



PJS6816

20V N-Channel Enhancement Mode MOSFET

Voltage

20 V

Current

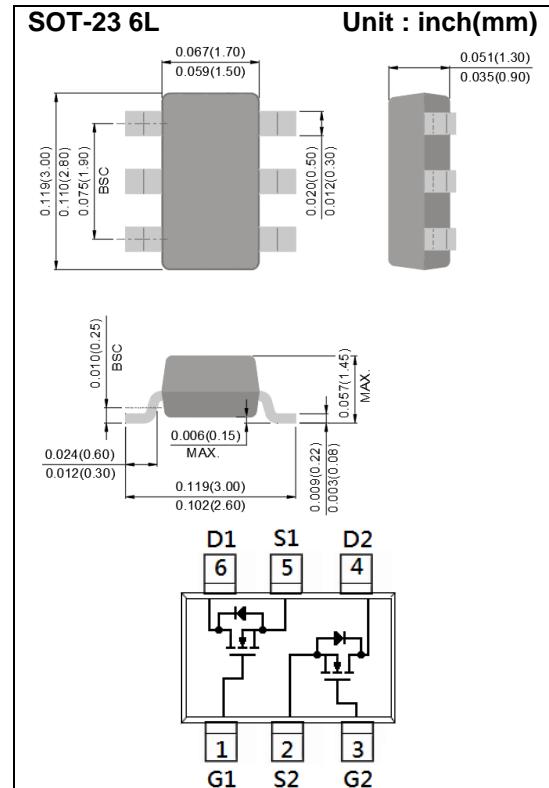
5.2A

Features

- RDS(ON) , VGS@4.5V, ID@5.2A<29mΩ
- RDS(ON) , VGS@2.5V, ID@3.7A<42mΩ
- RDS(ON) , VGS@1.8V, ID@1.6A<85mΩ
- 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 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.014 grams
- Marking: S16



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

PARAMETER	SYMBOL	LIMIT	UNITS
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	+12	V
Continuous Drain Current	I_D	5.2	A
Pulsed Drain Current	I_{DM}	20.8	A
Power Dissipation	$T_a=25^\circ\text{C}$	1.25	W
	Derate above 25°C	10	mW/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal Resistance - Junction to Ambient (Note 3)	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$



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Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{\text{GS}}=0\text{V}, I_{\text{D}}=250\mu\text{A}$	20	-	-	V
Gate Threshold Voltage	$V_{\text{GS(th)}}$	$V_{\text{DS}}=V_{\text{GS}}, I_{\text{D}}=250\mu\text{A}$	0.5	0.77	1.2	V
Drain-Source On-State Resistance	$R_{\text{DS(on)}}$	$V_{\text{GS}}=4.5\text{V}, I_{\text{D}}=5.2\text{A}$	-	26	29	$\text{m}\Omega$
		$V_{\text{GS}}=2.5\text{V}, I_{\text{D}}=3.7\text{A}$	-	35	42	
		$V_{\text{GS}}=1.8\text{V}, I_{\text{D}}=1.6\text{A}$	-	62	85	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{\text{DS}}=20\text{V}, V_{\text{GS}}=0\text{V}$	-	0.01	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{\text{GS}}=\pm 12\text{V}, V_{\text{DS}}=0\text{V}$	-	± 10	± 100	nA
Dynamic						
Total Gate Charge	Q_g	$V_{\text{DS}}=10\text{V}, I_{\text{D}}=5.2\text{A}, V_{\text{GS}}=4.5\text{V}^{(\text{Note 1,2})}$	-	7	-	nC
Gate-Source Charge	Q_{gs}		-	1.3	-	
Gate-Drain Charge	Q_{gd}		-	2	-	
Input Capacitance	C_{iss}	$V_{\text{DS}}=10\text{V}, V_{\text{GS}}=0\text{V}, f=1.0\text{MHZ}$	-	513	-	pF
Output Capacitance	C_{oss}		-	74	-	
Reverse Transfer Capacitance	C_{rss}		-	60	-	
Switching						
Turn-On Delay Time	$t_{\text{d(on)}}$	$V_{\text{DD}}=10\text{V}, I_{\text{D}}=5.2\text{A}, V_{\text{GS}}=4.5\text{V}, R_{\text{G}}=6\Omega^{(\text{Note 1,2})}$	-	6.2	-	ns
Turn-On Rise Time	t_{r}		-	56	-	
Turn-Off Delay Time	$t_{\text{d(off)}}$		-	23	-	
Turn-Off Fall Time	t_{f}		-	13	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_{s}	---	-	-	1.5	A
Diode Forward Voltage	V_{SD}	$I_{\text{s}}=1.0\text{A}, V_{\text{GS}}=0\text{V}$	-	0.71	1.2	V

