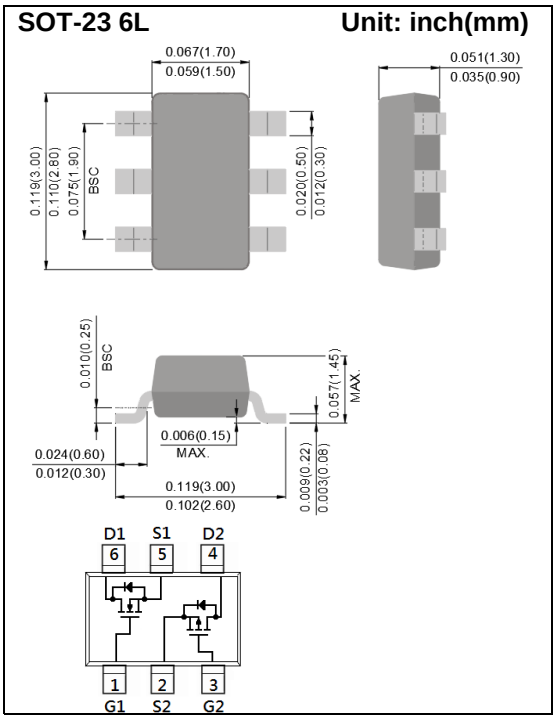
PJS6604

30V Complementary Enhancement Mode MOSFET

Voltage	30 / -30V	Current	4.4 /-3.1A



Features

- 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

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

PARAMETER		SYMBOL	N-Ch LIMIT	P-Ch LIMIT	UNITS
Drain-Source Voltage		V_{DS}	30	-30	V
Gate-Source Voltage		V_{GS}	±12	±12	V
Continuous Drain Current		I_D	4.4	-3.1	A
Pulsed Drain Current(Note 4)		I_{DM}	17.6	-12.4	A
Power Dissipation	T_a=25°C	P_D	1.25		W
	Derate above 25°C		10		mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150		°C
Typical Thermal Resistance - Junction to Ambient(Note 3)		$R_{\theta JA}$	100		100

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N-Channel 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	0.4	0.72	1.2	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=4.4A	-	37	48	mΩ
		V_{GS}=4.5V, I_D=3.6A	-	40	53	
		V_{GS}=2.5V, I_D=2.5A	-	48	66	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Dynamic(Note 5)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=4.4A, V_{GS}=10V(Note 1,2)	-	11.3	-	nC
Gate-Source Charge	Q_{gs}		-	1	-	
Gate-Drain Charge	Q_{gd}		-	1.2	-	
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V, f=1.0MHZ	-	447	-	pF
Output Capacitance	Coss		-	34	-	
Reverse Transfer Capacitance	Crss		-	22	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=15V, I_D=4.4A, V_{GS}=10V, R_G=3Ω(Note 1,2)	-	1.7	-	ns
Turn-On Rise Time	tr		-	38	-	
Turn-Off Delay Time	$td_{(off)}$		-	82	-	
Turn-Off Fall Time	tf		-	64	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	1.5	A
Diode Forward Voltage	V_{SD}	I_S=1.0A, 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.
5. Guaranteed by design, not subject to production testing

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P-Channel 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	-0.5	-0.96	-1.3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-3.1A	-	82	98	mΩ
		V_{GS}=-4.5V, I_D=-2.2A	-	91	114	
		V_{GS}=-2.5V, I_D=-1.1A	-	115	165	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Dynamic(Note 5)						
Total Gate Charge	Q_g	V_{DS}=-15V, I_D=-3.1A, V_{GS}=-10V(Note 1,2)	-	11	-	nC
Gate-Source Charge	Q_{gs}		-	0.85	-	
Gate-Drain Charge	Q_{gd}		-	1.4	-	
Input Capacitance	Ciss	V_{DS}=-15V, V_{GS}=0V, f=1.0MHZ	-	443	-	pF
Output Capacitance	Coss		-	38	-	
Reverse Transfer Capacitance	Crss		-	25	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=-15V, I_D=-3.1A, V_{GS}=-10V, R_G=6Ω(Note 1,2)	-	2.5	-	ns
Turn-On Rise Time	tr		-	32	-	
Turn-Off Delay Time	$td_{(off)}$		-	161	-	
Turn-Off Fall Time	tf		-	73	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-1.5	A
Diode Forward Voltage	V_{SD}	I_S=-1.0A, V_{GS}=0V	-	-0.79	-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.
5. Guaranteed by design, not subject to production testing.

