PJS6603

30V Complementary Enhancement Mode MOSFET

Voltage	30 / -30V	Current	4.4 /-2.9A

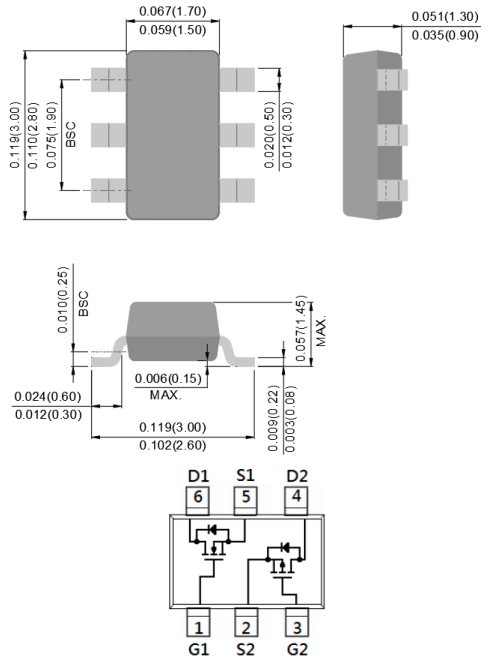
Features

- 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

SOT-23 6L **Unit: inch(mm)**



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}	±20	±20	V
Continuous Drain Current		I_D	4.4	-2.9	A
Pulsed Drain Current(Note 4)		I_{DM}	17.6	-11.6	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		°C/W

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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	1.0	1.37	2.1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=4.4A	-	36	48	mΩ
		V_{GS}=4.5V, I_D=2.8A	-	52	70	
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=4.4A, V_{GS}=10V(Note 1,2)	-	5.8	-	nC
Gate-Source Charge	Q_{gs}		-	1	-	
Gate-Drain Charge	Q_{gd}		-	1	-	
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V, f=1.0MHZ	-	235	-	pF
Output Capacitance	Coss		-	36	-	
Reverse Transfer Capacitance	Crss		-	24	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=15V, I_D=4.4A, V_{GS}=10V, R_G=6Ω(Note 1,2)	-	3	-	ns
Turn-On Rise Time	tr		-	39	-	
Turn-Off Delay Time	$td_{(off)}$		-	23	-	
Turn-Off Fall Time	tf		-	28	-	
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	-	0.8	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	-1	-1.3	-2.1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-2.9A	-	94	110	mΩ
		V_{GS}=-4.5V, I_D=-1.9A	-	120	150	
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=-2.9A, V_{GS}=-10V(Note 1,2)	-	9.8	-	nC
Gate-Source Charge	Q_{gs}		-	1.5	-	
Gate-Drain Charge	Q_{gd}		-	2.2	-	
Input Capacitance	Ciss	V_{DS}=-15V, V_{GS}=0V, f=1.0MHZ	-	396	-	pF
Output Capacitance	Coss		-	47	-	
Reverse Transfer Capacitance	Crss		-	36	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=-15V, I_D=-2.9A, V_{GS}=-10V, R_G=6Ω(Note 1,2)	-	5	-	ns
Turn-On Rise Time	tr		-	30	-	
Turn-Off Delay Time	$td_{(off)}$		-	25	-	
Turn-Off Fall Time	tf		-	8	-	
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	-	-0.85	-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.
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N-Channel TYPICAL CHARACTERISTIC CURVES

