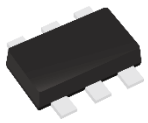
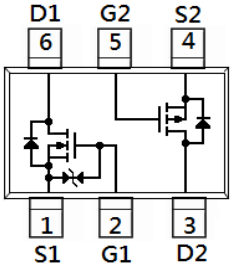
PJX8603-AU

Complementary Enhancement Mode MOSFET – ESD Protected

Voltage	50 / -60V	Current	0.36A / -0.2A

SOT-563





Features

- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- ESD Protected 2KV HBM
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 standard

Mechanical Data

- Case : SOT-563 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0026 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}	50	-60	V
Gate-Source Voltage		V_{GS}	±20	±20	
Continuous Drain Current(Note 4)		I_D	360	-200	mA
Pulsed Drain Current(Note 1)		I_{DM}	1200	-900	
Power Dissipation	T_a=25°C	P_D	300		mW
	Derate above 25°C		2.4		mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150		°C
Typical Thermal Resistance - Junction to Ambient(Note 3,4)		$R_{\theta JA}$	417		°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	50	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D= 250uA	0.5	0.9	1	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}= 10V, I_D= 500mA	-	1.26	1.5	Ω
		V_{GS}= 4.5V, I_D= 200mA	-	1.34	2.5	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= 50V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±10	
Dynamic(Note 5)						
Total Gate Charge	Q_g	V_{DS}=25V, I_D=500mA, V_{GS}=4.5V	-	0.95	-	nC
Gate-Source Charge	Q_{gs}		-	0.34	-	
Gate-Drain Charge	Q_{gd}		-	0.32	-	
Input Capacitance	Ciss	V_{DS}=25V, V_{GS}=0V, f=1MHZ	-	36	-	pF
Output Capacitance	Coss		-	11	-	
Reverse Transfer Capacitance	Crss		-	6.6	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=25V, I_D=500mA, V_{GS}=10V, R_G=6Ω(Note 1,2)	-	2.3	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	$td_{(off)}$		-	7	-	
Turn-Off Fall Time	tf		-	20	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	360	mA
Diode Forward Voltage	V_{SD}	I_S= 500mA, V_{GS}=0V	-	0.9	1.5	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	-60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1	-1.5	-2.5	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10V, I_D=-500mA	-	2.6	6	Ω
		V_{GS}=-4.5V, I_D=-200mA	-	2.9	7	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-48V, 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}=-25V, I_D=-100mA, V_{GS}=-4.5V	-	1.1	-	nC
Gate-Source Charge	Q_{gs}		-	0.3	-	
Gate-Drain Charge	Q_{gd}		-	0.2	-	
Input Capacitance	Ciss	V_{DS}=-25V, V_{GS}=0V, f=1MHZ	-	51	-	pF
Output Capacitance	Coss		-	15	-	
Reverse Transfer Capacitance	Crss		-	2.2	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=-25V, I_D=-100mA, V_{GS}=-10V, R_G=6Ω(Note 1,2)	-	4.8	-	ns
Turn-On Rise Time	tr		-	19	-	
Turn-Off Delay Time	$td_{(off)}$		-	52	-	
Turn-Off Fall Time	tf		-	32	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-200	mA
Diode Forward Voltage	V_{SD}	I_S=-500mA, V_{GS}=0V	-	-0.9	-1.5	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

