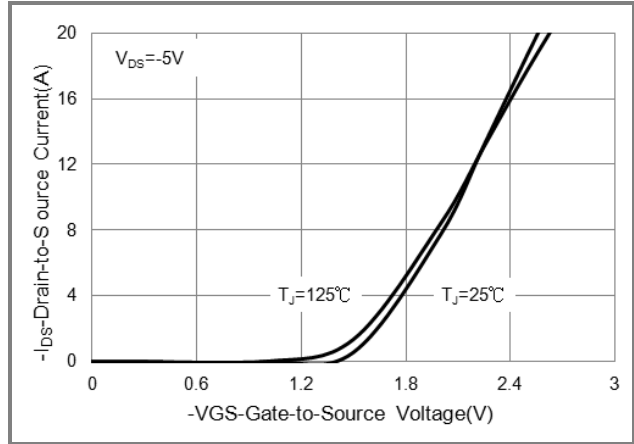


Fig.2 Transfer Characteristics

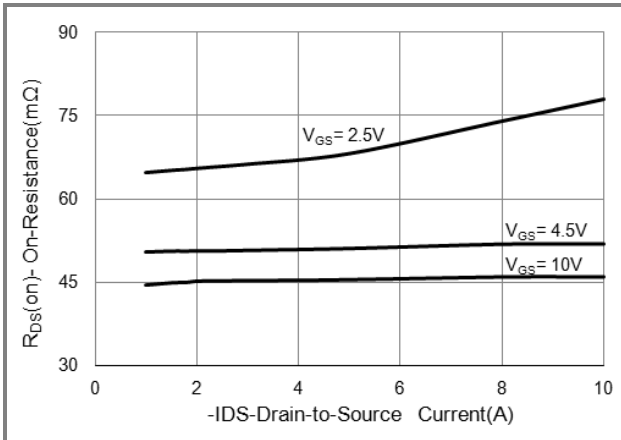


Fig.3 On-Resistance vs. Drain Current

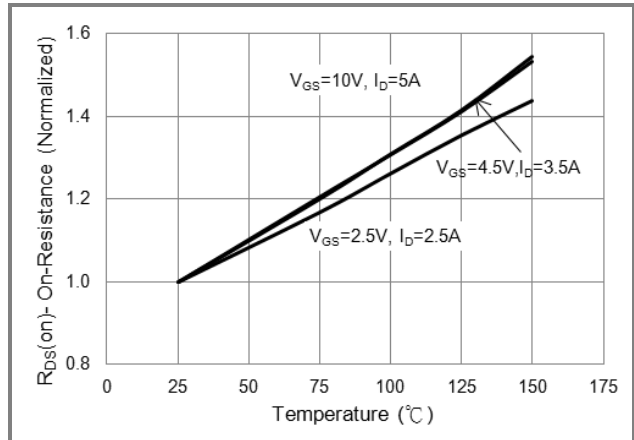


Fig.4 On-Resistance vs. Junction temperature

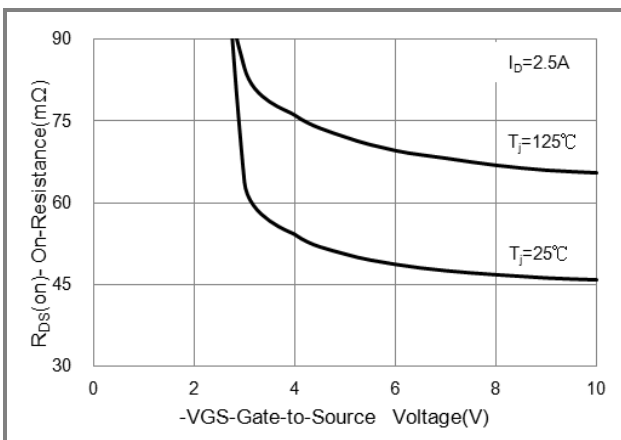


Fig.5 On-Resistance Variation with VGS.

