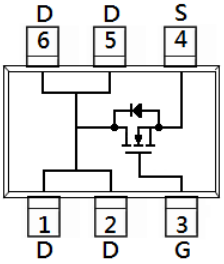
PJS6416-AU

20V N-Channel Enhancement Mode MOSFET

Voltage	20 V	Current	7.4 A

SOT-23 6L-1



Features

- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@7.4A<24mΩ
- $R_{DS(ON)}$, V_{GS}@2.5V, I_D@4.7A<34mΩ
- $R_{DS(ON)}$, V_{GS}@1.8V, I_D@1.8A<74mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc..
- AEC-Q101 qualified
- 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 : 0.014 grams

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current(Note 4)	T_A=25°C	I_D	7.4	A
	T_A=70°C		6	
Pulsed Drain Current	T_A=25°C	I_{DM}	29.6	
Power Dissipation(Note 1)	T_a=25°C	P_D	2	W
	Derate above 25°C		16	mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Thermal Resistance - Junction to Ambient(Note 3)		$R_{\theta JA}$	62.5	°C/W

PJS6416-AU

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	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.5	0.7	1.2	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=7.4A	-	19	24	mΩ
		V_{GS}=2.5V, I_D=4.7A	-	26	34	
		V_{GS}=1.8V, I_D=1.8A	-	46	74	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Q_g	V_{DS}=10V, I_D=7.4A, V_{GS}=4.5V(Note 1,2)	-	6.7	10	nC
Gate-Source Charge	Q_{gs}		-	1.2	-	
Gate-Drain Charge	Q_{gd}		-	2	-	
Input Capacitance	Ciss	V_{DS}=10V, V_{GS}=0V, f=1MHz	-	513	720	pF
Output Capacitance	Coss		-	75	135	
Reverse Transfer Capacitance	Crss		-	59	105	
Switching						
Turn-On Delay Time	$td_{(on)}$	V_{DD}=10V, I_D=7.4A, V_{GS}=4.5V, R_G=6Ω(Note 1,2)	-	6	-	ns
Turn-On Rise Time	tr		-	56	-	
Turn-Off Delay Time	$td_{(off)}$		-	23	-	
Turn-Off Fall Time	tf		-	13	-	
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	-	0.77	1.2	V

NOTES :

