



# PJS6400

## 30V N-Channel Enhancement Mode MOSFET

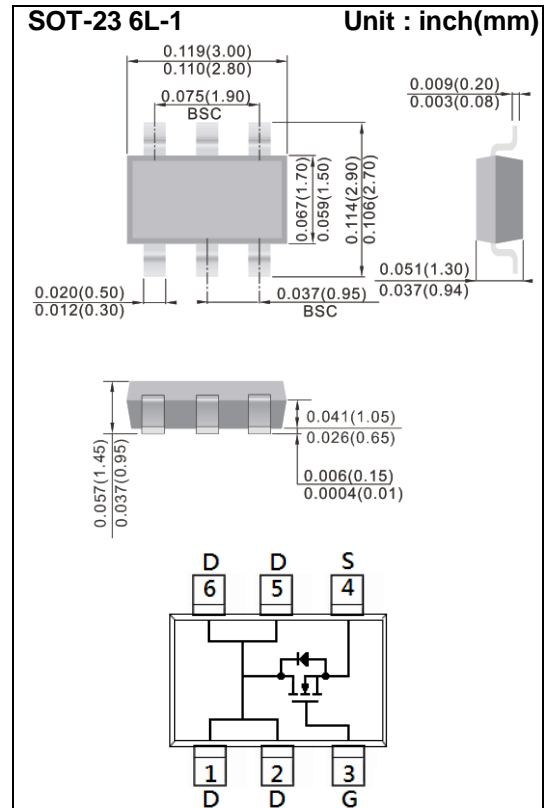
<b>Voltage</b>	<b>30 V</b>	<b>Current</b>	<b>6.4A</b>
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### Features

- $R_{DS(ON)}$  ,  $V_{GS}@10V$  ,  $I_D@6.4A < 37m\Omega$
- $R_{DS(ON)}$  ,  $V_{GS}@4.5V$  ,  $I_D@4.5A < 43m\Omega$
- $R_{DS(ON)}$  ,  $V_{GS}@2.5V$  ,  $I_D@2.9A < 59m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. (Halogen Free)

### Mechanical Data

- Case: SOT-23 6L-1 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.014 grams
- Marking: S00



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ 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	$I_D$	6.4	A
Pulsed Drain Current	$I_{DM}$	25.6	A
Power Dissipation	$P_D$	$T_a=25^\circ\text{C}$	2
		Derate above $25^\circ\text{C}$	16
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	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.85	1.3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6.4A$	-	29	37	m $\Omega$
		$V_{GS}=4.5V, I_D=4.5A$	-	32	43	
		$V_{GS}=2.5V, I_D=2.9A$	-	42	59	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$	-	0.01	1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$	-	$\pm 10$	$\pm 100$	nA
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=6.4A,$ $V_{GS}=10V$ (Note 1,2)	-	6	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.3	-	
Gate-Drain Charge	$Q_{gd}$		-	1.7	-	
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V,$ $f=1.0MHz$	-	490	-	pF
Output Capacitance	$C_{oss}$		-	44	-	
Reverse Transfer Capacitance	$C_{rss}$		-	32	-	
<b>Switching</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=6.4A,$ $V_{GS}=10V,$ $R_G=6\Omega$ (Note 1,2)	-	3.2	-	ns
Turn-On Rise Time	$t_r$		-	63	-	
Turn-Off Delay Time	$t_{d(off)}$		-	79	-	
Turn-Off Fall Time	$t_f$		-	81	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current	$I_S$	---	-	-	2.0	A
Diode Forward Voltage	$V_{SD}$	$I_S=1.0A, V_{GS}=0V$		0.74	1.2	V

NOTES :

1. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3.  $R_{\theta JA}$  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 FR-4 with 2oz. square pad of copper
4. The maximum current rating is package limited



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## TYPICAL CHARACTERISTIC CURVES

