



# PJS6461

## 60V P-Channel Enhancement Mode MOSFET

**Voltage**

**-60 V**

**Current**

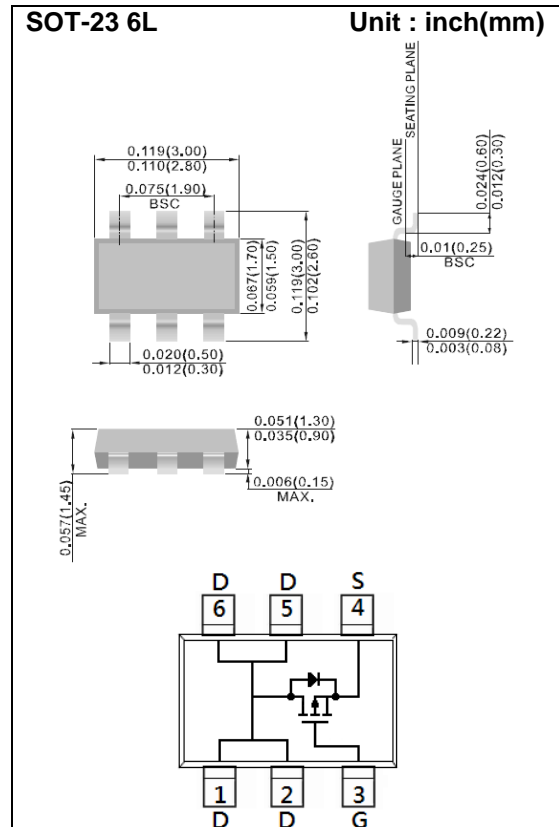
**-3.2A**

### Features

- $R_{DS(ON)}$ ,  $V_{GS}@-10V, I_D@-3.2A < 110m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@-4.5V, I_D@-1.6A < 130m\Omega$
- High switching speed.
- Improved dv/dt capability.
- Low Gate Charge.
- Low reverse transfer capacitance.
- Lead free in compliance with EU RoHS 2.0.
- Green molding compound as per IEC 61249 Std.

### Mechanical Data

- Case : SOT-23 6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.0141 grams



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

PARAMETER	SYMBOL	LIMIT	UNITS	
Drain-Source Voltage	$V_{DS}$	-60	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	-3.2	A
		$T_A=70^\circ\text{C}$	-2.5	
Pulsed Drain Current	$I_{DM}$	-12.8		
Power Dissipation	$P_D$	$T_A=25^\circ\text{C}$	2	W
		$T_A=70^\circ\text{C}$	1.3	
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$	
Typical Thermal resistance	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$	
- Junction to Ambient (Note 3)				



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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	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-3.2A$	-	88	110	m $\Omega$
		$V_{GS}=-4.5V, I_D=-1.6A$	-	110	130	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-60V, V_{GS}=0V$	-	-	-1.0	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>Dynamic</b> (Note 6)						
Total Gate Charge	$Q_g$	$V_{DS}=-30V, I_D=-3.2A,$ $V_{GS}=-10V$ (Note 1,2)	-	10	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.6	-	
Gate-Drain Charge	$Q_{gd}$		-	3	-	
Input Capacitance	$C_{iss}$	$V_{DS}=-30V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	785	-	pF
Output Capacitance	$C_{oss}$		-	176	-	
Reverse Transfer Capacitance	$C_{rss}$		-	116	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-30V, I_D=-1A,$ $V_{GS}=-10V,$ $R_G=6.2\Omega$ (Note 1,2)	-	8	-	ns
Turn-On Rise Time	$t_r$		-	15	-	
Turn-Off Delay Time	$t_{d(off)}$		-	43	-	
Turn-Off Fall Time	$t_f$		-	8.4	-	
<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	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  $T_{J(MAX)}=150^\circ\text{C}$ . 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 inch<sup>2</sup> with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.



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## TYPICAL CHARACTERISTIC CURVES

