



## PJA3422

30V N-Channel Enhancement Mode MOSFET- ESD Protected

Voltage

30 V

Current

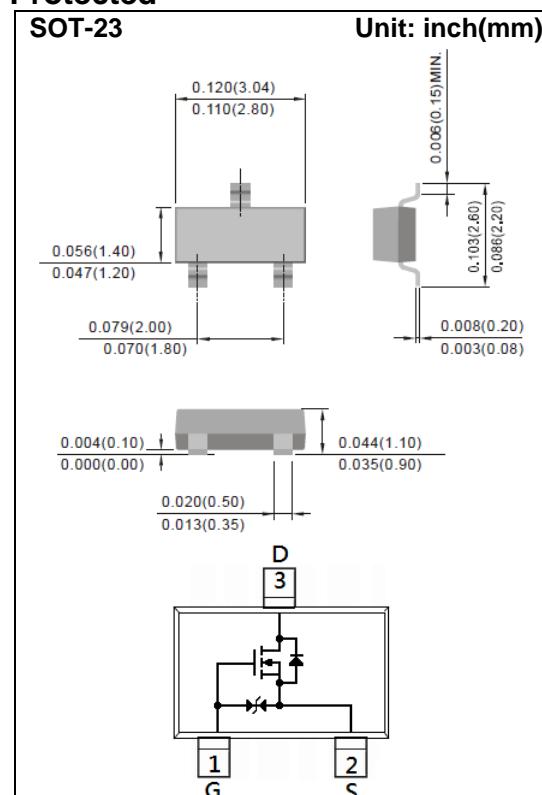
4.2A

### 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 ( $T_A=25^\circ C$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	4.2	A
Pulsed Drain Current	$I_{DM}$	16.8	A
Power Dissipation	$T_a=25^\circ C$	1.25	W
	Derate above $25^\circ C$	10	$mW/\text{ }^\circ C$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ C$
Typical Thermal resistance - Junction to Ambient <sup>(Note 3)</sup>	$R_{\theta JA}$	100	$^\circ C/W$



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## Electrical Characteristics ( $T_A=25^\circ C$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.8	1.3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=4.2A$	-	32	42	$m\Omega$
		$V_{GS}=4.5V, I_D=3.5A$	-	35	48	
		$V_{GS}=2.5V, I_D=2.8A$	-	44	55	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$ $T_J = 55^\circ C$	-	-	1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	$\pm 10$	$\mu A$
<b>Dynamic</b> <sup>(Note 5)</sup>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=4.2A,$ $V_{GS}=4.5V$ <small>(Note 1,2)</small>	-	5.1	-	$nC$
Gate-Source Charge	$Q_{gs}$		-	0.8	-	
Gate-Drain Charge	$Q_{gd}$		-	1.4	-	
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V,$ $f=1.0MHz$	-	421	-	$pF$
Output Capacitance	$C_{oss}$		-	43	-	
Reverse Transfer Capacitance	$C_{rss}$		-	35	-	
Turn-On Delay Time	$td_{(on)}$	$V_{DD}=15V, I_D=1A,$ $V_{GS}=10V,$ $R_G=3\Omega$ <small>(Note 1,2)</small>	-	2.8	-	$ns$
Turn-On Rise Time	$tr$		-	22	-	
Turn-Off Delay Time	$td_{(off)}$		-	21	-	
Turn-Off Fall Time	$tf$		-	16	-	
<b>Drain-Source Diode</b>						
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  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3.  $R_{eJA}$  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