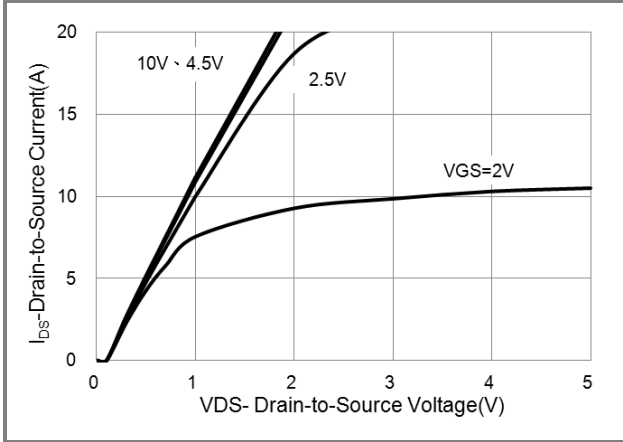


Fig.1 On-Region Characteristics

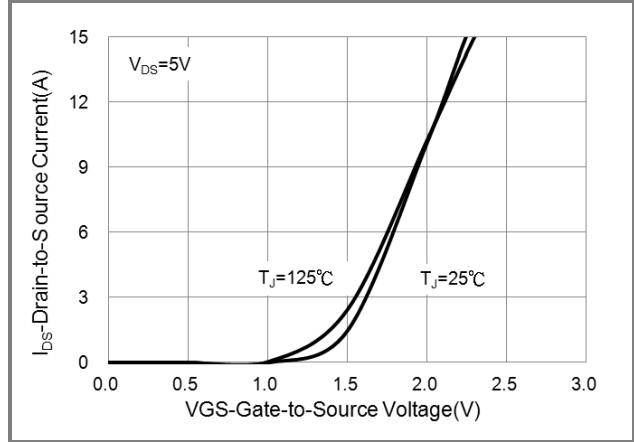


Fig.2 Transfer Characteristics

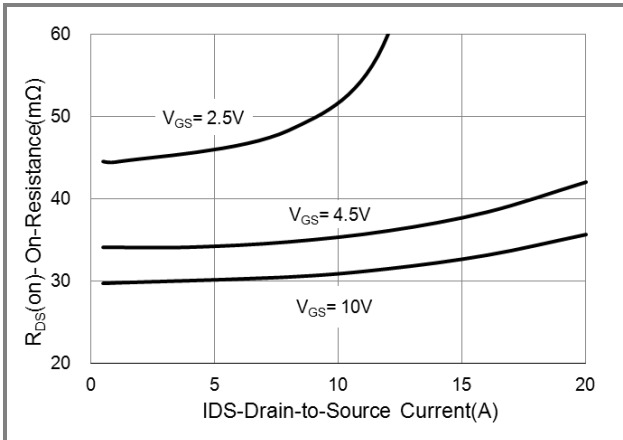


Fig.3 On-Resistance vs. Drain Current

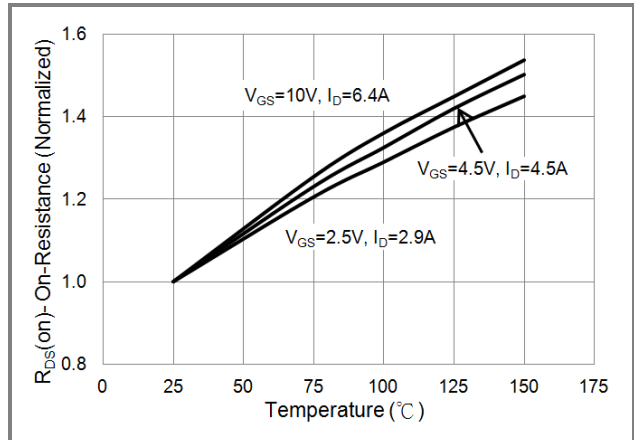


Fig.4 On-Resistance vs. Junction temperature

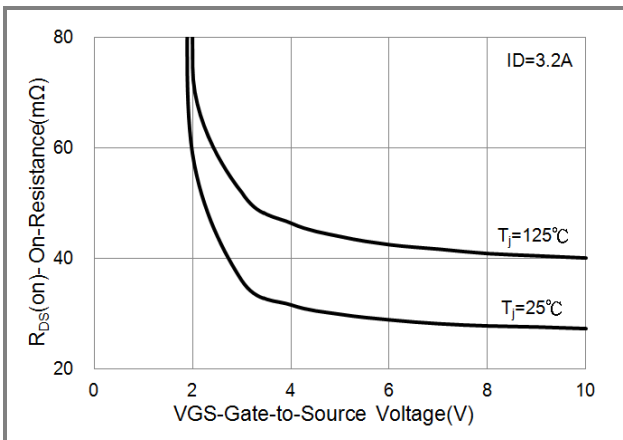


Fig.5 On-Resistance Variation with VGS.