NOTES :

1. Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. R_{OJA} 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

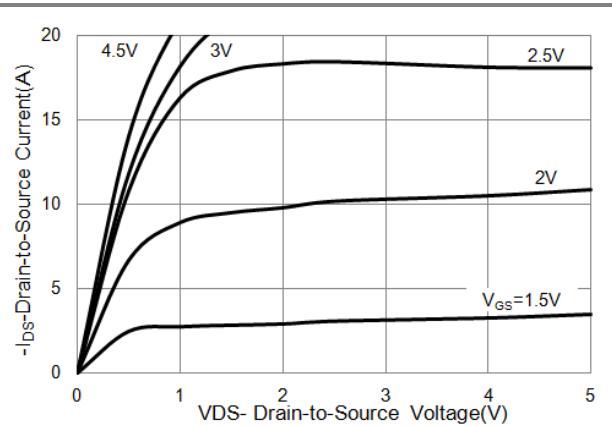


Fig.1 On-Region Characteristics

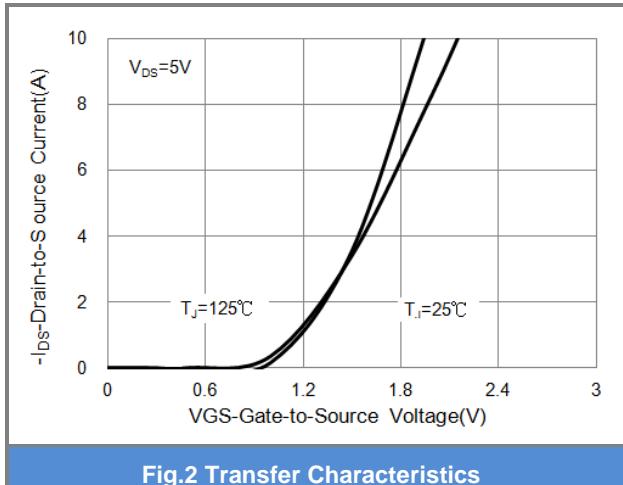


Fig.2 Transfer Characteristics

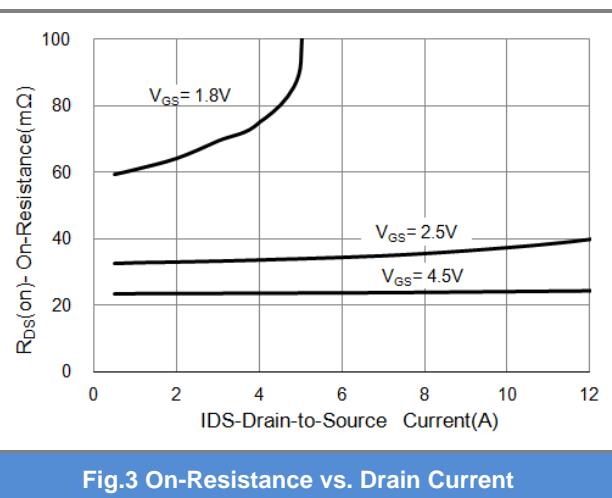


Fig.3 On-Resistance vs. Drain Current

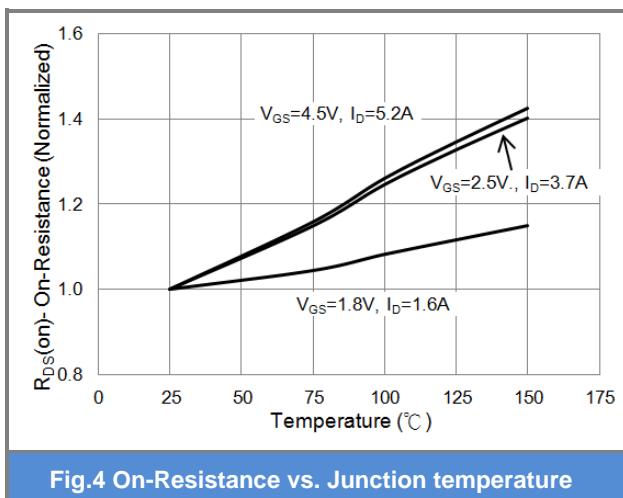


Fig.4 On-Resistance vs. Junction temperature

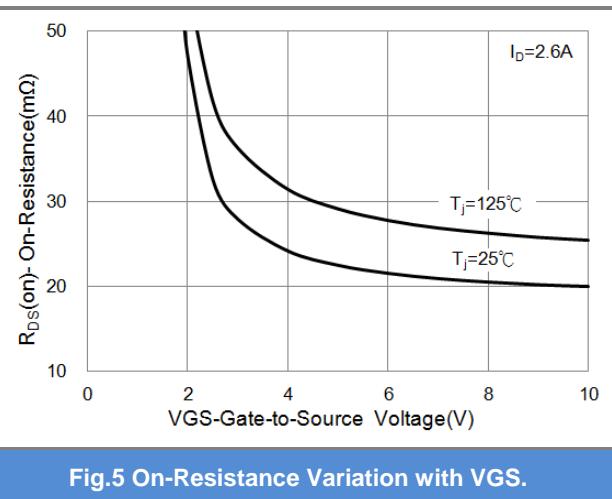


Fig.5 On-Resistance Variation with VGS.