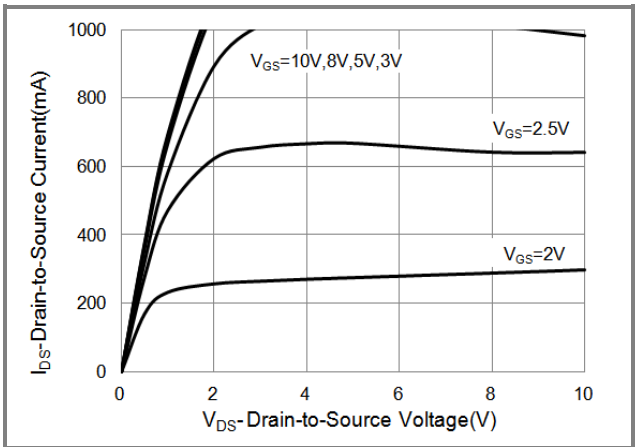

Fig.1 On-Region Characteristics

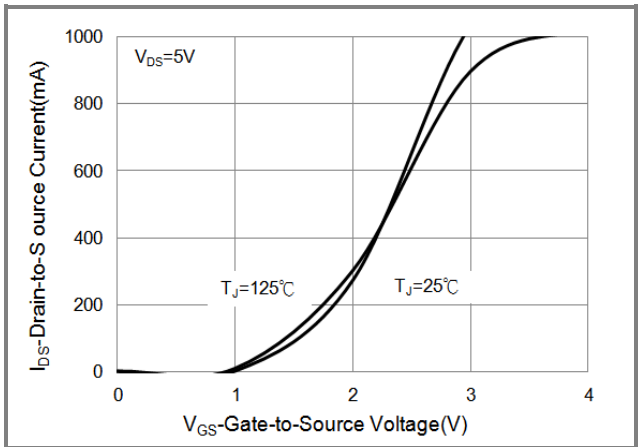

Fig.2 Transfer Characteristics

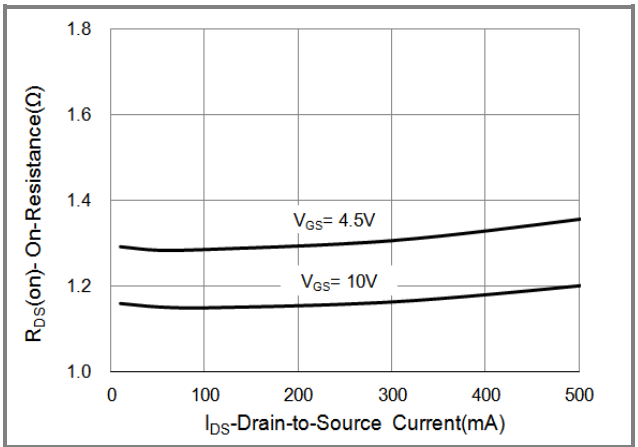

Fig.3 On-Resistance vs. Drain Current

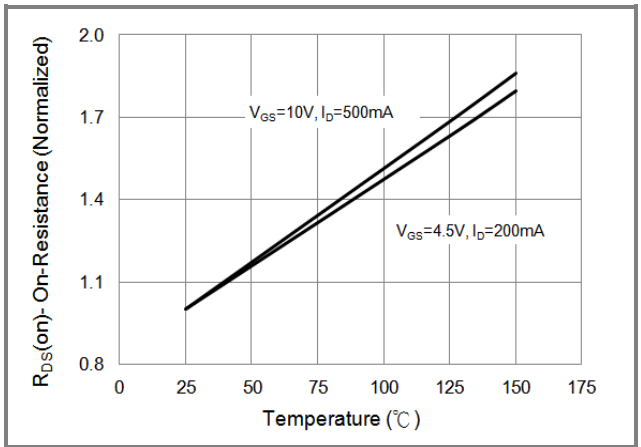

Fig.4 On-Resistance vs. Junction temperature

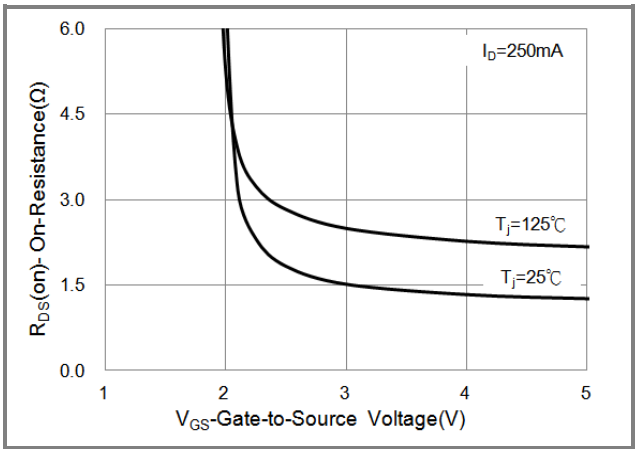

Fig.5 On-Resistance Variation with V_{GS}

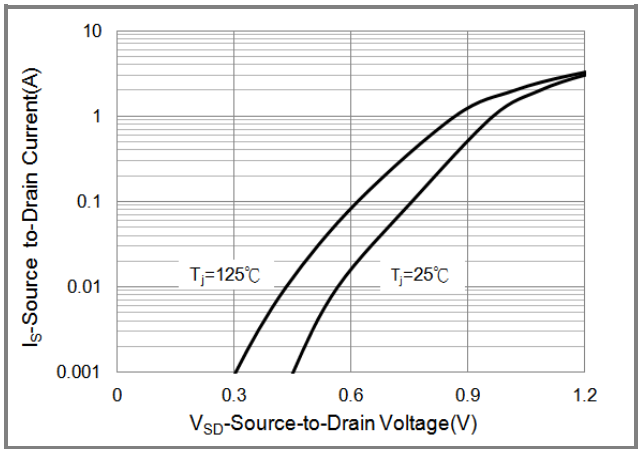

