

# PJS6830

## 20V Dual N-Channel Enhancement Mode MOSFET – ESD Protected

**Voltage**

**20 V**

**Current**

**2 A**

### Features

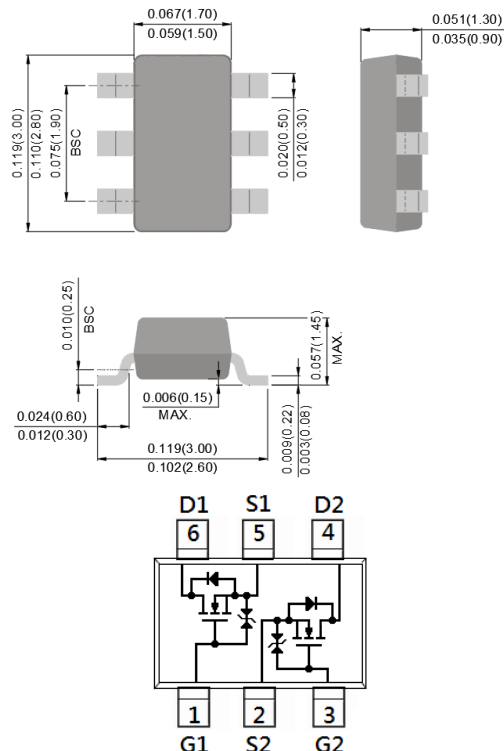
- RDS(ON) , VGS@4.5V, ID@2.0A<150mΩ
- RDS(ON) , VGS@2.5V, ID@1.5A<215mΩ
- RDS(ON) , VGS@1.8V, ID@0.5A<400mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

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

**SOT-23 6L**

**Unit: inch(mm)**



## 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>	20	V
Gate-Source Voltage		V <sub>GS</sub>	±8	V
Continuous Drain Current		I <sub>D</sub>	2	A
Pulsed Drain Current <sup>(Note 4)</sup>		I <sub>DM</sub>	8	A
Power Dissipation	T <sub>a</sub> =25°C	P <sub>D</sub>	1.25	W
	Derate above 25°C		10	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>	100	°C/W
- Junction to Ambient <sup>(Note 3)</sup>				



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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	20	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.5	0.8	1.0	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.0A	-	105	150	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =1.5A	-	150	215	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.5A	-	250	400	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	0.01	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = <u>±</u> 8V, V <sub>DS</sub> =0V	-	<u>±</u> 2	<u>±</u> 10	uA
Dynamic <sup>(Note 5)</sup>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =2A, V <sub>GS</sub> =4.5V <sup>(Note 1,2)</sup>	-	1.8	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.4	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	0.45	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1.0MHZ	-	92	-	pF
Output Capacitance	C <sub>oss</sub>		-	25	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	9.1	-	
Turn-On Delay Time	td <sub>(on)</sub>	V <sub>DD</sub> =10V, I <sub>D</sub> =2A, V <sub>GS</sub> =4.5V, R <sub>G</sub> =6Ω <sup>(Note 1,2)</sup>	-	6.5	-	ns
Turn-On Rise Time	tr		-	26.5	-	
Turn-Off Delay Time	td <sub>(off)</sub>		-	43	-	
Turn-Off Fall Time	tf		-	34	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>s</sub>	---	-	-	1.6	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>s</sub> =1.6A, V <sub>GS</sub> =0V	-	0.9	1.2	V

### NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%
2. Essentially independent of operating temperature typical characteristics.
3. 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 FR-4 with 2oz. square pad of copper.
4. The maximum current rating is package limited.
5. Guaranteed by design, not subject to production testing.

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## TYPICAL CHARACTERISTIC CURVES