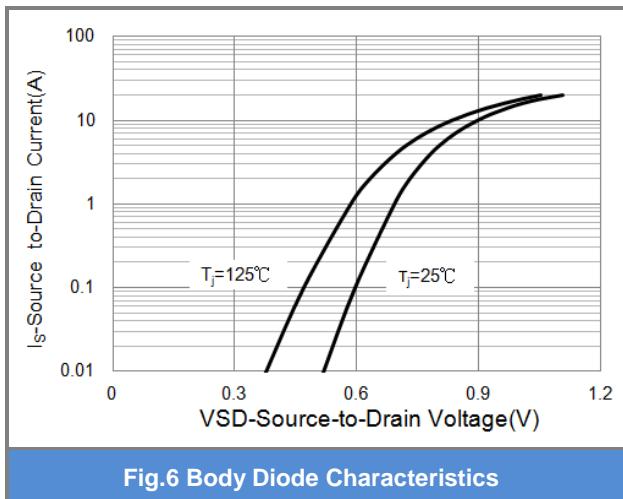
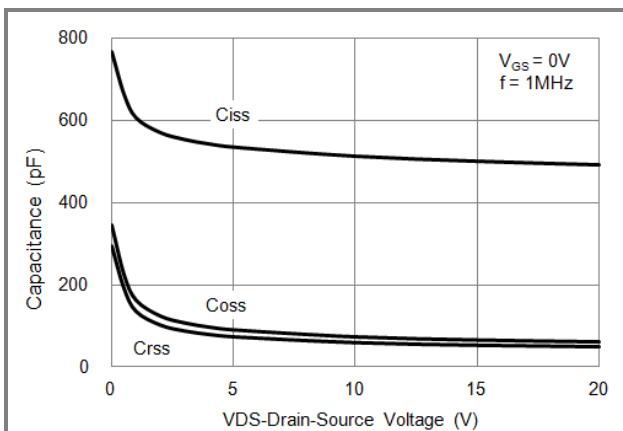
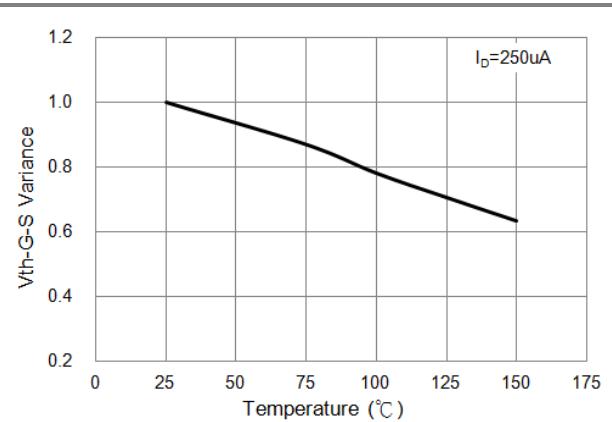
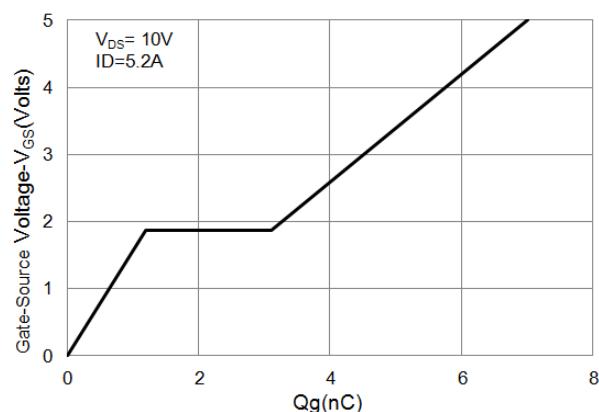


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES



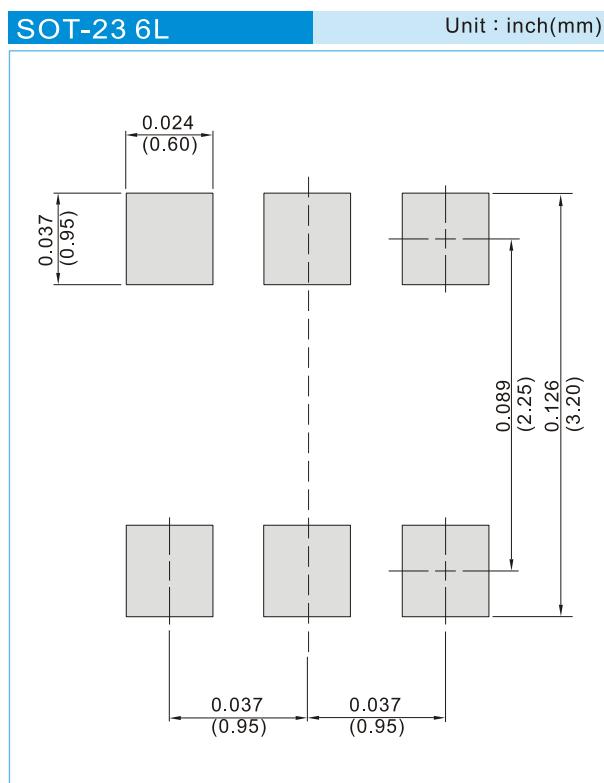


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PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJS6816_S1_00001	SOT-23 6L	3K pcs / 7" reel	SE6	Halogen free RoHS compliant
PJS6816_S2_00001	SOT-23 6L	10K pcs / 13" reel	SE6	Halogen free RoHS compliant

MOUNTING PAD LAYOUT





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