Fig.6 Body Diode Characteristics

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N-Channel TYPICAL CHARACTERISTIC CURVES

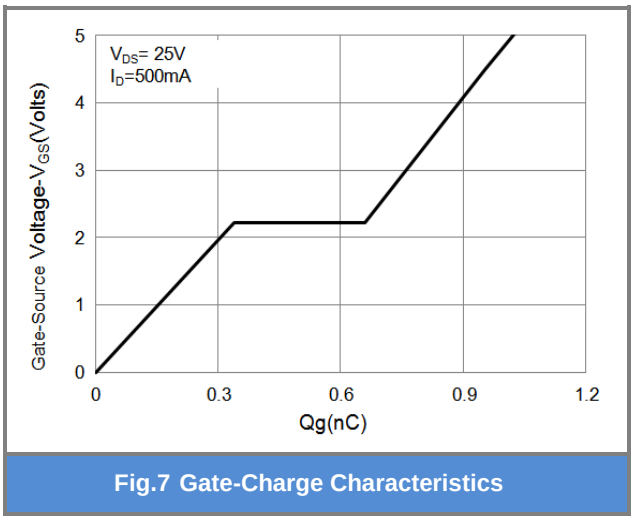

Fig.7 Gate-Charge Characteristics

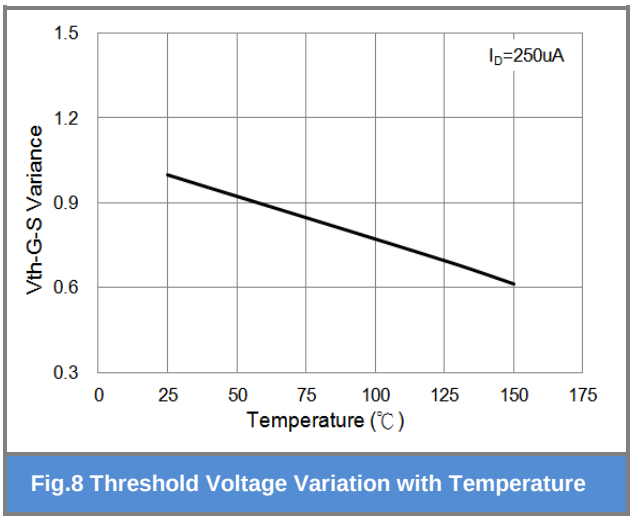

Fig.8 Threshold Voltage Variation with Temperature

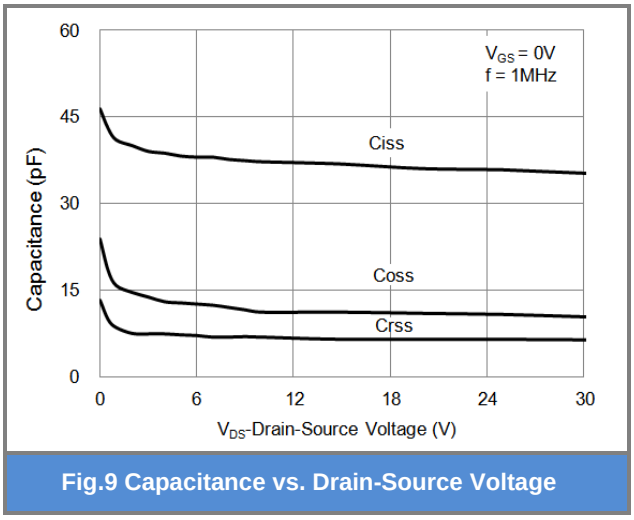

Fig.9 Capacitance vs. Drain-Source Voltage

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P-Channel TYPICAL CHARACTERISTIC CURVES