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N-Channel TYPICAL CHARACTERISTIC CURVES

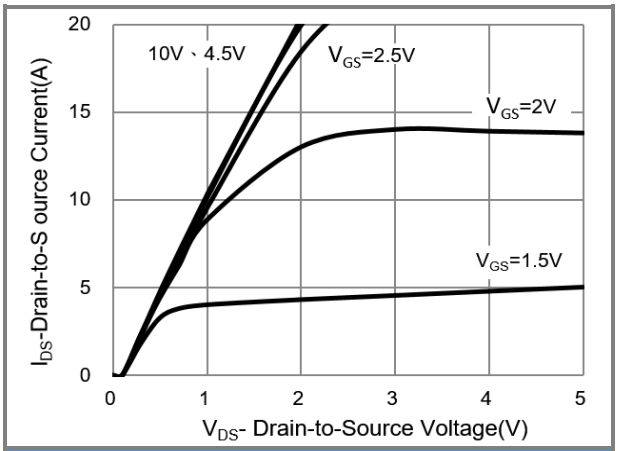

Fig.1 On-Region Characteristics

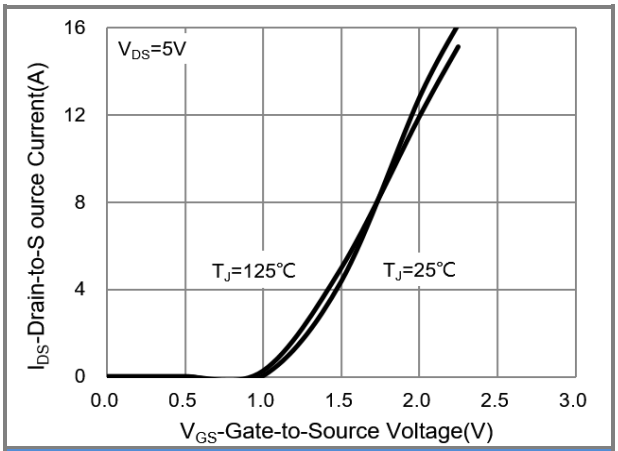

Fig.2 Transfer Characteristics

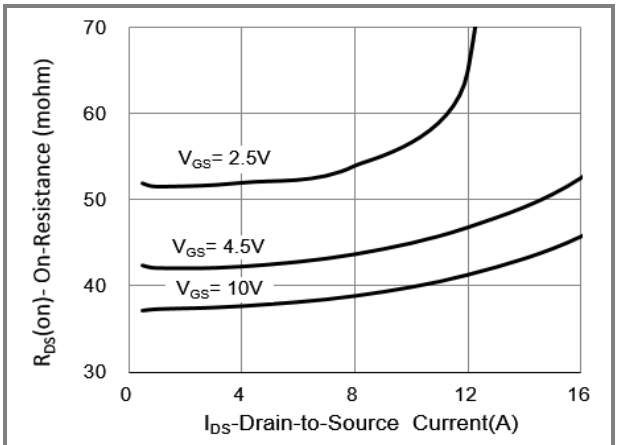

Fig.3 On-Resistance vs. Drain Current

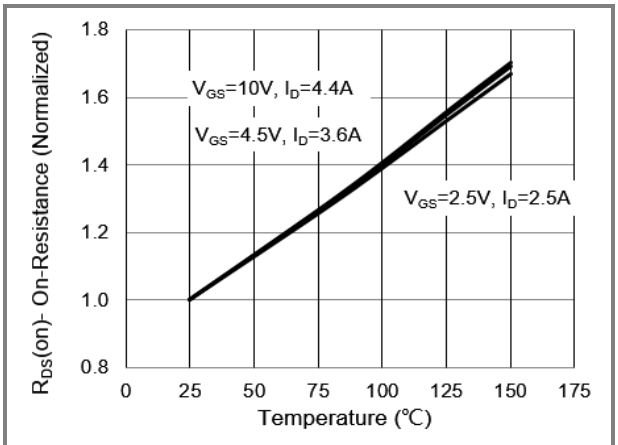

Fig.4 On-Resistance vs. Junction temperature