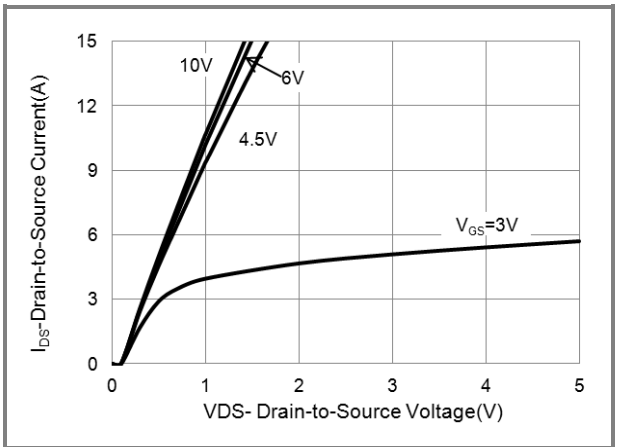

Fig.1 On-Region Characteristics

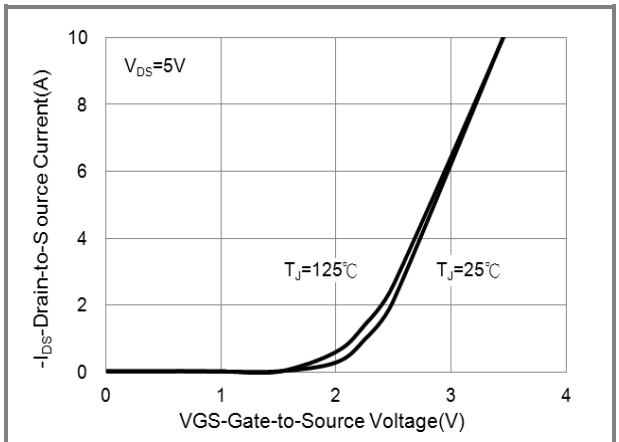

Fig.2 Transfer Characteristics

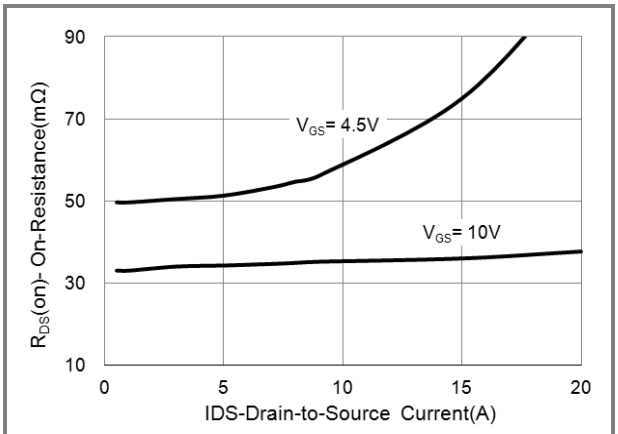

Fig.3 On-Resistance vs. Drain Current

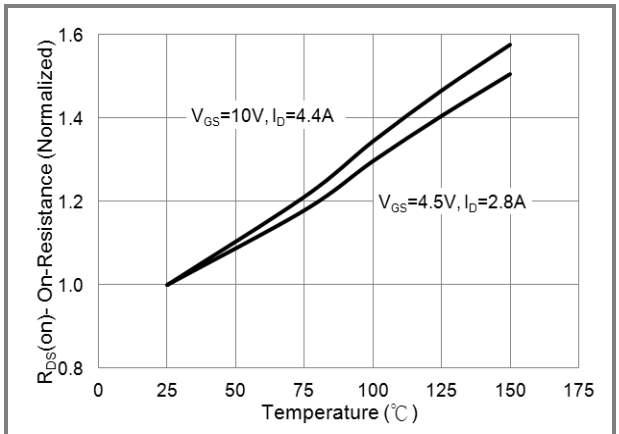

Fig.4 On-Resistance vs. Junction temperature

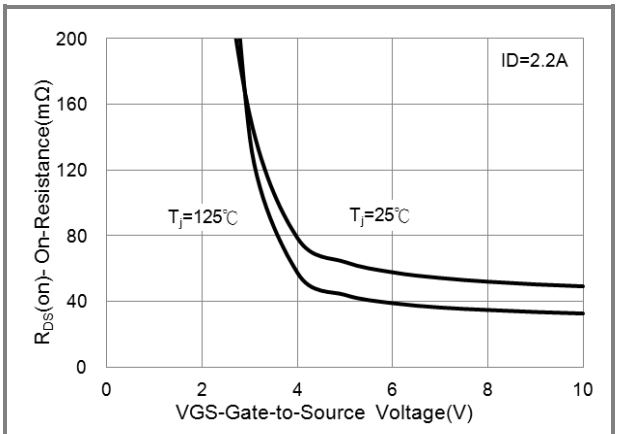

Fig.5 On-Resistance Variation with VGS.

