

PJC7428

30V N-Channel Enhancement Mode MOSFET

Voltage

30 V

Current

300mA

Features

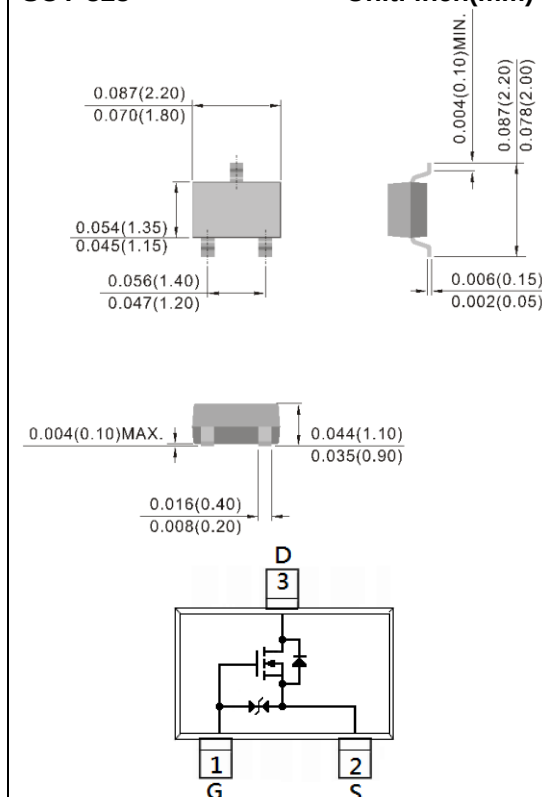
- Advanced Trench Process Technology
- ESD Protected
- Specially Designed for Relay driver, Speed line drive, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 standard

Mechanical Data

- Case : SOT-323 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.00018 ounces, 0.005 grams

SOT-323

Unit: inch(mm)



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±10	
Continuous Drain Current ^(Note 4)		I _D	300	mA
Pulsed Drain Current ^(Note 1)		I _{DM}	600	
Power Dissipation	T _A =25°C	P _D	350	mW
	Derate above 25°C		2.8	mW/°C
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150	°C
Typical Thermal Resistance		R _{θJA}	357	°C/W
- Junction to Ambient ^(Note 3,4)				



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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 _{GS} =0V, I _D =250uA	30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.4	0.75	1	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =300mA	-	0.7	1.2	Ω
		V _{GS} =2.5V, I _D =200mA	-	0.8	1.6	
		V _{GS} =1.8V, I _D =100mA	-	0.9	2	
		V _{GS} =1.5V, I _D =50mA	-	1.1	3	
		V _{GS} =1.2V, I _D =20mA	-	1.5	4	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = <u>±</u> 8V, V _{DS} =0V	-	-	<u>±</u> 10	
Dynamic ^(Note 5)						
Total Gate Charge	Q _g	V _{DS} =10V, I _D =300mA, V _{GS} =4.5V	-	0.9	-	nC
Gate-Source Charge	Q _{gs}		-	0.3	-	
Gate-Drain Charge	Q _{gd}		-	0.2	-	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHZ	-	45	-	pF
Output Capacitance	C _{oss}		-	14	-	
Reverse Transfer Capacitance	C _{rss}		-	0.8	-	
Turn-On Delay Time	td _(on)	V _{DD} =10V, I _D =300mA, V _{GS} =4V, R _G =10Ω ^(Note 1,2)	-	8.3	-	ns
Turn-On Rise Time	tr		-	5.7	-	
Turn-Off Delay Time	td _(off)		-	35	-	
Turn-Off Fall Time	tf		-	12	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	300	mA
Diode Forward Voltage	V _{SD}	I _S =300mA, V _{GS} =0V	-	0.9	1.3	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
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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TYPICAL CHARACTERISTIC CURVES