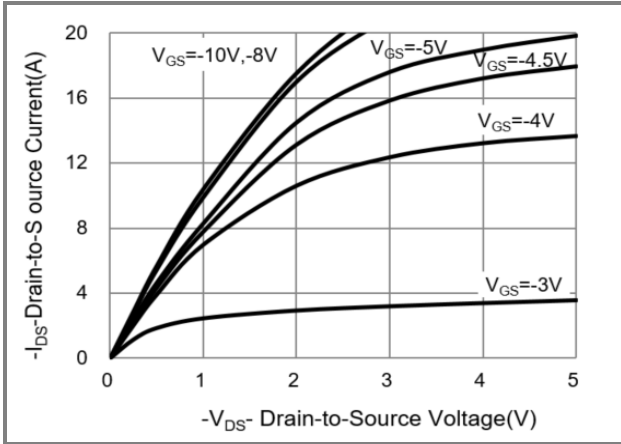


Fig.1 On-Region Characteristics

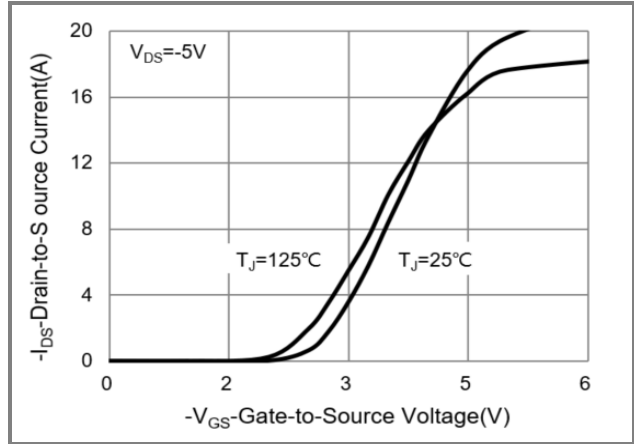


Fig.2 Transfer Characteristics

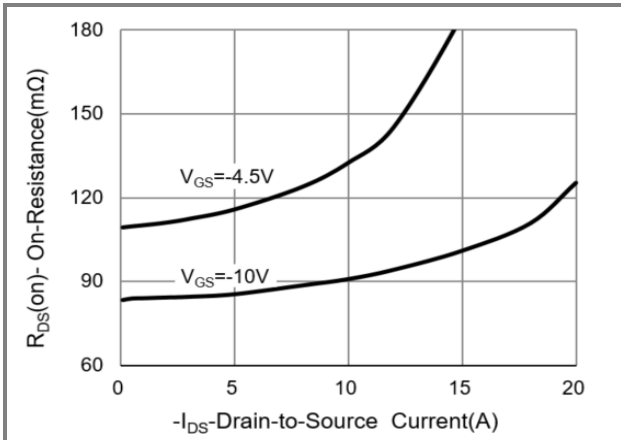


Fig.3 On-Resistance vs. Drain Current

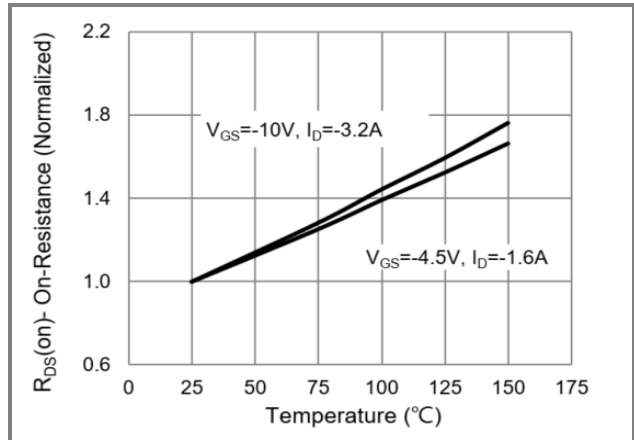


Fig.4 On-Resistance vs. Junction temperature

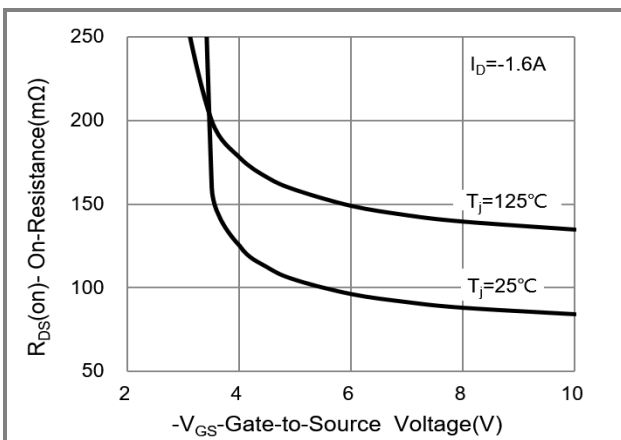


Fig.5 On-Resistance Variation with VGS.

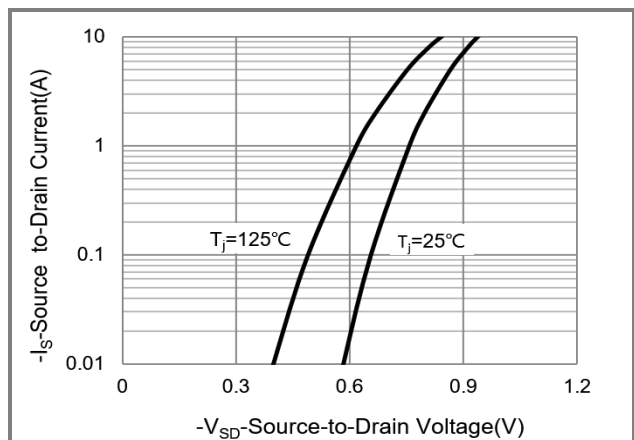


Fig.6 Body Diode Characteristics



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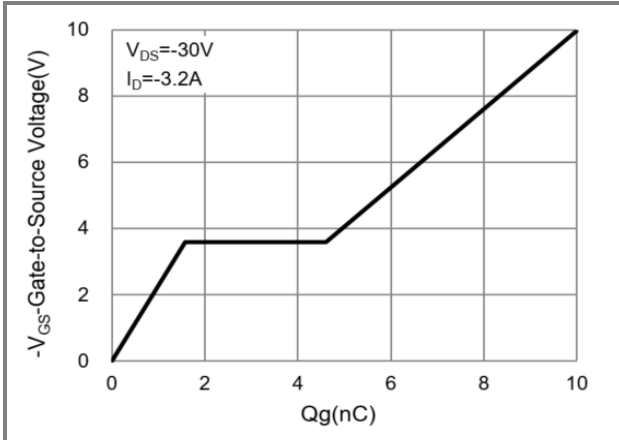