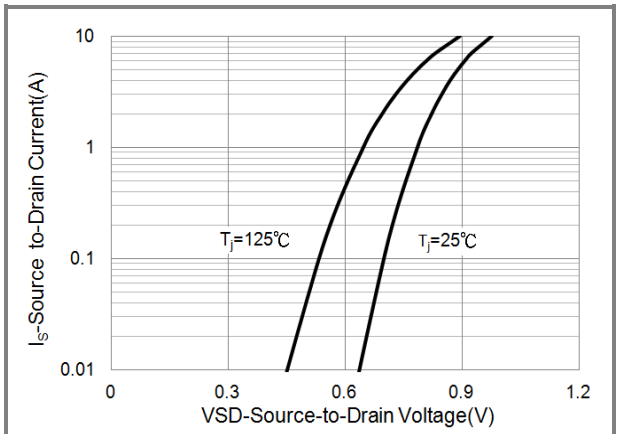

Fig.6 Body Diode Characteristics

N-Channel TYPICAL CHARACTERISTIC CURVES

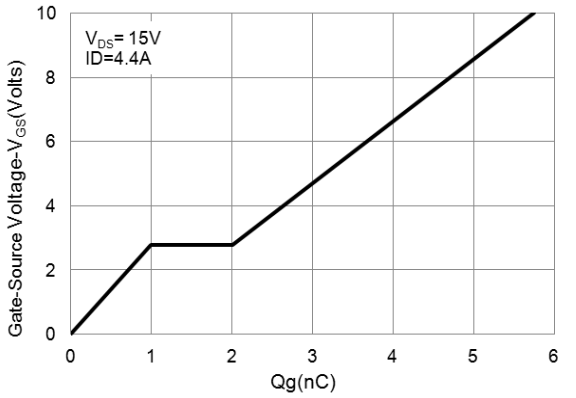

Fig.7 Gate-Charge Characteristics

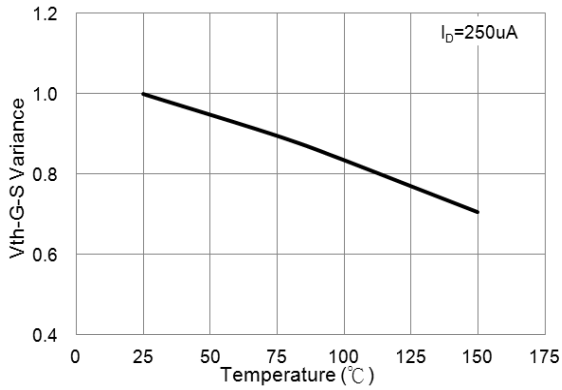

Fig.8 Threshold Voltage Variation with Temperature.

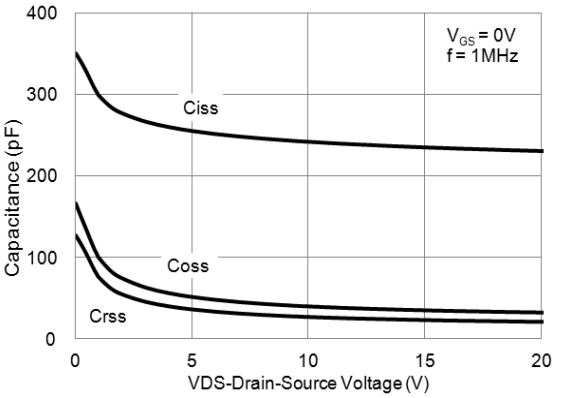

Fig.9 Capacitance vs. Drain-Source Voltage.

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P-Channel TYPICAL CHARACTERISTIC CURVES