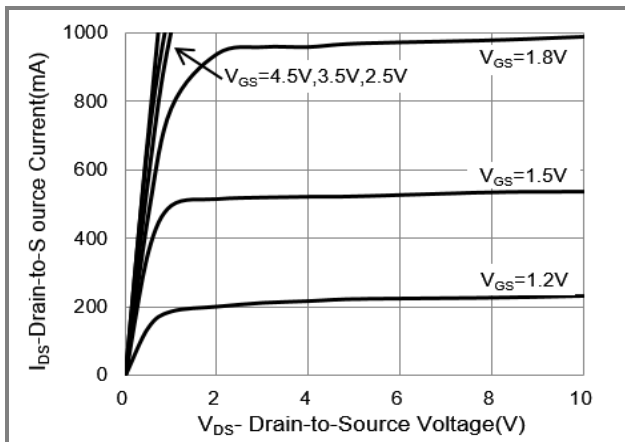


Fig.1 On-Region Characteristics

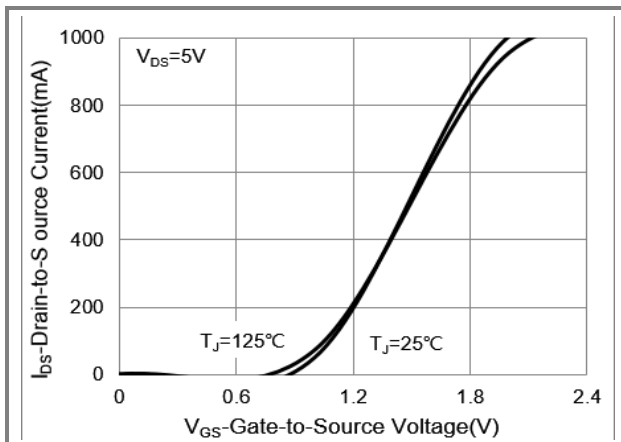


Fig.2 Transfer Characteristics

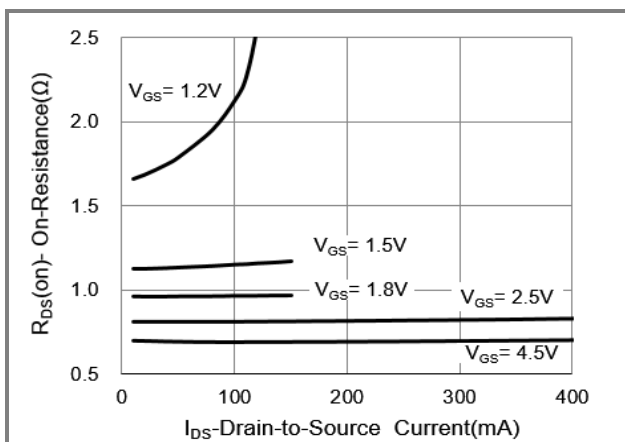


Fig.3 On-Resistance vs. Drain Current

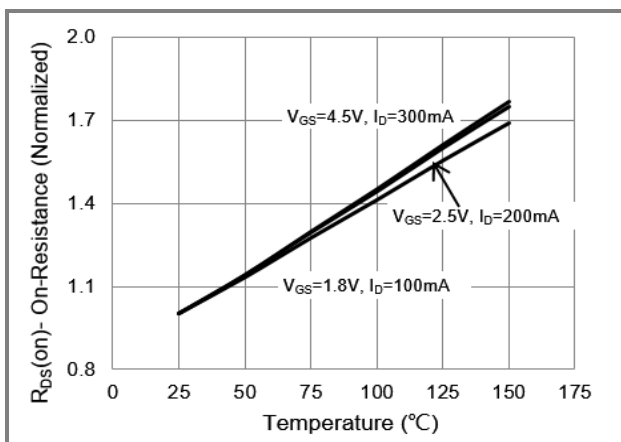


Fig.4 On-Resistance vs. Junction temperature

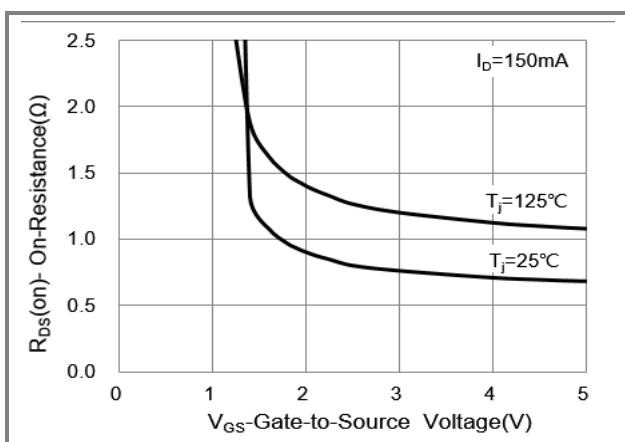


Fig.5 On-Resistance Variation with V_{GS}

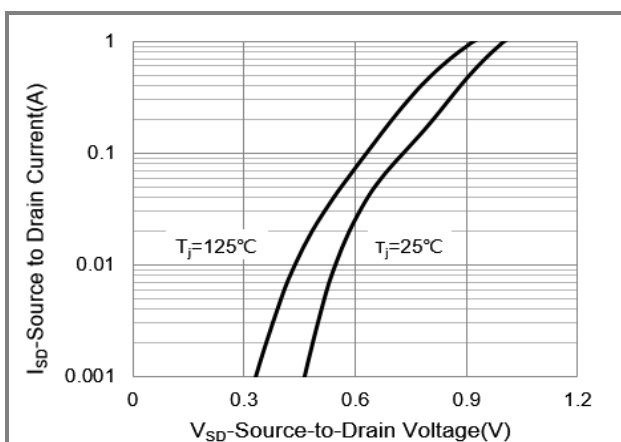


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

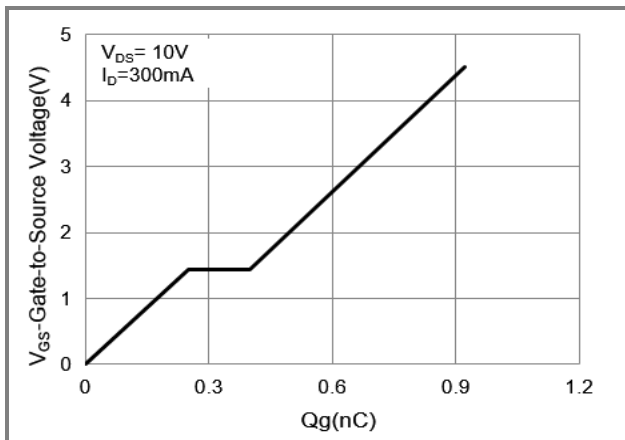


Fig.7 Gate-Charge Characteristics