Fig.7 Gate-Charge Characteristics

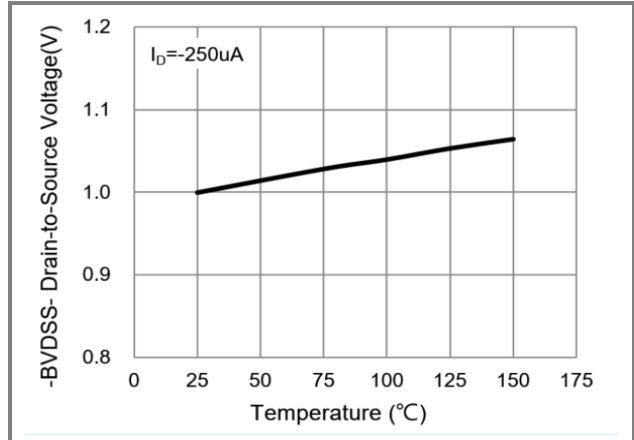


Fig.8 Breakdown Voltage Variation vs. Temperature.

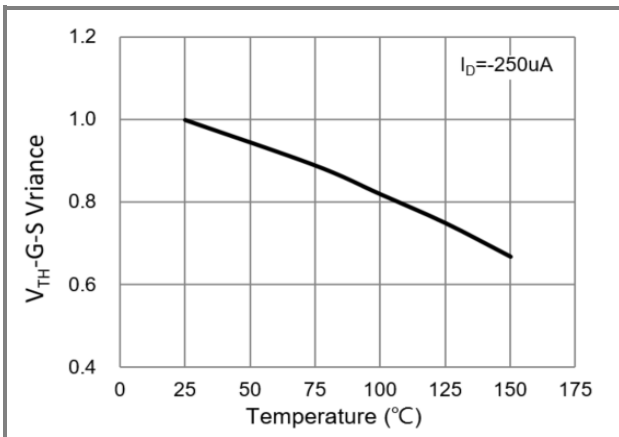


Fig.9 Threshold Voltage Variation with Temperature.

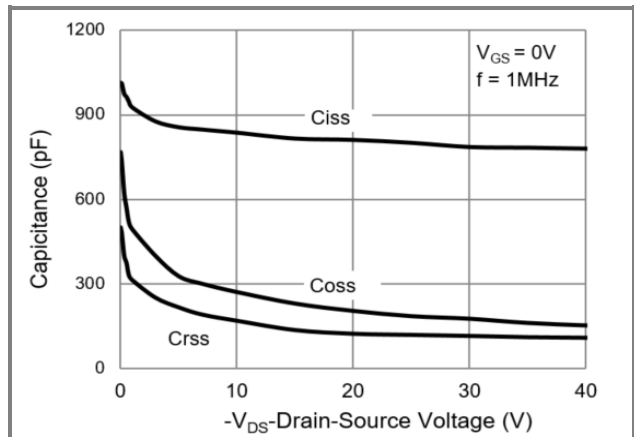


Fig.10 Capacitance vs. Drain-Source Voltage

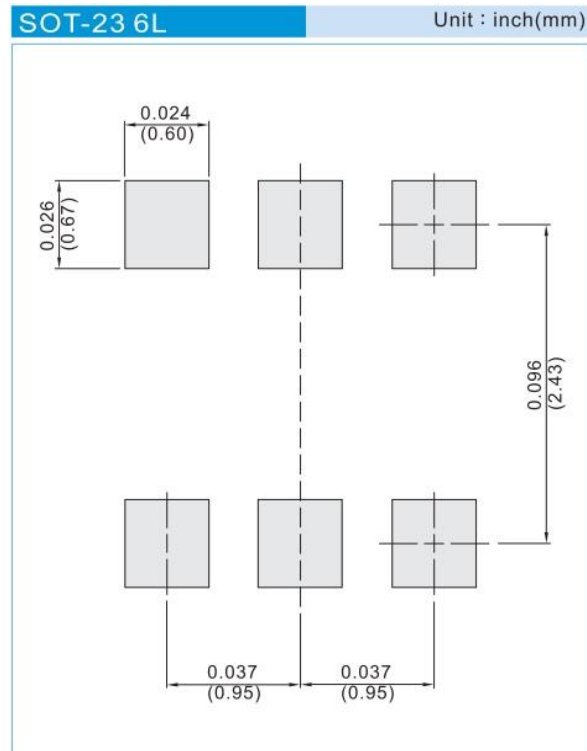


# PJS6461

## Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJS6461_S1_00001	SOT-23 6L	3K pcs / 7" reel	S61	Halogen free

## Mounting Pad Layout





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