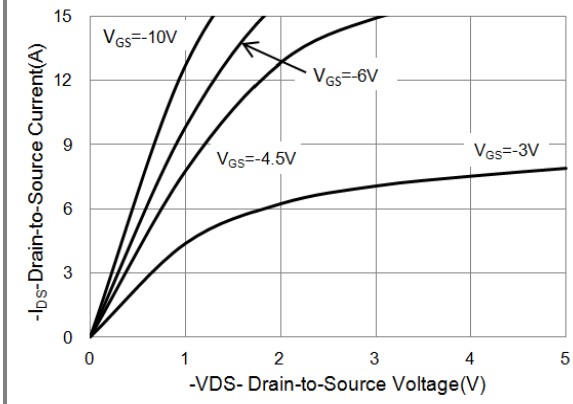

Fig.1 On-Region Characteristics

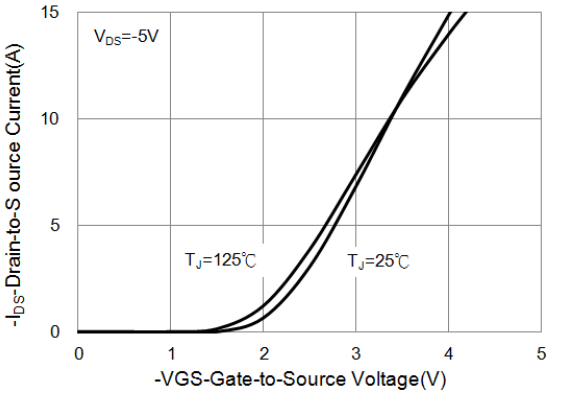

Fig.2 Transfer Characteristics

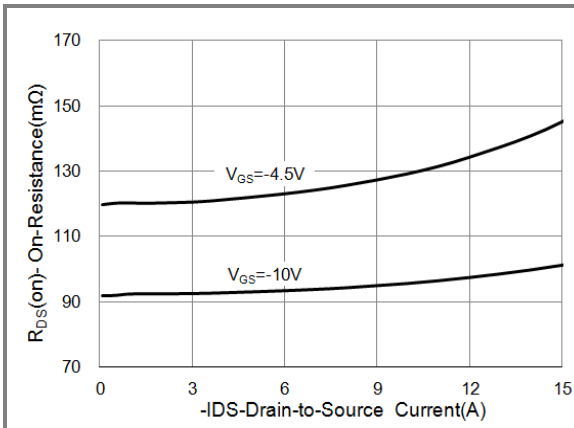

Fig.3 On-Resistance vs. Drain Current

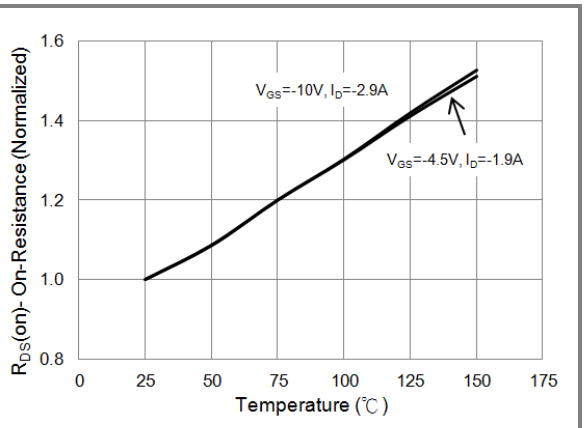

Fig.4 On-Resistance vs. Junction temperature

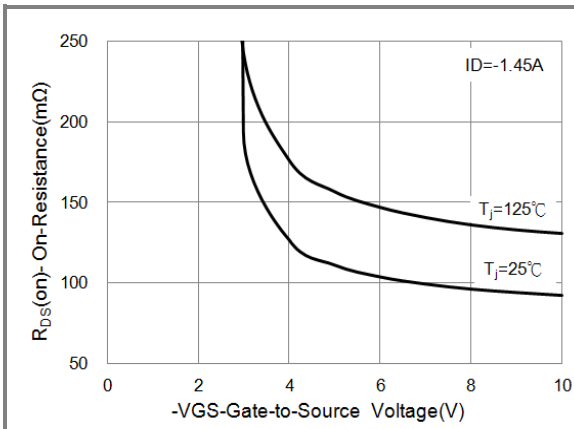

Fig.5 On-Resistance Variation with VGS.