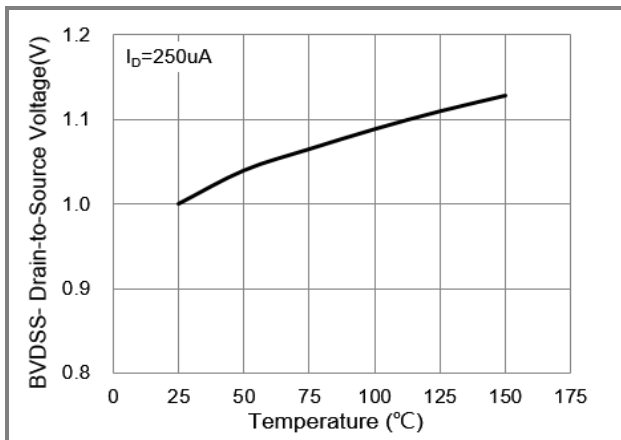


Fig.8 Breakdown Voltage Variation vs. Temperature

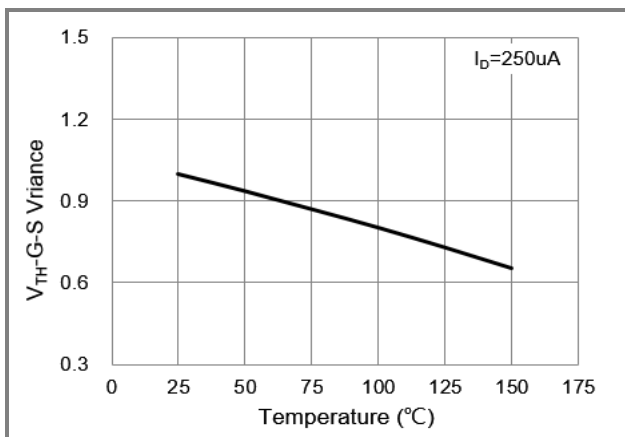


Fig.9 Threshold Voltage Variation with Temperature

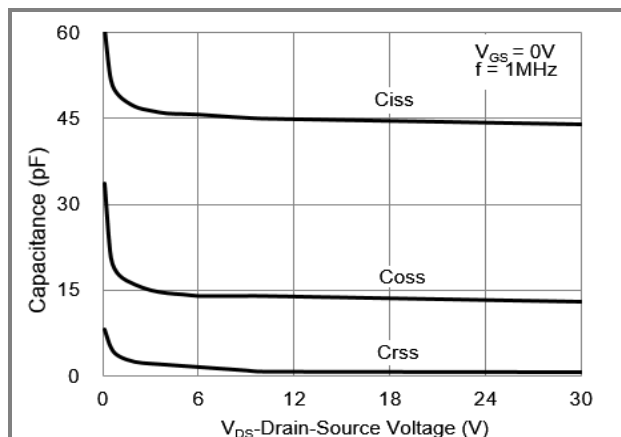


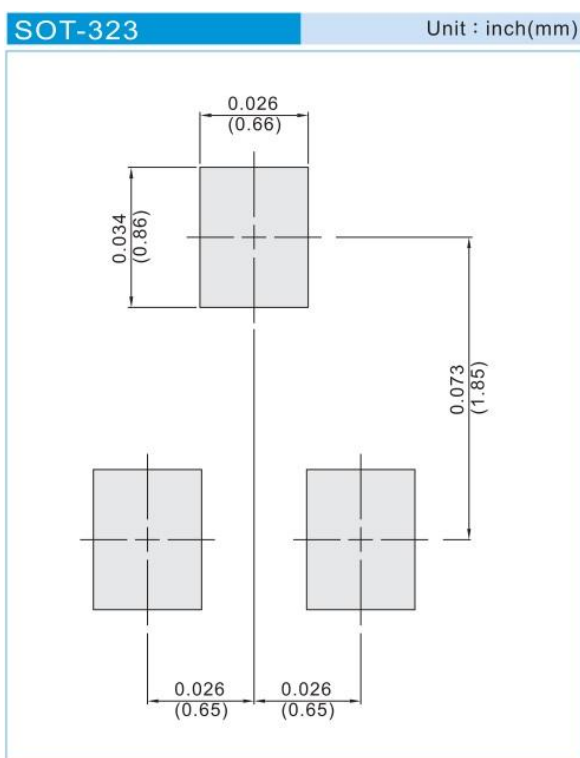
Fig.10 Capacitance vs. Drain-Source Voltage

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Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJC7428_R1_00001	SOT-323	3K pcs / 7" reel	C28	Halogen free

Mounting Pad Layout





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