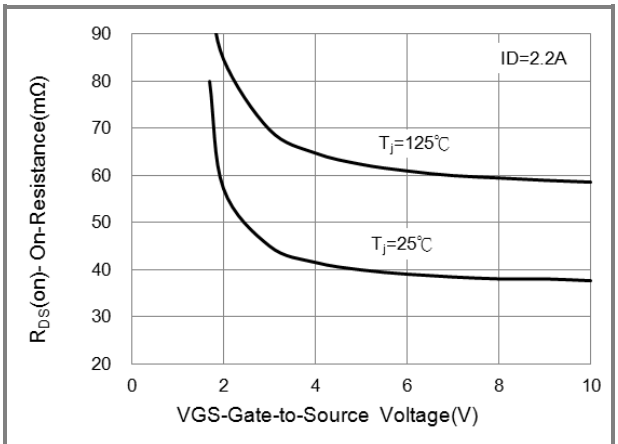

Fig.5 On-Resistance Variation with VGS.

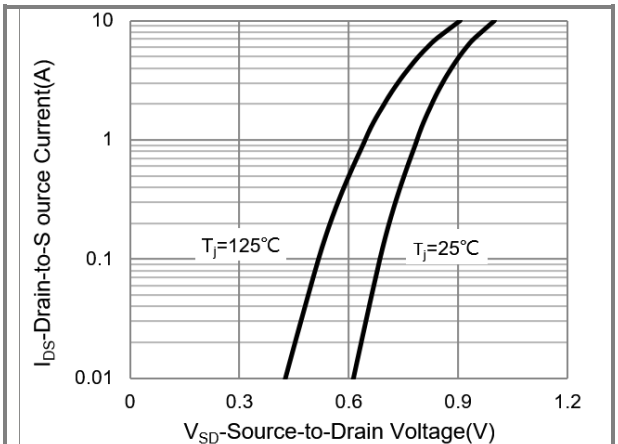

Fig.6 Body Diode Characteristics

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N-Channel TYPICAL CHARACTERISTIC CURVES

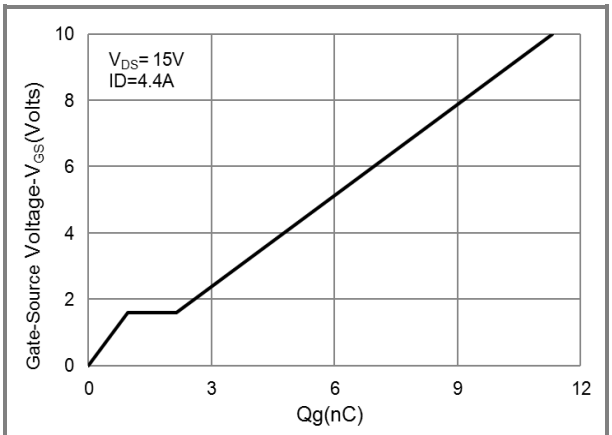

Fig.7 Gate-Charge Characteristics

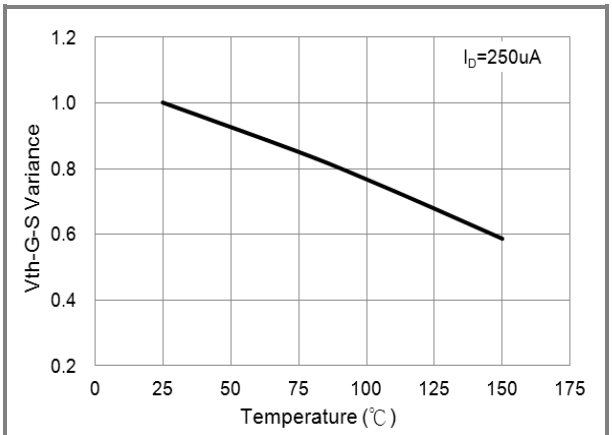

Fig.8 Threshold Voltage Variation with Temperature.