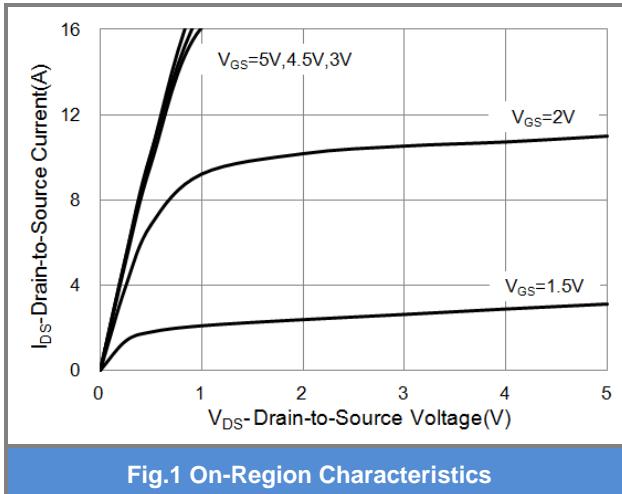


Fig.1 On-Region Characteristics

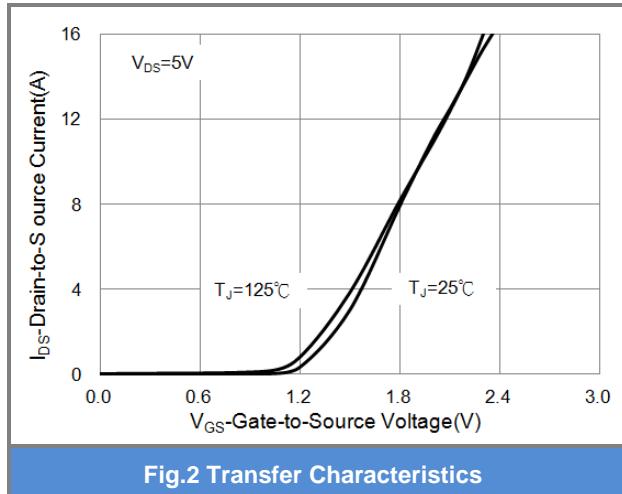


Fig.2 Transfer Characteristics

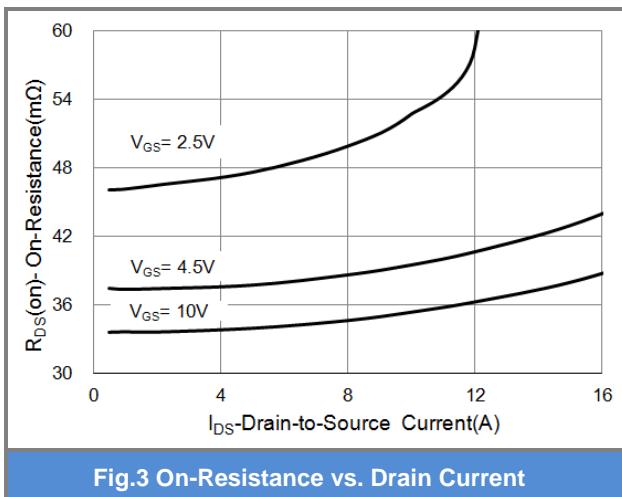


Fig.3 On-Resistance vs. Drain Current

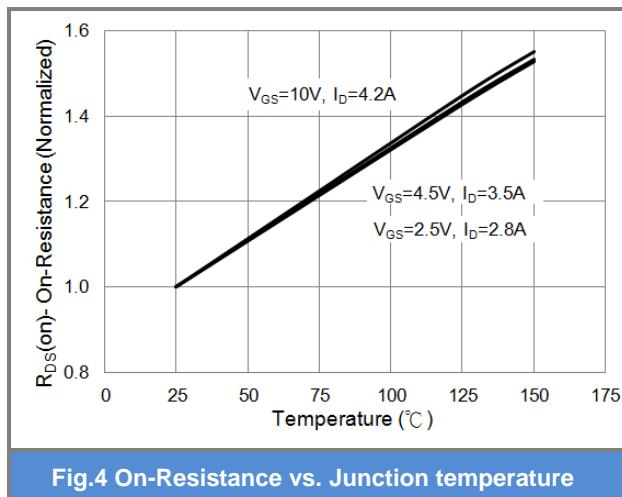


Fig.4 On-Resistance vs. Junction temperature

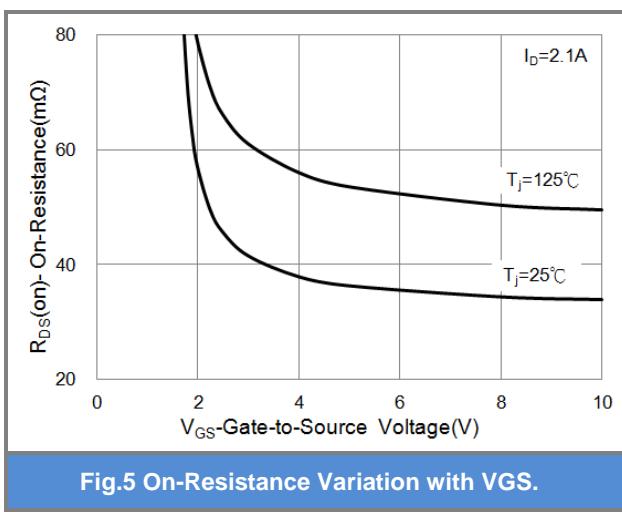


Fig.5 On-Resistance Variation with VGS.

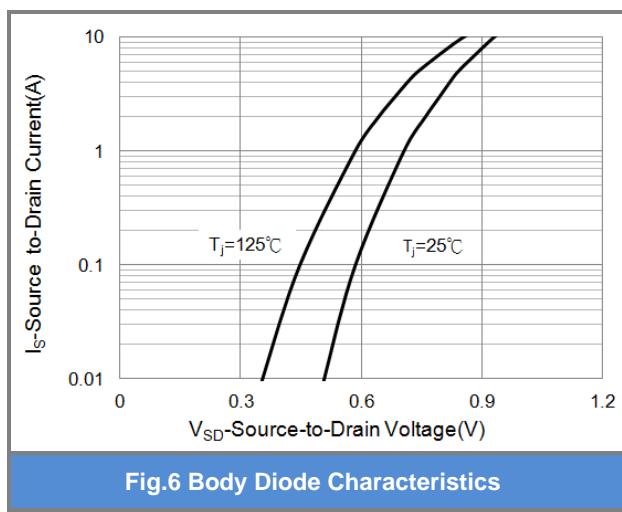


Fig.6 Body Diode Characteristics



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## TYPICAL CHARACTERISTIC CURVES