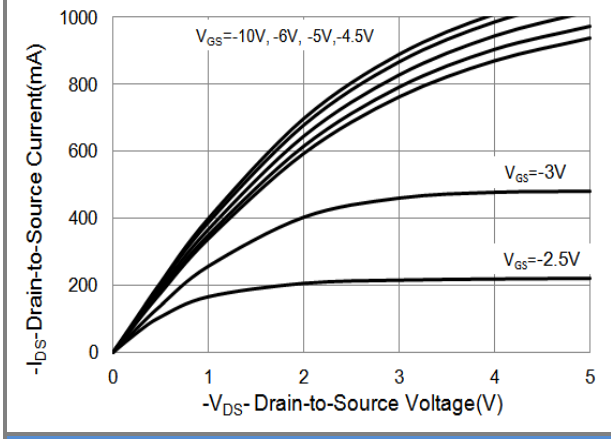

Fig.1 On-Region Characteristics

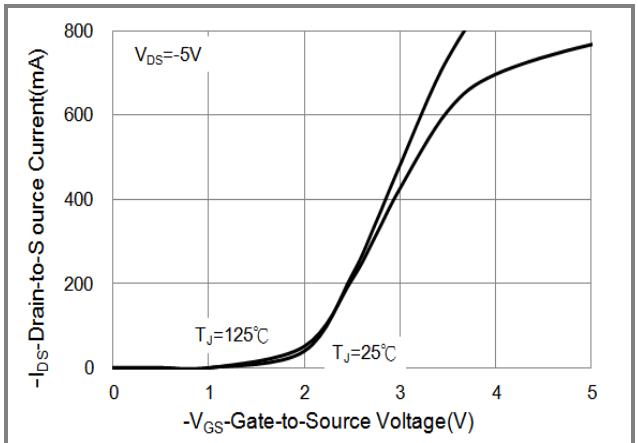

Fig.2 Transfer Characteristics

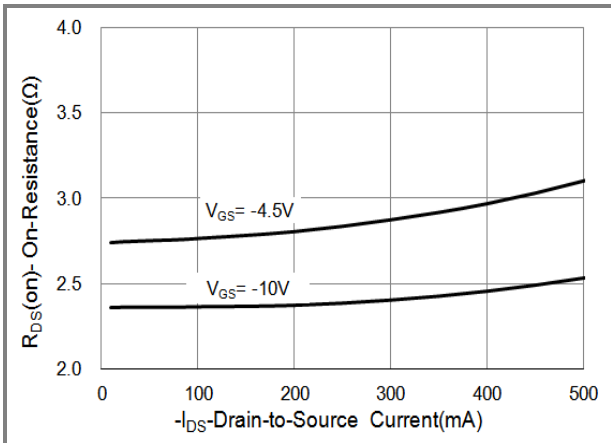

Fig.3 On-Resistance vs. Drain Current

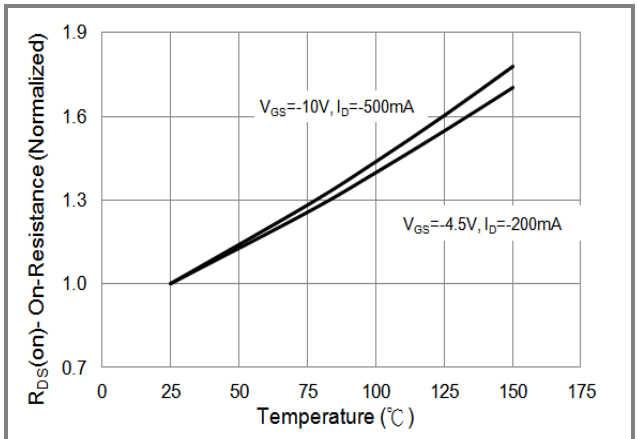

Fig.4 On-Resistance vs. Junction temperature

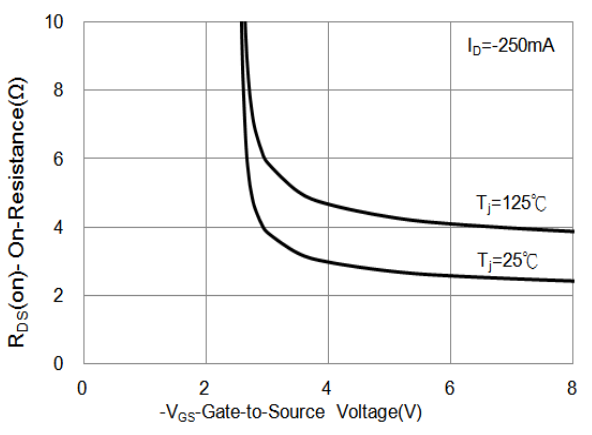

Fig.5 On-Resistance Variation with V_{GS}

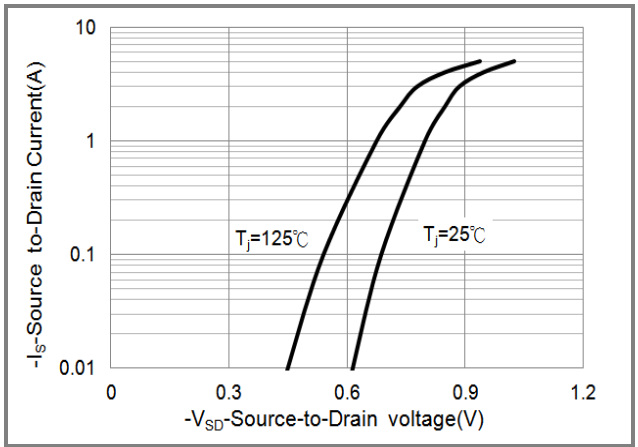

Fig.6 Body Diode Characteristics

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P-Channel TYPICAL CHARACTERISTIC CURVES