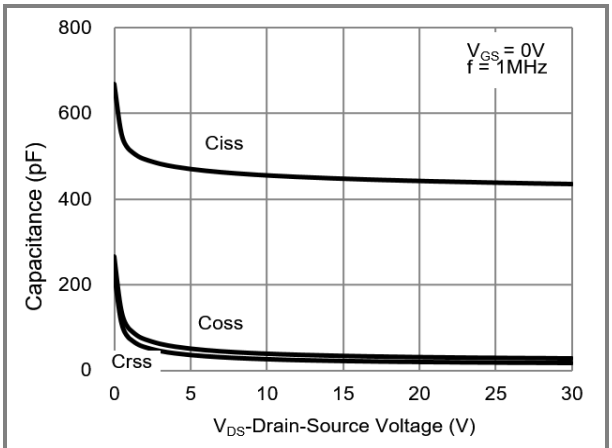

Fig.9 Capacitance vs. Drain-Source Voltage.

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P-Channel TYPICAL CHARACTERISTIC CURVES

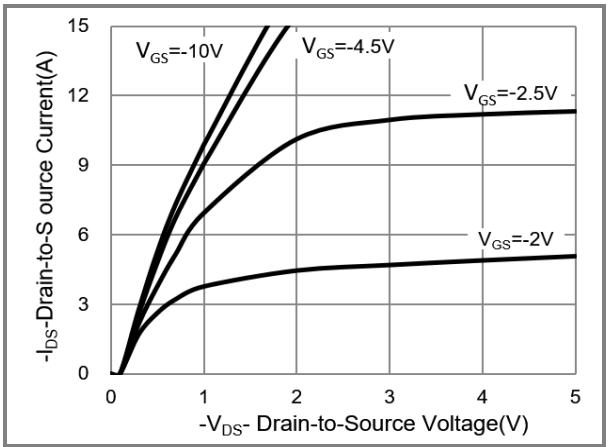

Fig.1 On-Region Characteristics

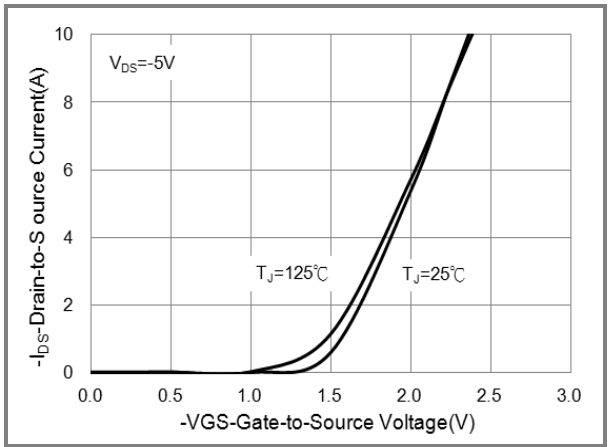

Fig.2 Transfer Characteristics

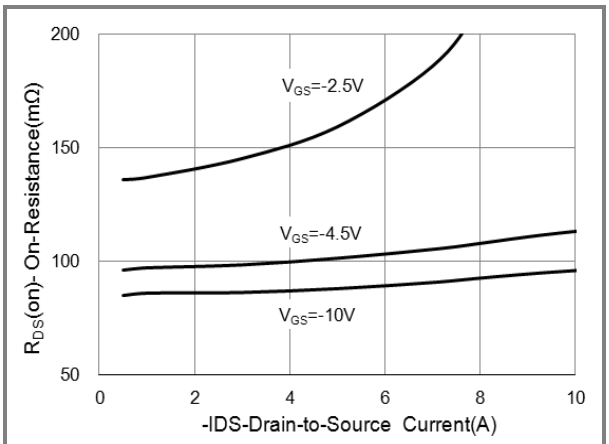