1. Pulse width≤300us, Duty cycle≤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.

PJS6416-AU

TYPICAL CHARACTERISTIC CURVES

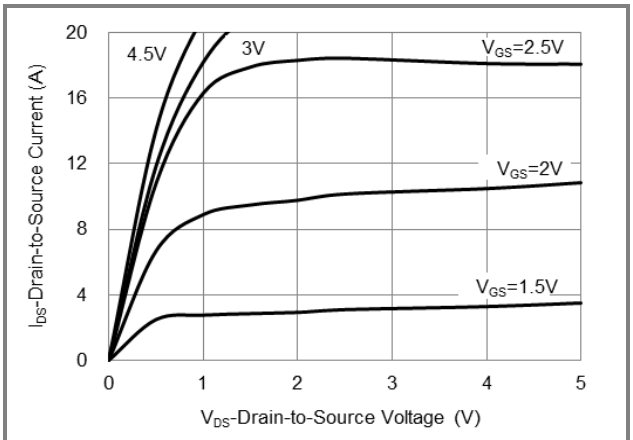


Fig.1 On-Region Characteristics

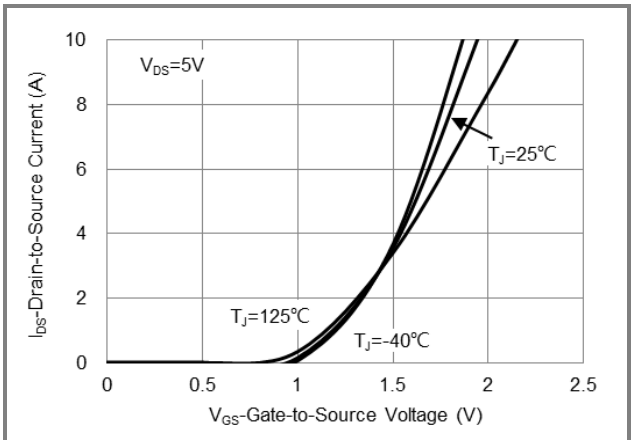


Fig.2 Transfer Characteristics

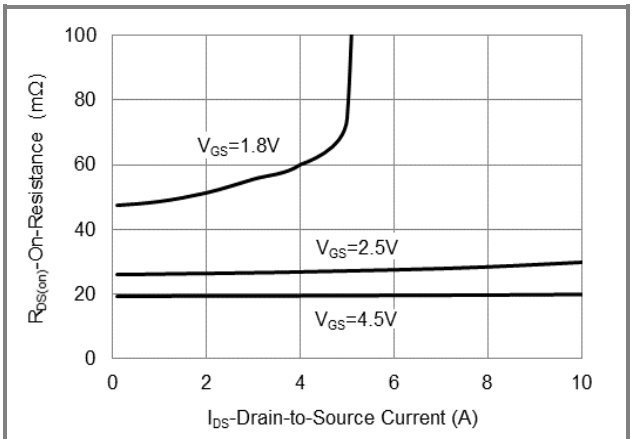


Fig.3 On-Resistance vs. Drain Current

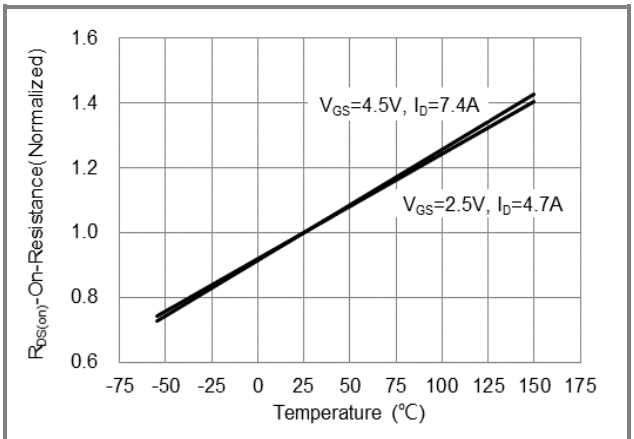


Fig.4 On-Resistance vs. Junction temperature

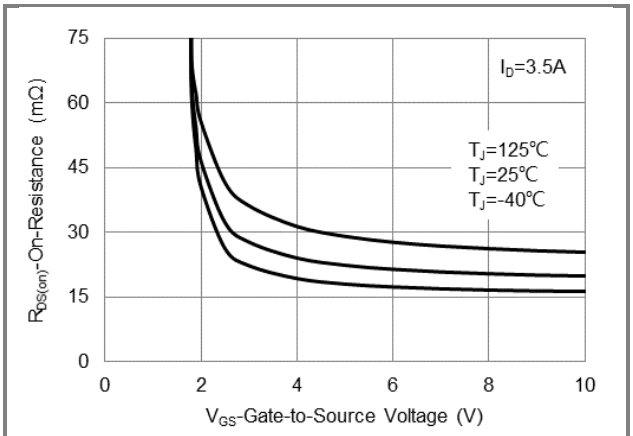


Fig.5 On-Resistance Variation with V_{GS}

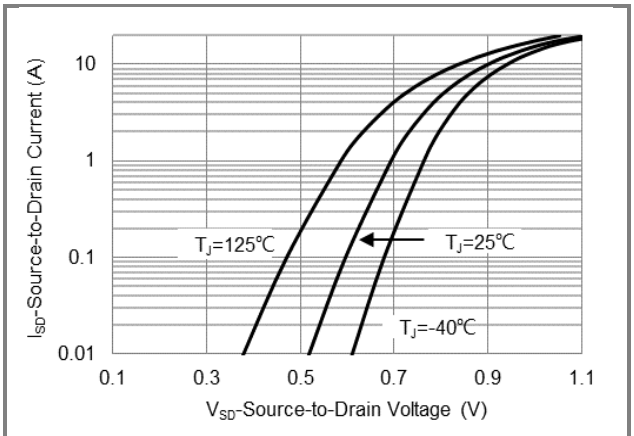


Fig.6 Source-Drain Diode Forward Voltage

PJS6416-AU

TYPICAL CHARACTERISTIC CURVES

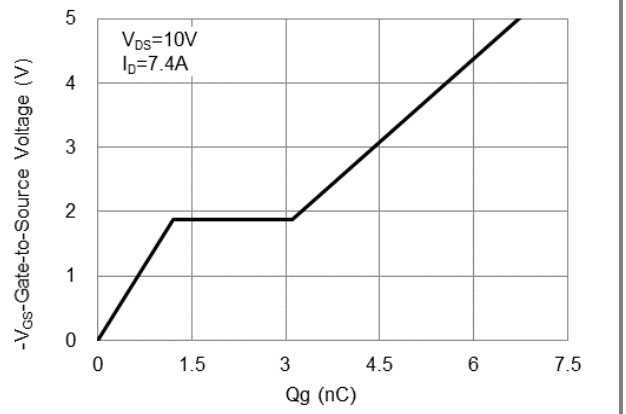


