



PJS6412

30V N-Channel Enhancement Mode MOSFET

Voltage

30 V

Current

8 A

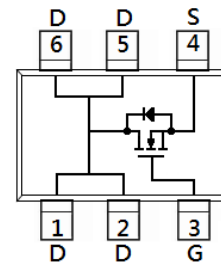
Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@8A < 23m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_D@6A < 32m\Omega$
- High switching speed
- Improved dv/dt capability
- Low gate charge
- Low reverse transfer capacitance
- Advanced trench process technology
- Specially designed for switch load, PWM application, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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

SOT-23 6L-1



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}	± 20		
Continuous Drain Current (Note 4)	I_D	8	A	
Pulsed Drain Current (Note 1)	I_{DM}	32		
Power Dissipation	P_D	$T_a=25^\circ\text{C}$	2	W
		Derate above 25°C	16	mW/ $^\circ\text{C}$
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°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1	1.7	2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A	-	18.5	23	mΩ
		V _{GS} =4.5V, I _D =6A	-	24	32	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 5)						
Total Gate Charge	Q _g	V _{DS} =15V, I _D =8A, V _{GS} =4.5V (Note 2)	-	4.3	-	nC
Gate-Source Charge	Q _{gs}		-	1.3	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHZ	-	392	-	pF
Output Capacitance	C _{oss}		-	76	-	
Reverse Transfer Capacitance	C _{rss}		-	54	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =15V, I _D =1A, V _{GS} =10V, R _G =6Ω (Note 2)	-	5.9	-	ns
Turn-On Rise Time	t _r		-	11	-	
Turn-Off Delay Time	t _{d(off)}		-	17	-	
Turn-Off Fall Time	t _f		-	3.8	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	1.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	0.73	1	V

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. R_{θJA} 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.