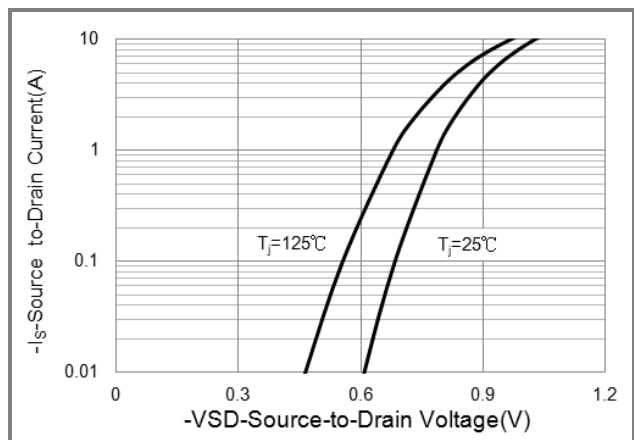


Fig.6 Body Diode Characteristics



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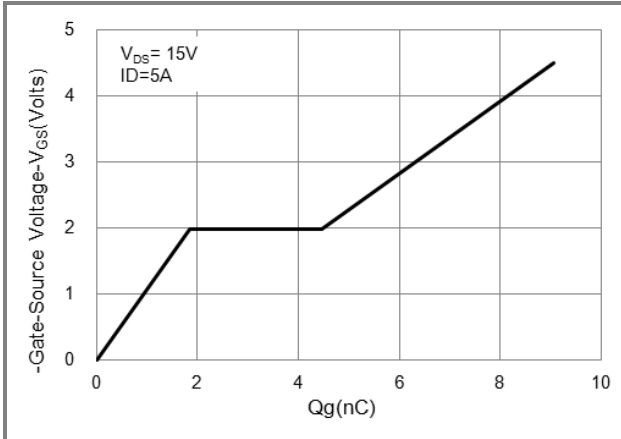


Fig.7 Gate-Charge Characteristics

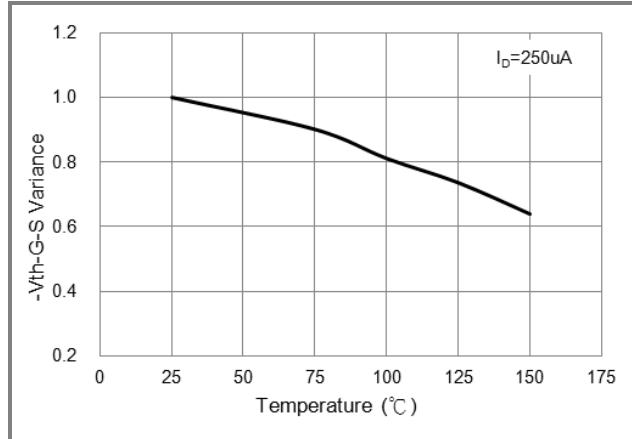


Fig.8 Threshold Voltage Variation with Temperature.

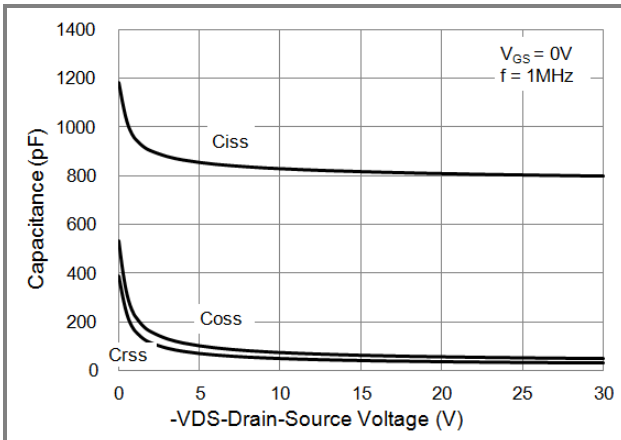


Fig.9 Capacitance vs. Drain-Source Voltage.

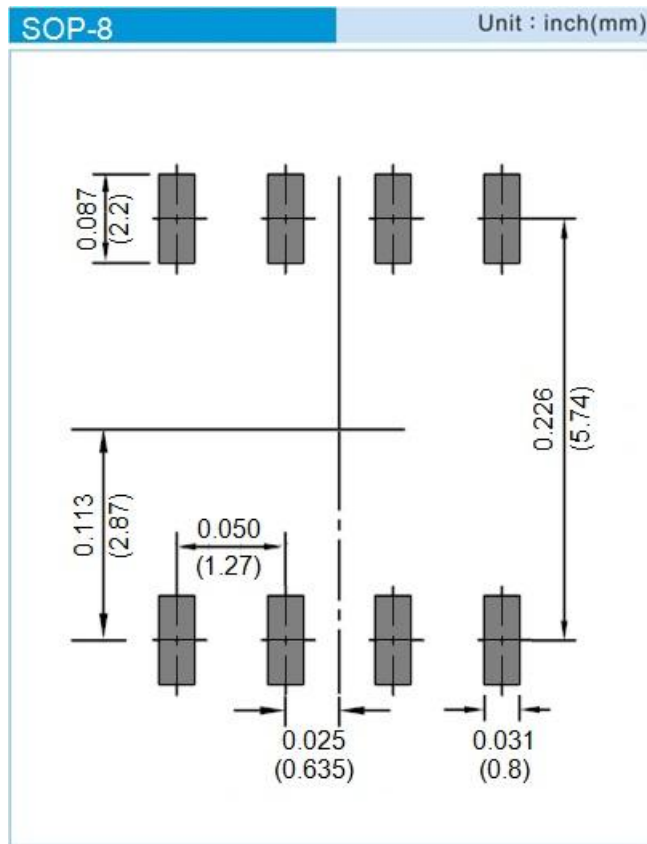


# PJL9801

## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJL9801_R2_00001	SOP-8	2.5K pcs / 13" reel	L9801	Halogen free

## MOUNTING PAD LAYOUT





## PJL9801

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