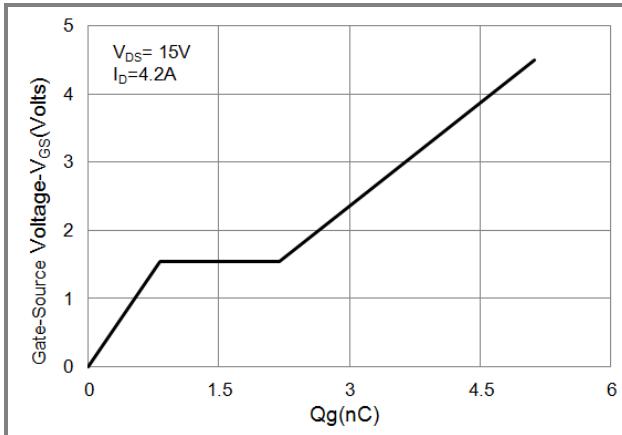


Fig.7 Gate-Charge Characteristics

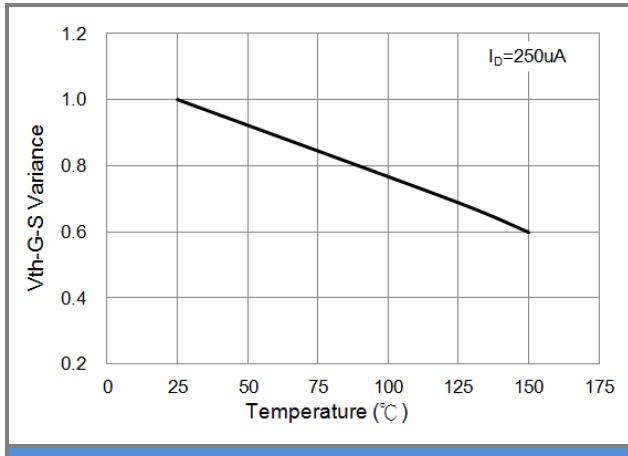


Fig.8 Threshold Voltage Variation with Temperature

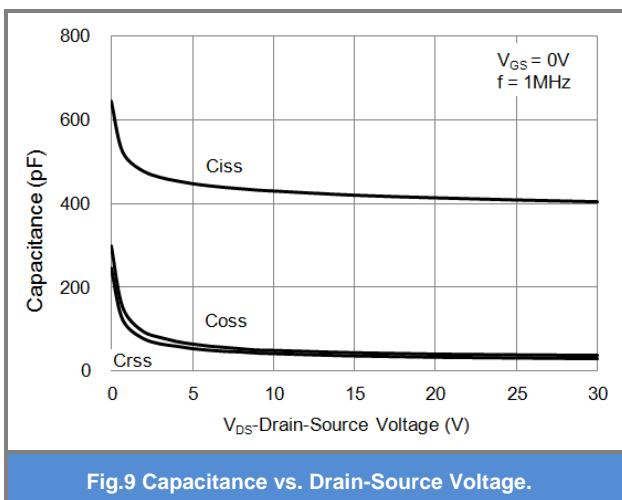


Fig.9 Capacitance vs. Drain-Source Voltage.

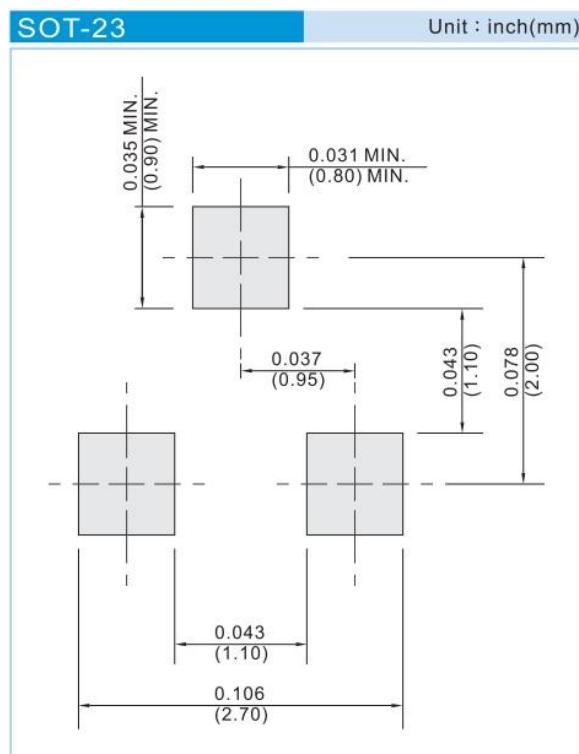


# PJA3422

## 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





## PJA3422

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