Fig.3 On-Resistance vs. Drain Current

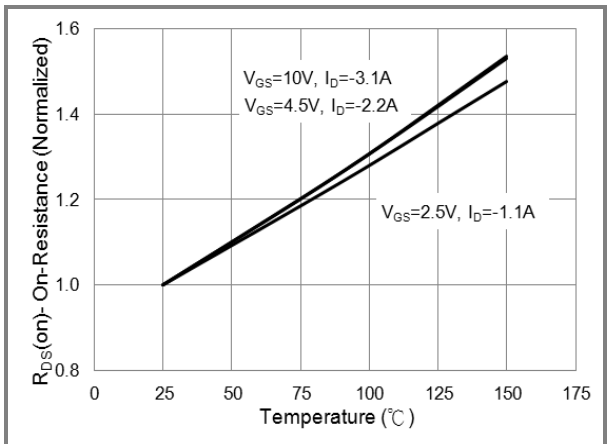

Fig.4 On-Resistance vs. Junction temperature

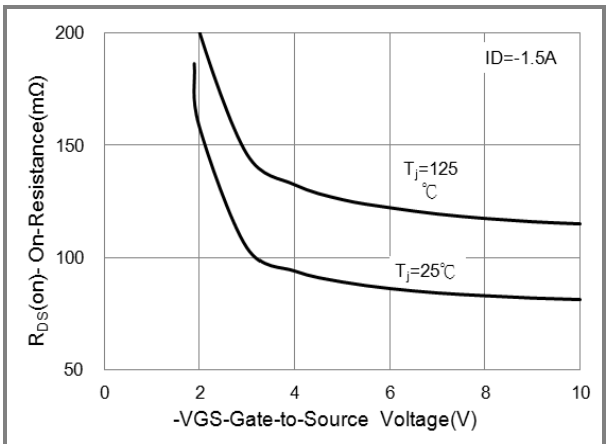

Fig.5 On-Resistance Variation with VGS.

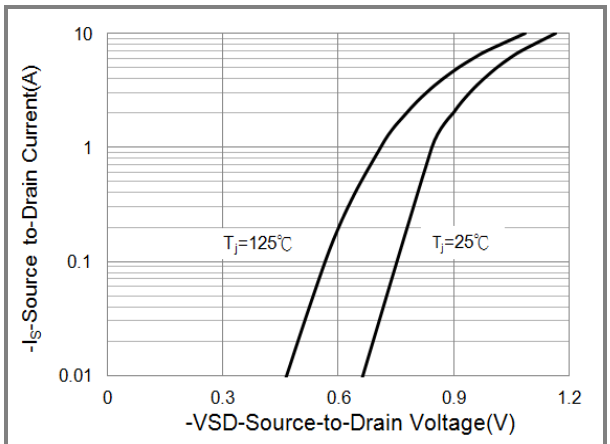

Fig.6 Body Diode Characteristics

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P-Channel TYPICAL CHARACTERISTIC CURVES