PJS6412

TYPICAL CHARACTERISTIC CURVES

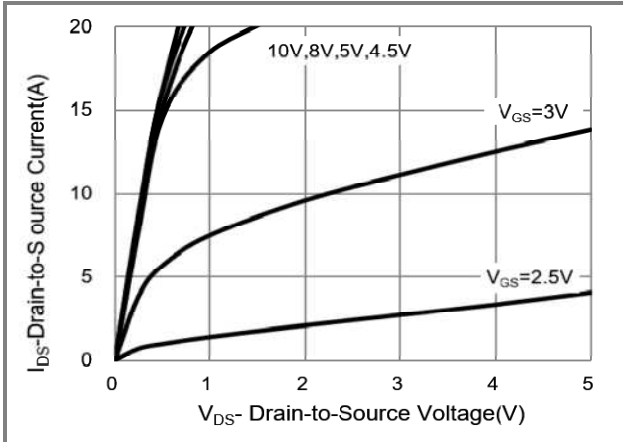


Fig.1 On-Region Characteristics

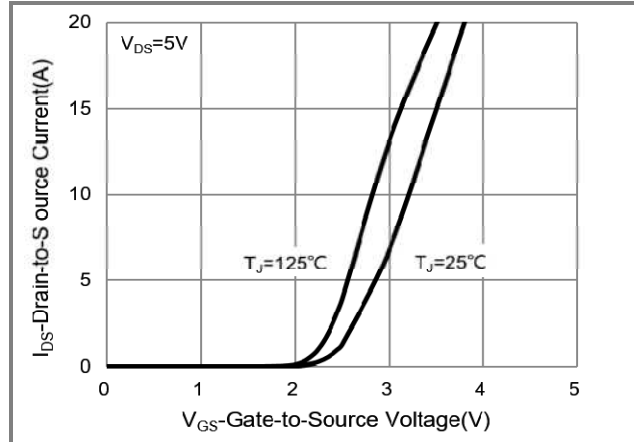


Fig.2 Transfer Characteristics

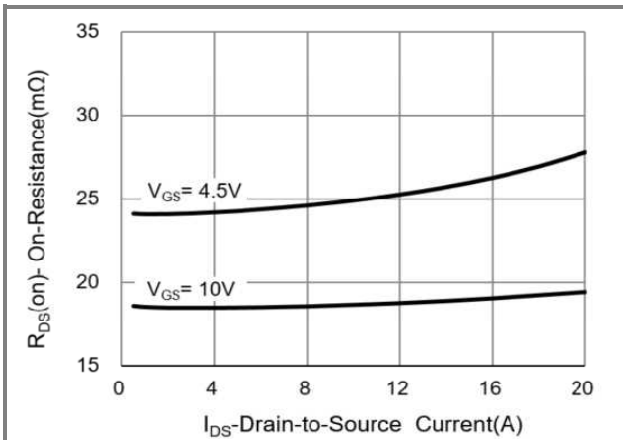


Fig.3 On-Resistance vs. Drain Current

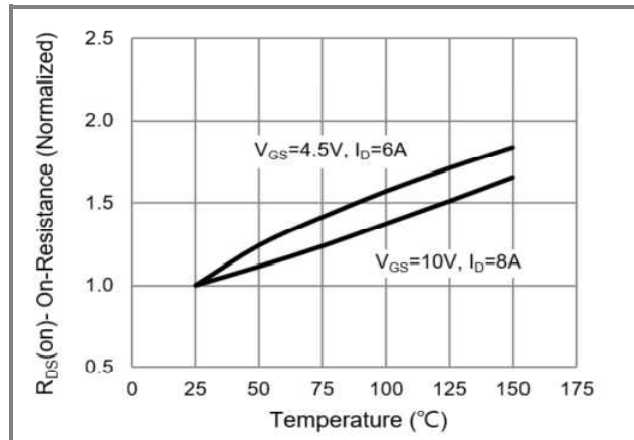


Fig.4 On-Resistance vs. Junction temperature

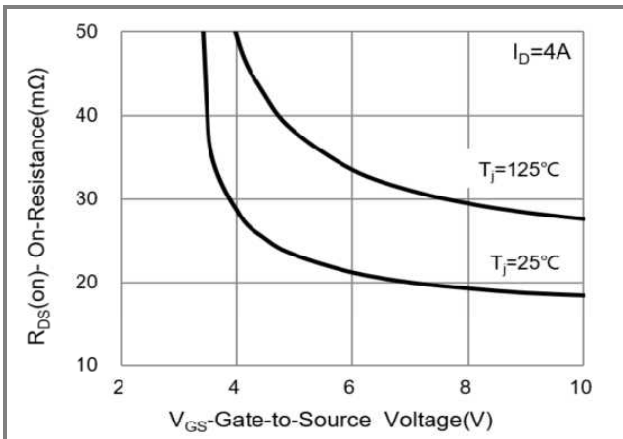


Fig.5 On-Resistance Variation with V_{GS}

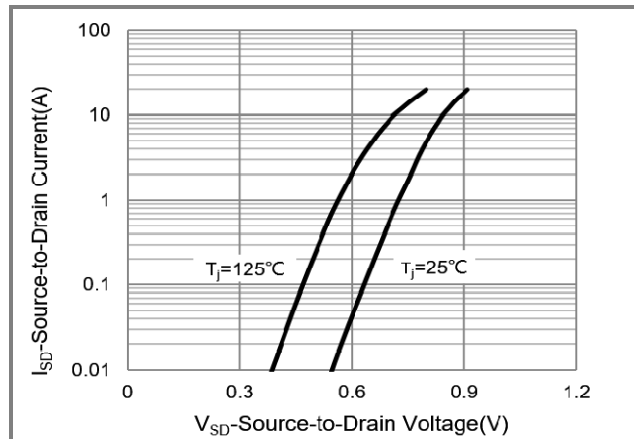


Fig.6 Body Diode Characteristics



PJS6412

TYPICAL CHARACTERISTIC CURVES

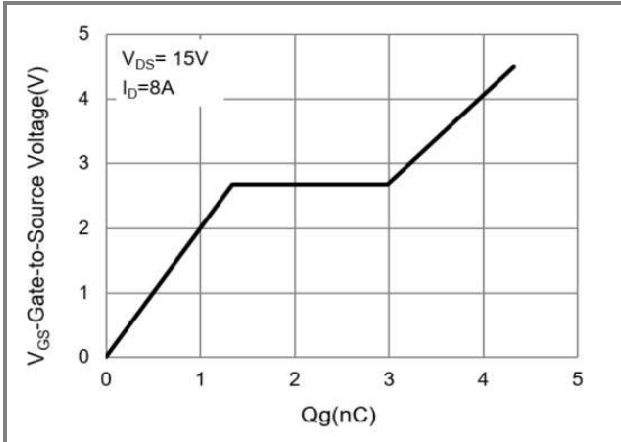


Fig.7 Gate-Charge Characteristics