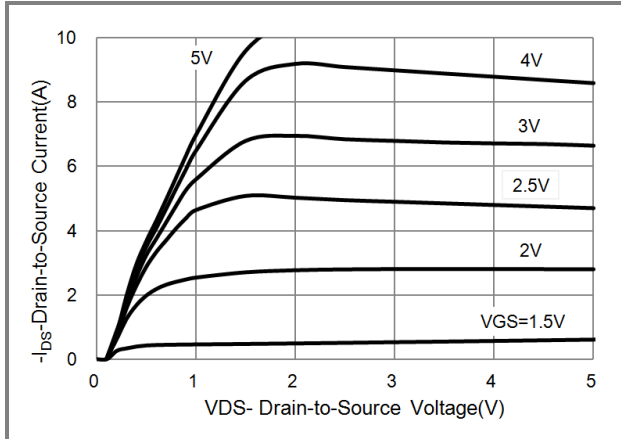


Fig.1 On-Region Characteristics

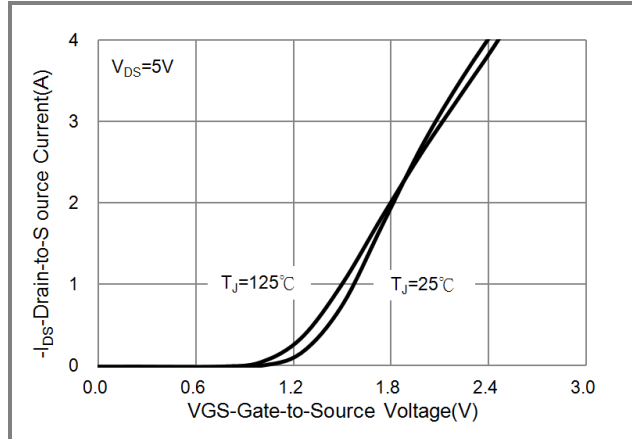


Fig.2 Transfer Characteristics

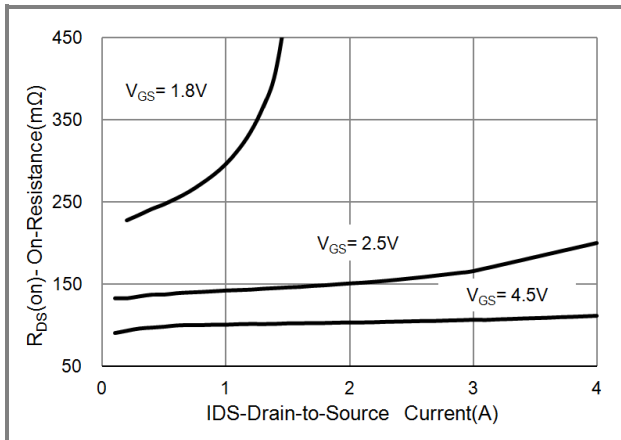


Fig.3 On-Resistance vs. Drain Current

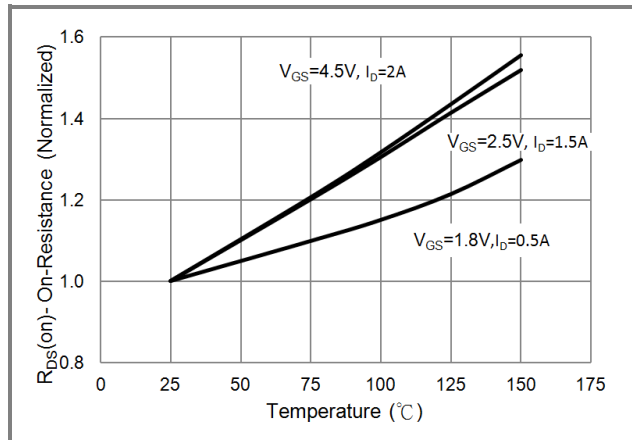


Fig.4 On-Resistance vs. Junction temperature

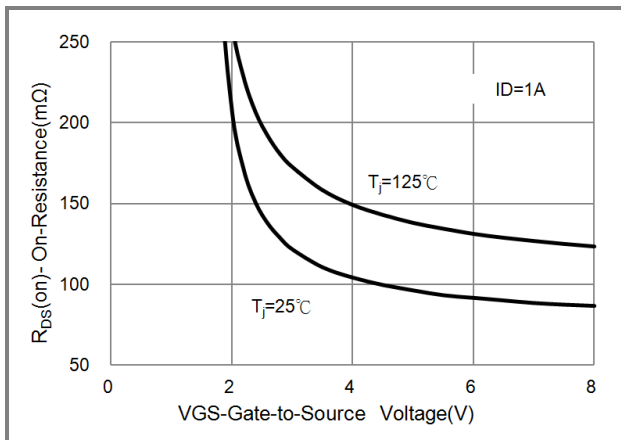


Fig.5 On-Resistance Variation with VGS.

