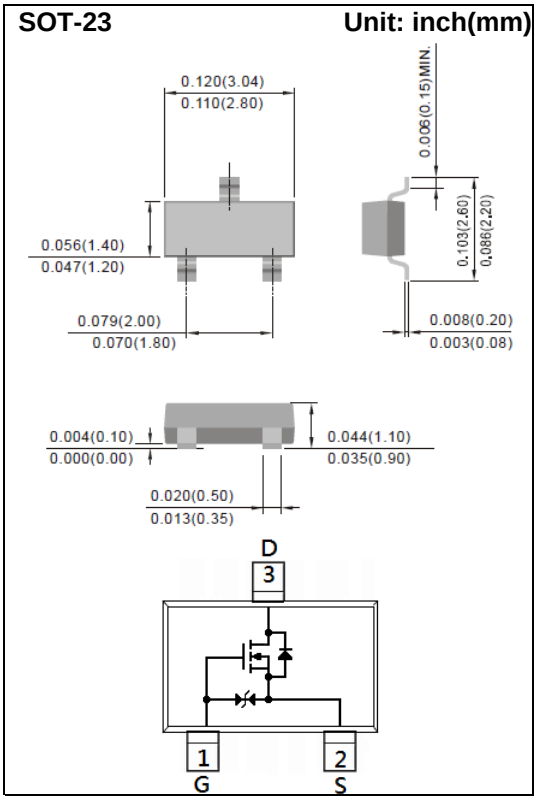
PJA3422

30V N-Channel Enhancement Mode MOSFET– ESD Protected

Voltage	30 V	Current	4.2A



Features

- RDS(ON) , VGS@10V, ID@4.2A<42mΩ
- RDS(ON) , VGS@4.5V, ID@3.5A<48mΩ
- RDS(ON) , VGS@2.5V, ID@2.8A<55mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. (Halogen Free)

Mechanical Data

- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0084 grams
- Marking: A22

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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current		I_D	4.2	A
Pulsed Drain Current		I_{DM}	16.8	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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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	0.8	1.3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=4.2A	-	32	42	mΩ
		V_{GS}=4.5V, I_D=3.5A	-	35	48	
		V_{GS}=2.5V, I_D=2.8A	-	44	55	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V	-	-	1	uA
		T_J =55°C	-	-	5	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±10	uA
Dynamic(Note 5)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=4.2A, V_{GS}=4.5V (Note 1,2)	-	5.1	-	nC
Gate-Source Charge	Q_{gs}		-	0.8	-	
Gate-Drain Charge	Q_{gd}		-	1.4	-	
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V, f=1.0MHZ	-	421	-	pF
Output Capacitance	Coss		-	43	-	
Reverse Transfer Capacitance	Crss		-	35	-	
Turn-On Delay Time	$td_{(on)}$	V_{DD}=15V, I_D=1A, V_{GS}=10V, R_G=3Ω (Note 1,2)	-	2.8	-	ns
Turn-On Rise Time	tr		-	22	-	
Turn-Off Delay Time	$td_{(off)}$		-	21	-	
Turn-Off Fall Time	tf		-	16	-	
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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TYPICAL CHARACTERISTIC CURVES