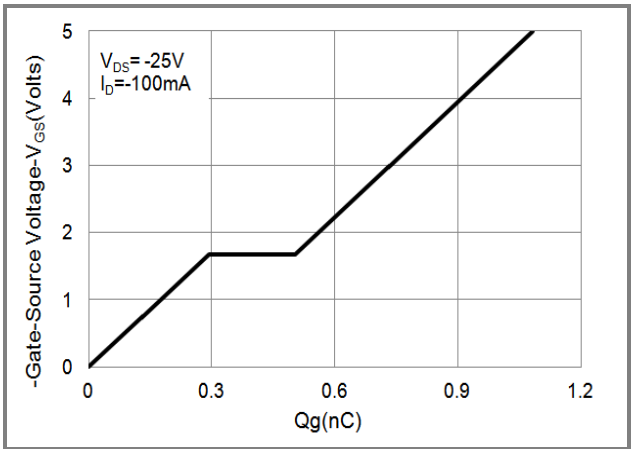


Fig.7 Gate-Charge Characteristics

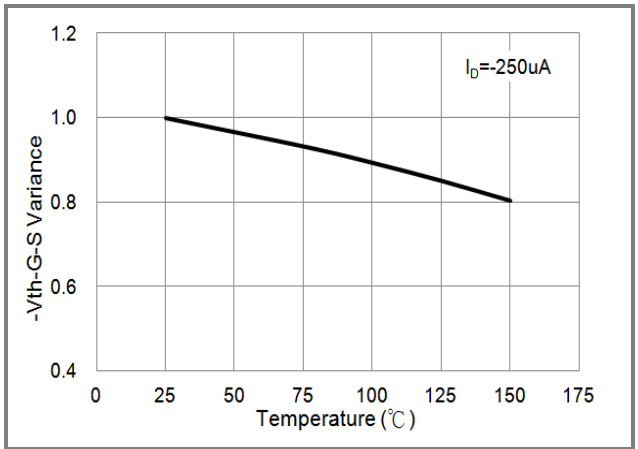


Fig.8 Threshold Voltage Variation with Temperature

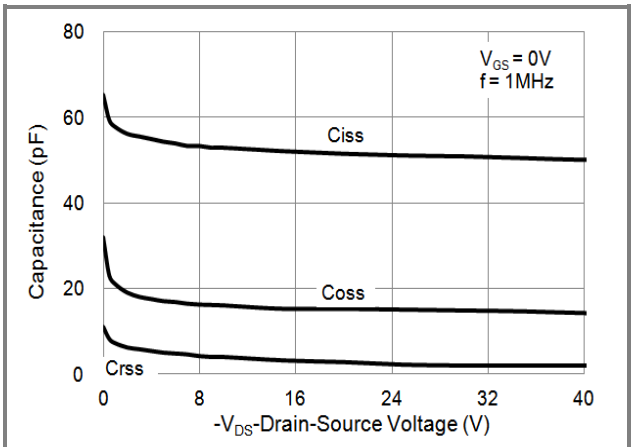


Fig.9 Threshold Voltage Variation with Temperature

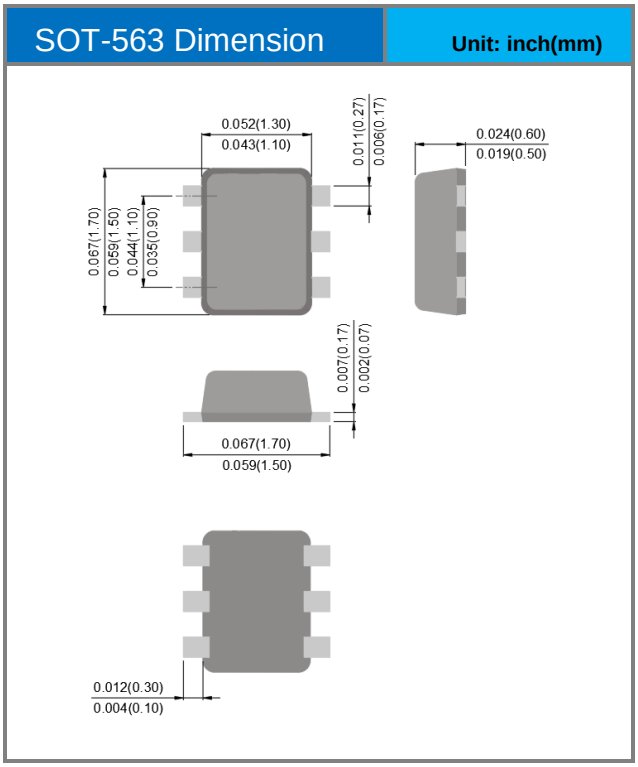
PJX8603-AU

Part No. Packing Code Version