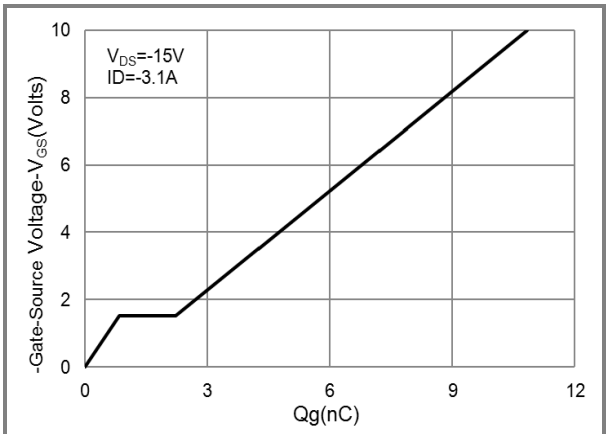


Fig.7 Gate-Charge Characteristics

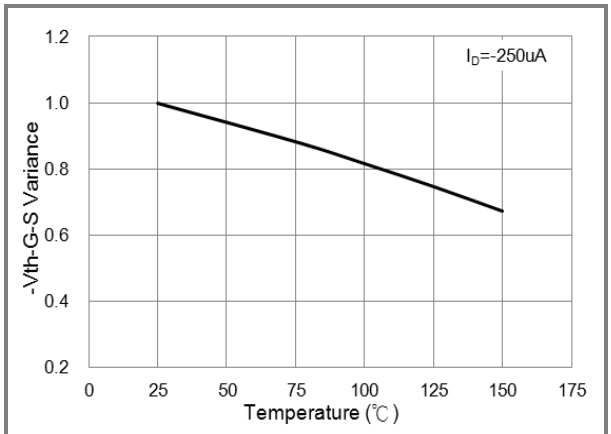


Fig.8 Threshold Voltage Variation with Temperature.

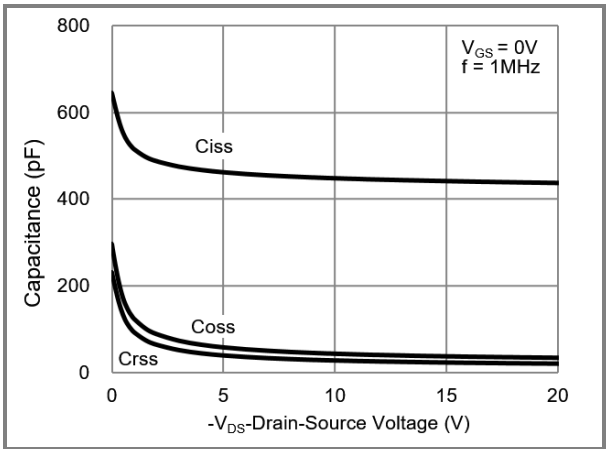


Fig.9 Threshold Voltage Variation with Temperature.

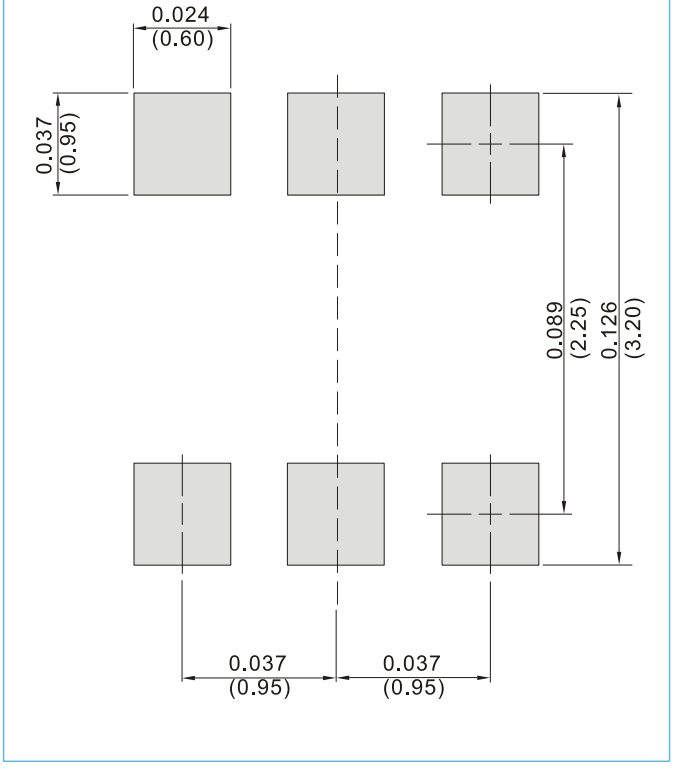
PJS6604

PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJS6604_S1_00001	SOT-23 6L	3K pcs / 7” reel	SC4	Halogen free RoHS compliant
PJS6604_S2_00001	SOT-23 6L	10K pcs / 13” reel	SC4	Halogen free RoHS compliant

MOUNTING PAD LAYOUT

SOT-23 6L Unit : inch(mm)



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