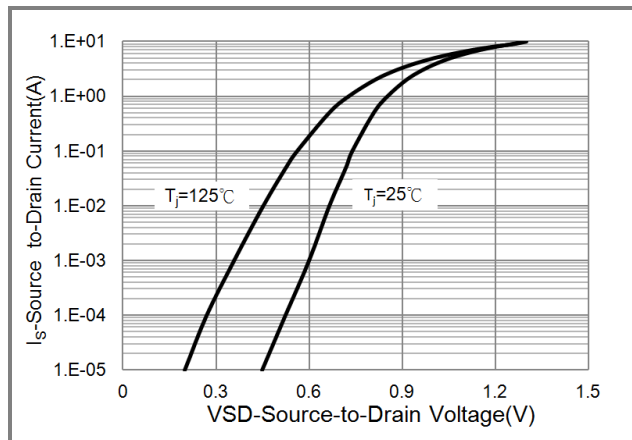


Fig.6 Body Diode Characteristics



## PJS6830

### TYPICAL CHARACTERISTIC CURVES

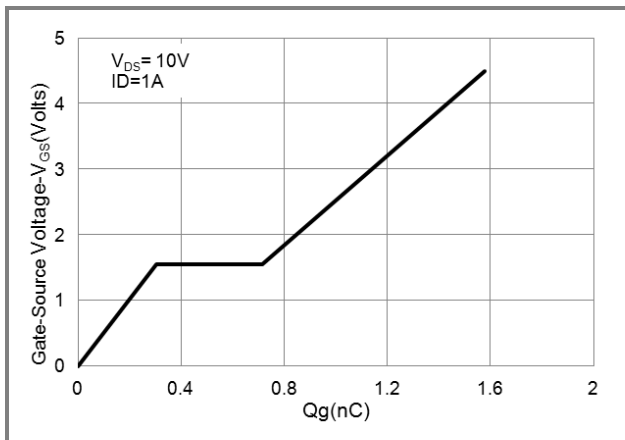


Fig.7 Gate-Charge Characteristics

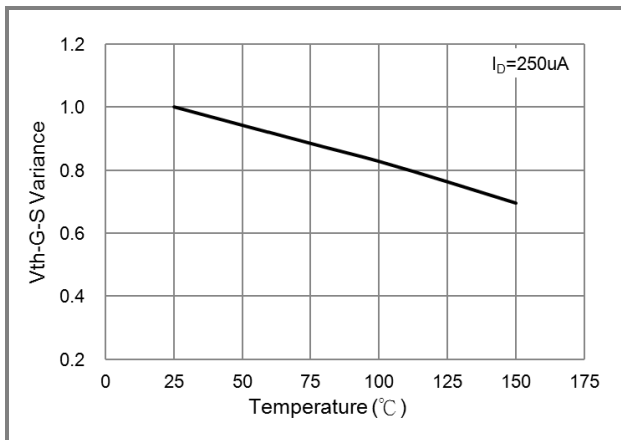


Fig.8 Threshold Voltage Variation with Temperature.

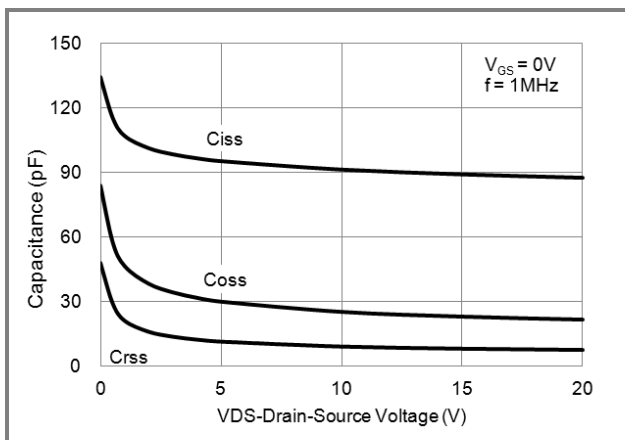


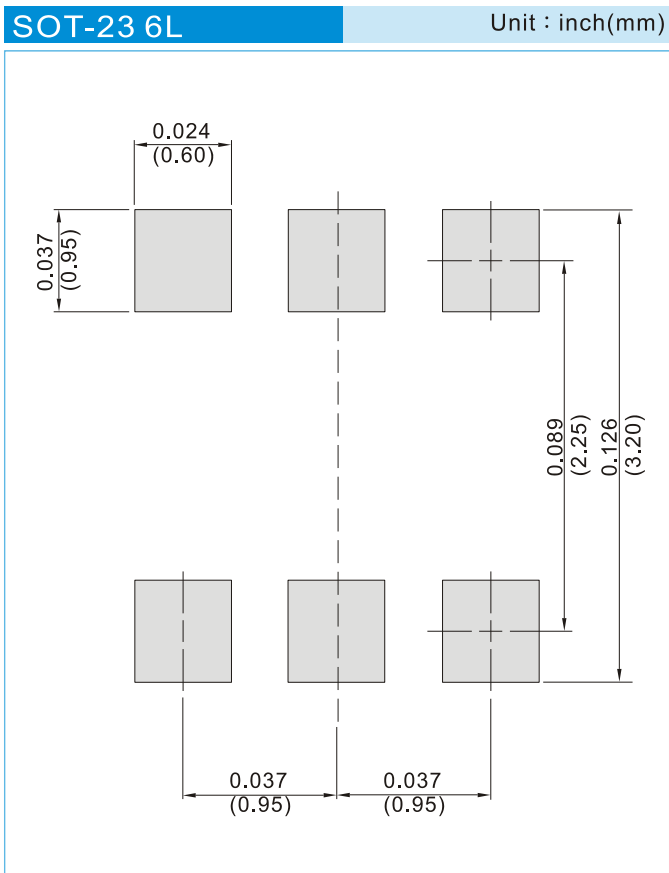
Fig.9 Capacitance vs. Drain-Source Voltage.

# PJS6830

## Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJS6830_S1_00001	SOT-23 6L	3K pcs / 7" reel	SG0	Halogen free RoHS compliant

## Mounting Pad Layout





## PJS6830

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