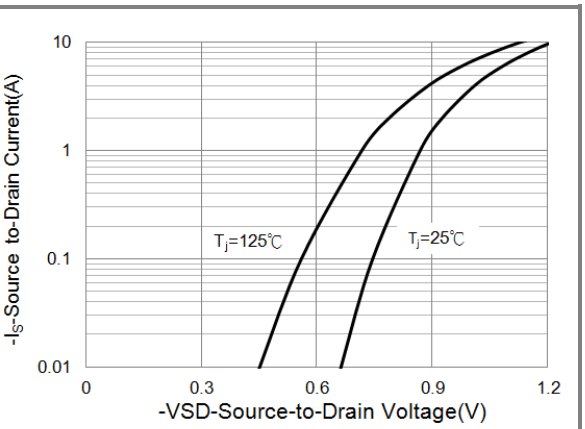

Fig.6 Body Diode Characteristics

P-Channel TYPICAL CHARACTERISTIC CURVES

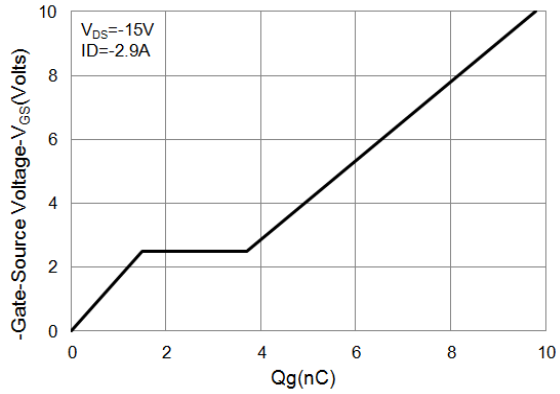

Fig.7 Gate-Charge Characteristics

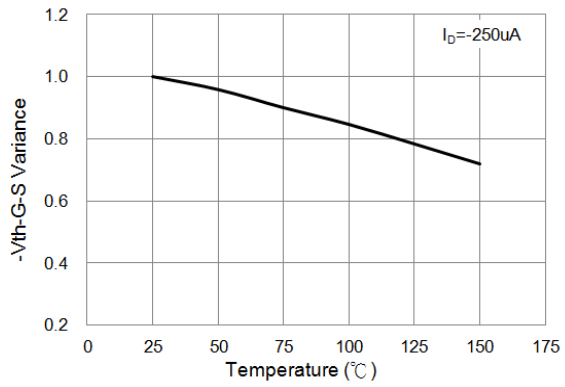

Fig.8 Threshold Voltage Variation with Temperature.

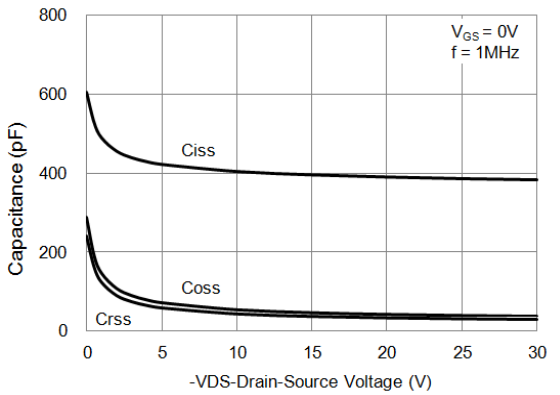

Fig.9 Threshold Voltage Variation with Temperature.

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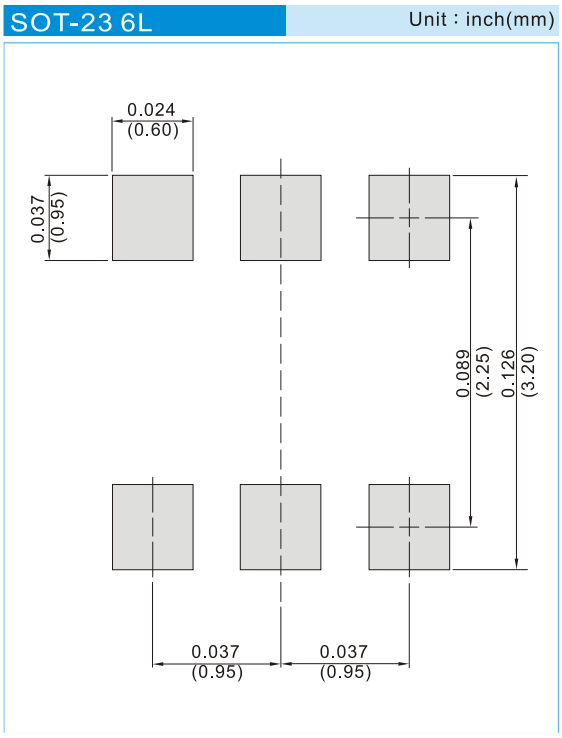
PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJS6603_S1_00001	SOT-23 6L	3K pcs / 7” reel	SC3	Halogen free RoHS compliant
PJS6603_S2_00001	SOT-23 6L	10K pcs / 13” reel	SC3	Halogen free RoHS compliant

MOUNTING PAD LAYOUT



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