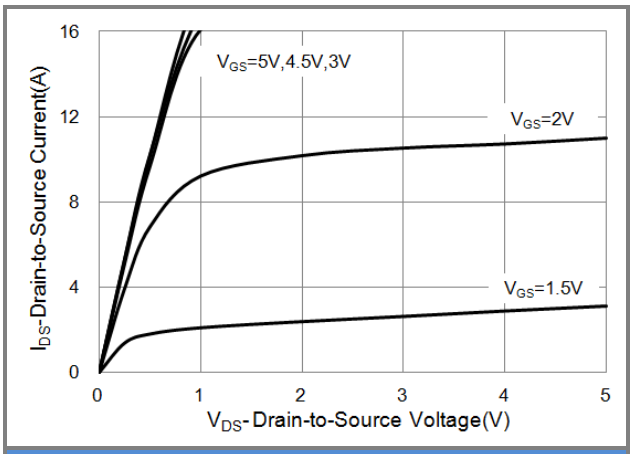

Fig.1 On-Region Characteristics

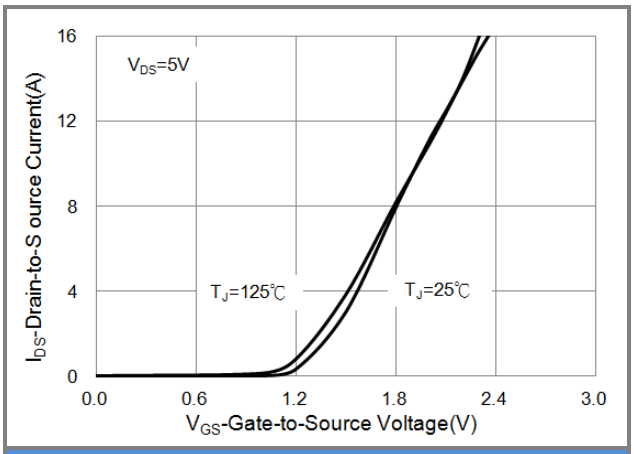

Fig.2 Transfer Characteristics

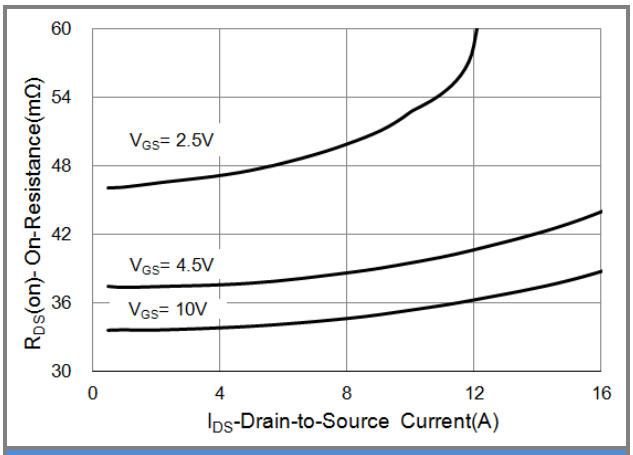

Fig.3 On-Resistance vs. Drain Current

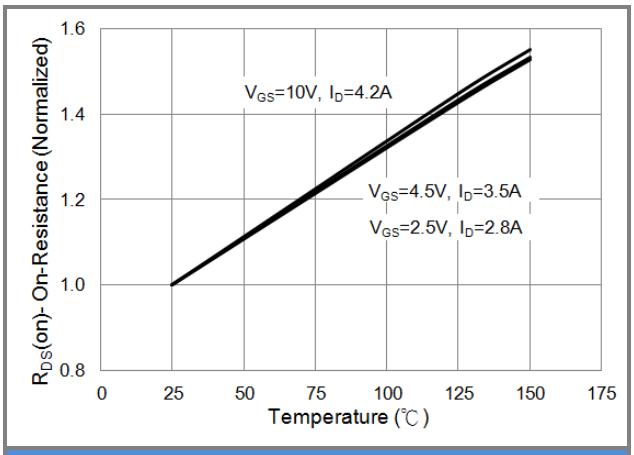

Fig.4 On-Resistance vs. Junction temperature

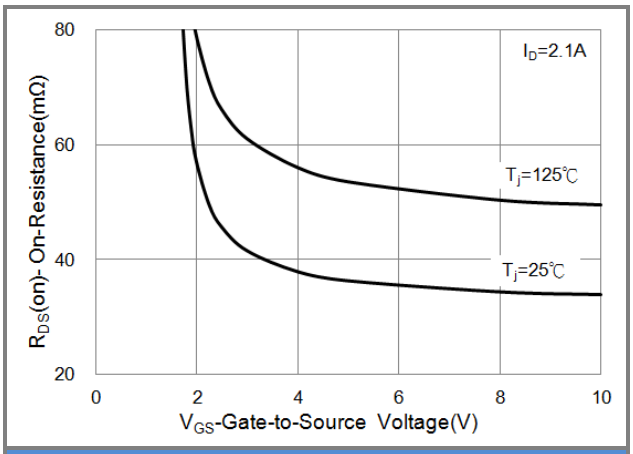

Fig.5 On-Resistance Variation with VGS.