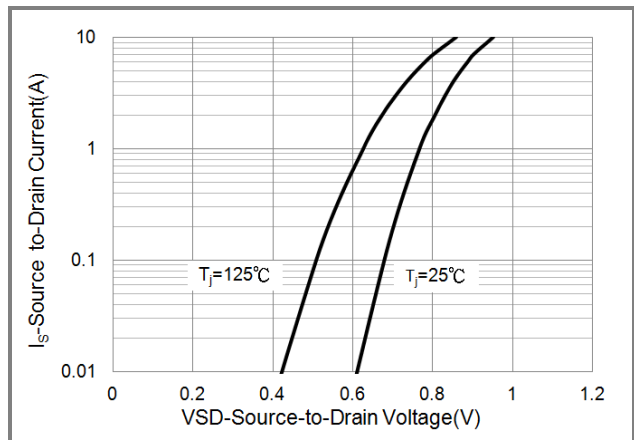


Fig.6 Body Diode Characteristics



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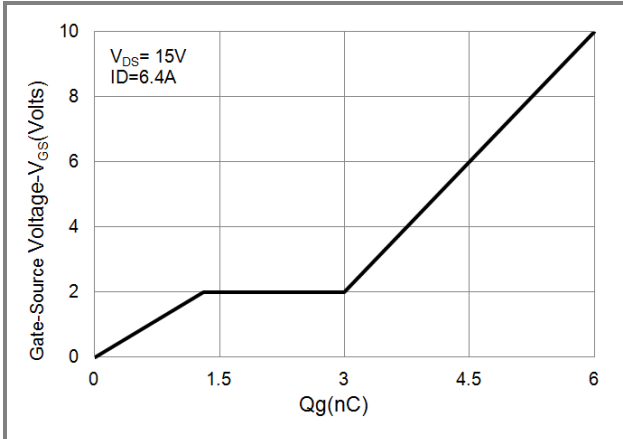


Fig.7 Gate-Charge Characteristics

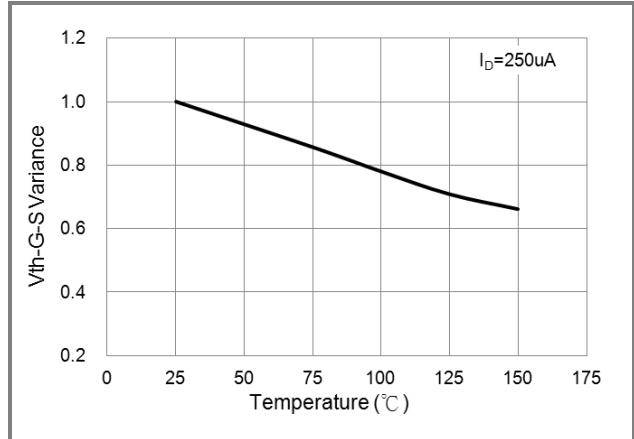


Fig.8 Threshold Voltage Variation with Temperature.

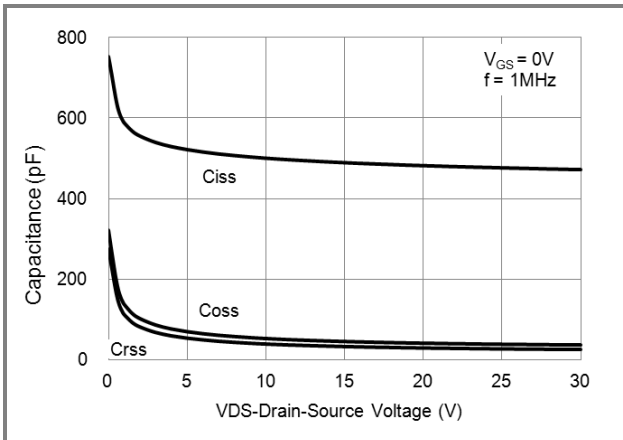


Fig.9 Capacitance vs. Drain-Source Voltage.

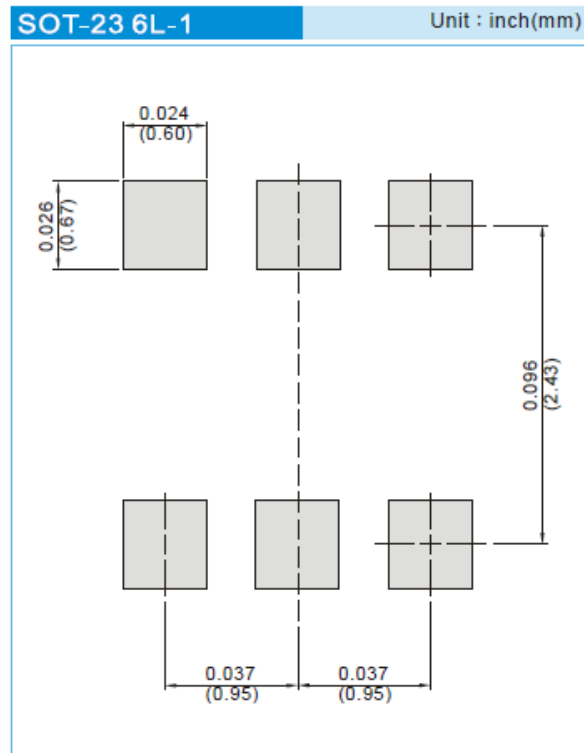


# PJS6400

## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJS6400_S1_00001	SOT-23 6L-1	3K pcs / 7" reel	S00	Halogen free

## MOUNTING PAD LAYOUT





## **PJS6400**

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