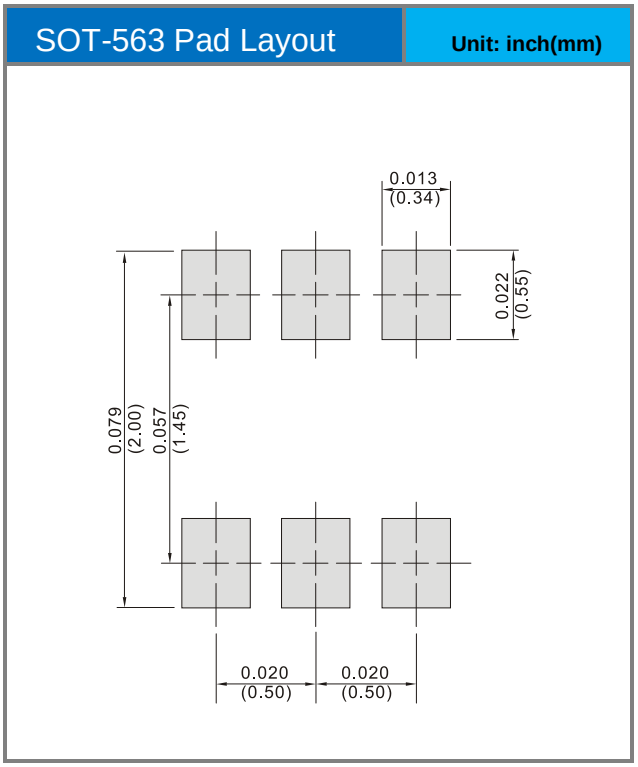
Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJX8603-AU_R1_000A1	SOT-563	4K pcs / 7" reel	X63	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout

SOT-563 Dimension — Unit: inch(mm)



SOT-563 Pad Layout — Unit: inch(mm)



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