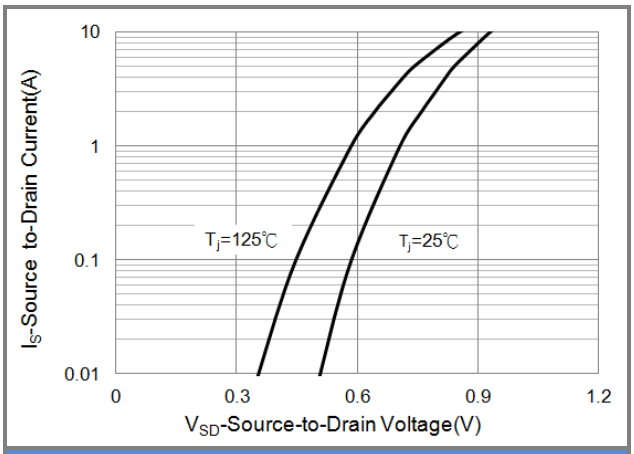

Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

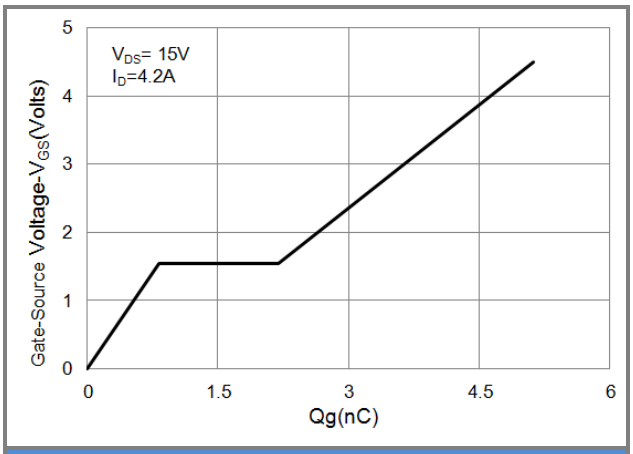

Fig.7 Gate-Charge Characteristics

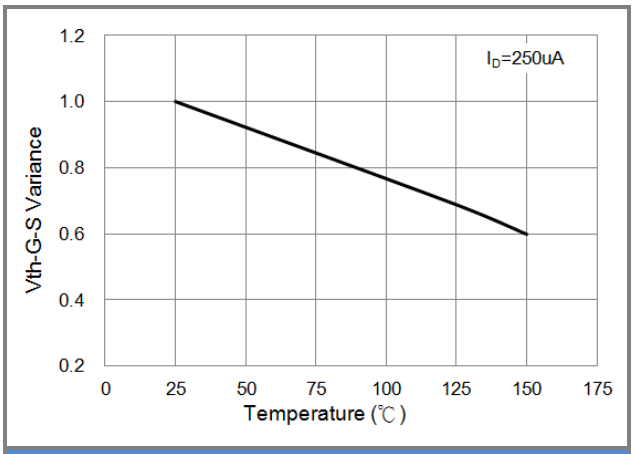

Fig.8 Threshold Voltage Variation with Temperature

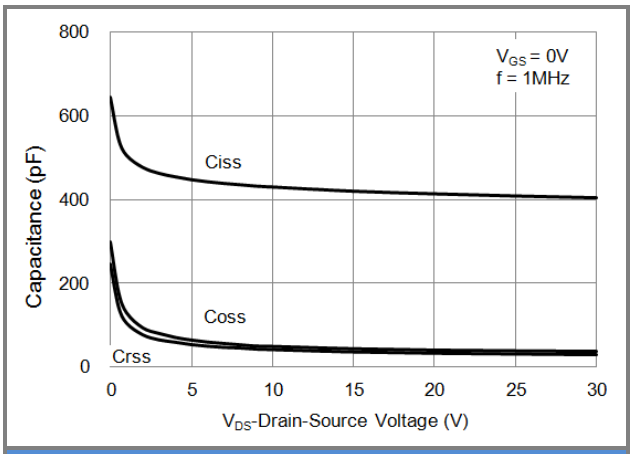

Fig.9 Capacitance vs. Drain-Source Voltage.

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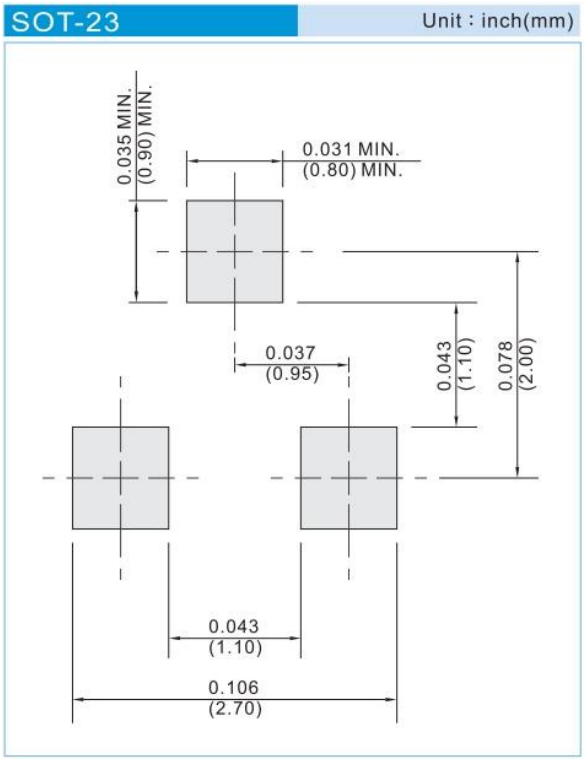
PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJA3422_R1_00001	SOT-23	3K pcs / 7” reel	A22	Halogen free
PJA3422 _R2_00001	SOT-23	12K pcs / 13” reel	A22	Halogen free

MOUNTING PAD LAYOUT



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