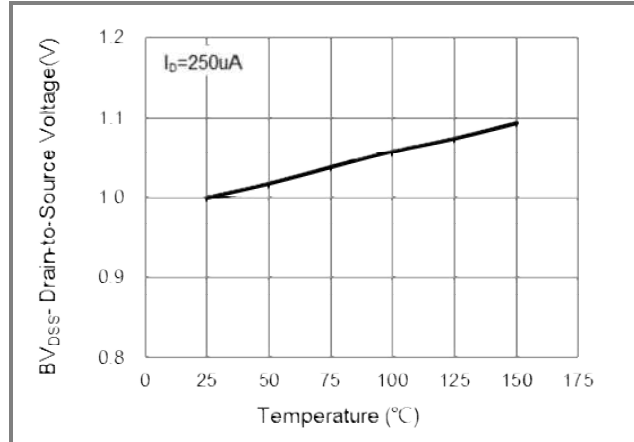


Fig.8 Breakdown Voltage Variation with Temperature

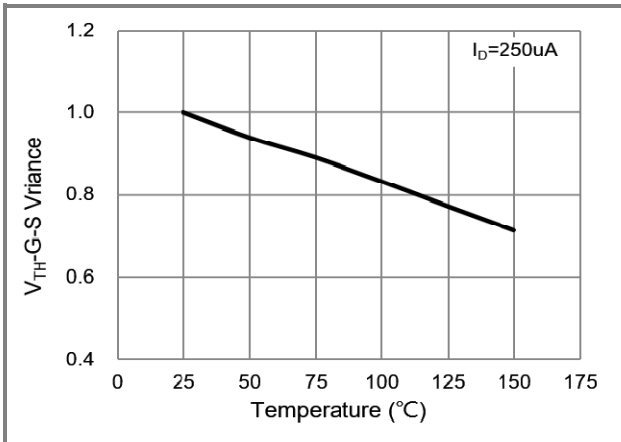


Fig.9 Threshold Voltage Variation with Temperature

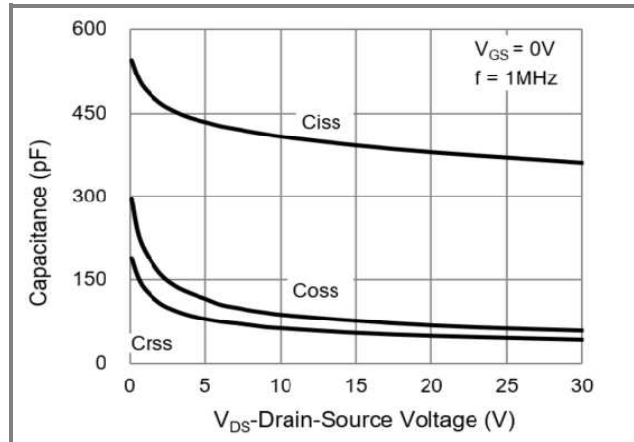


Fig.10 Capacitance vs. Drain-Source Voltage

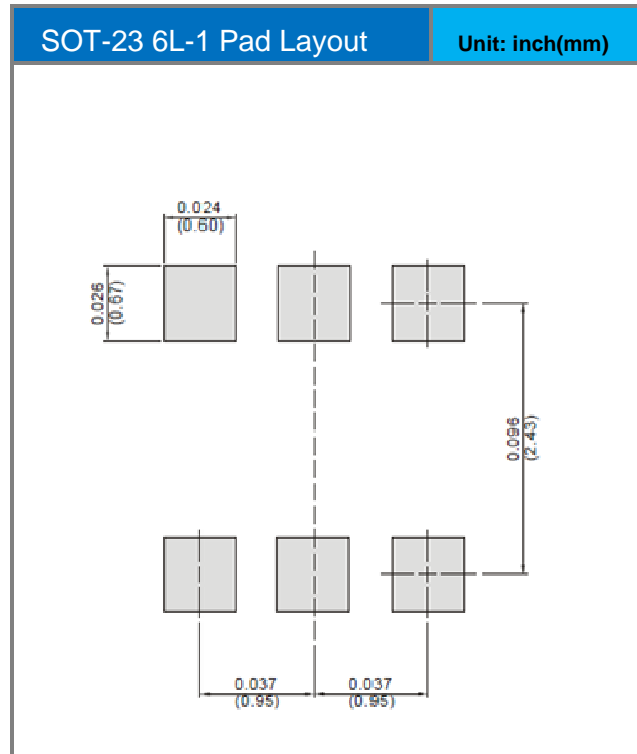
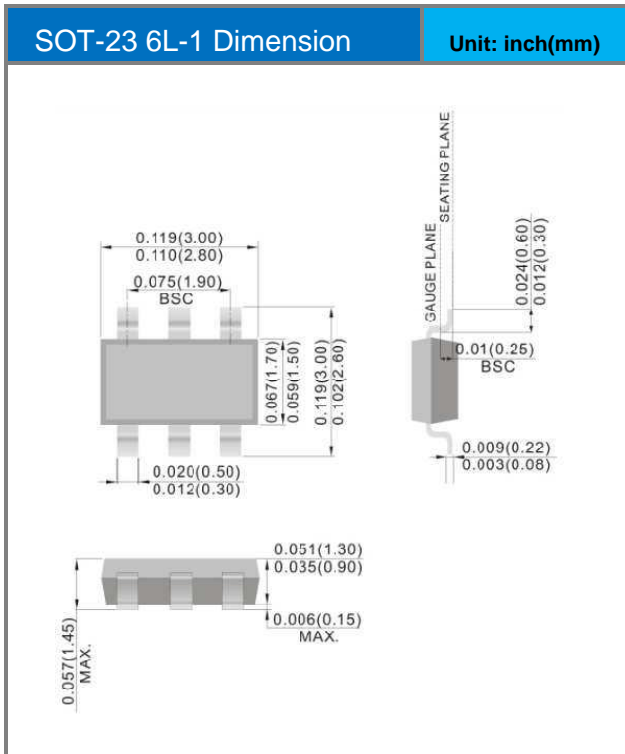


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Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJS6412_S1_00001	SOT-23 6L-1	3K pcs / 7" reel	S12	Halogen free

Packaging Information & Mounting Pad Layout





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