Fig.7 Gate-Charge Characteristics

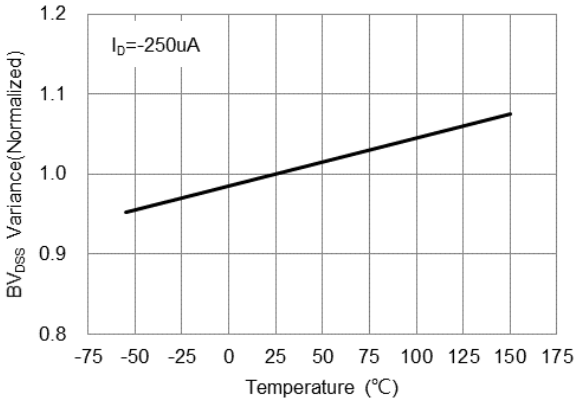


Fig.8 Breakdown Voltage Variation vs. Temperature

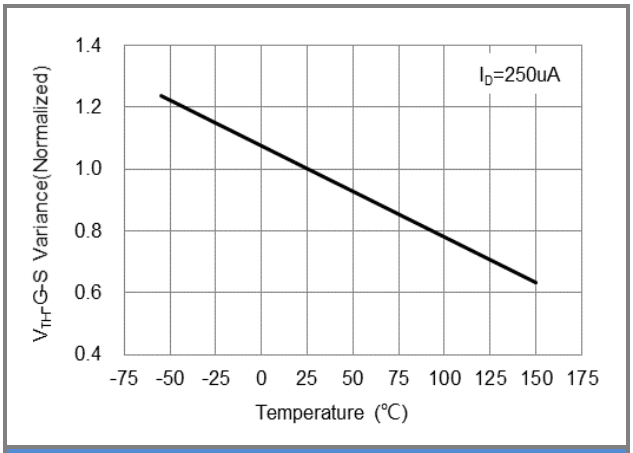


Fig.9 Threshold Voltage Variation with Temperature

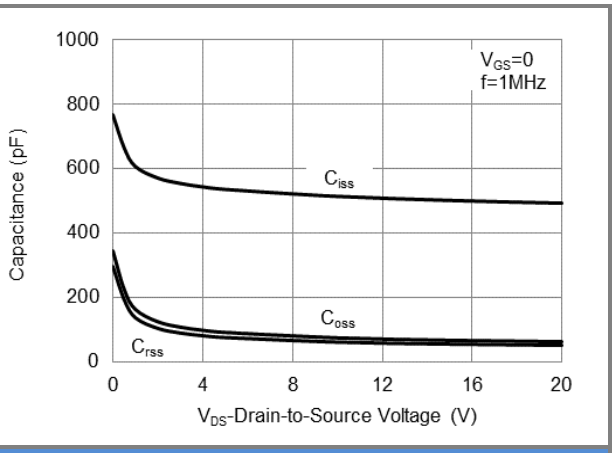


Fig.10 Capacitance vs. Drain-Source Voltage

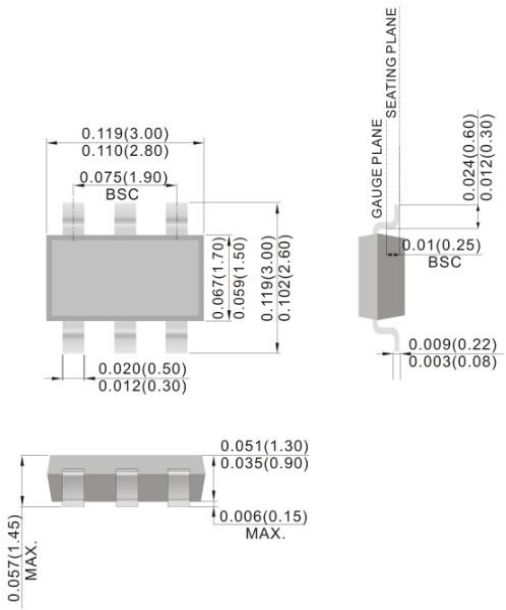
PJS6416-AU

Product and Packing Information

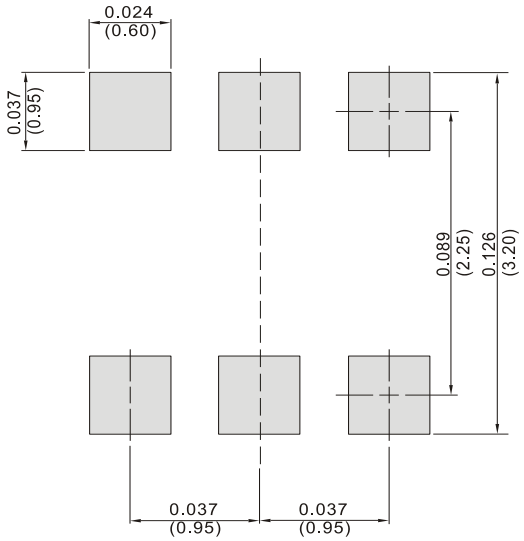
Part No.	Package Type	Packing Type	Marking
PJS6416-AU	SOT-23 6L-1	3K pcs / 7” reel	S16

Packaging Information & Mounting Pad Layout

SOT-23 6L-1 Dimension — Unit: inch(mm)



SOT-23 6L-1 Pad Layout — Unit: inch(mm)



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