



PJA3402

30V N-Channel Enhancement Mode MOSFET

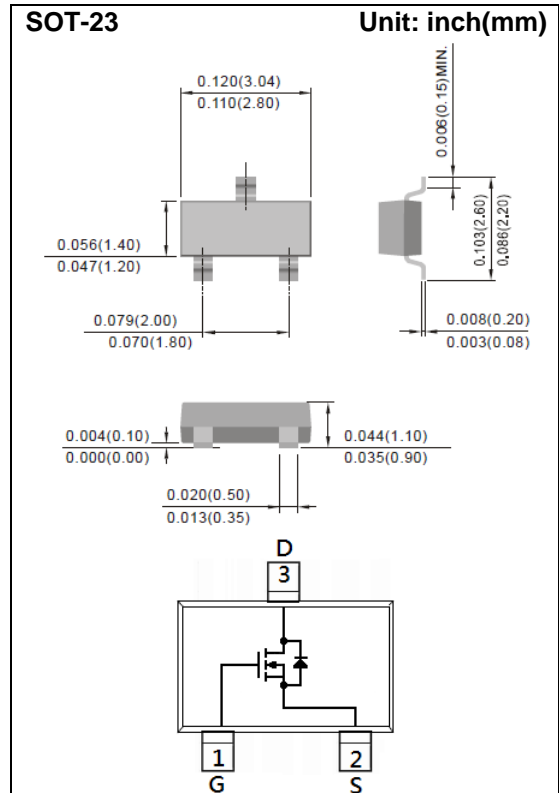
Voltage	30 V	Current	4.4A
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Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@4.4A < 48m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V$, $I_D@3.6A < 53m\Omega$
- $R_{DS(ON)}$, $V_{GS}@2.5V$, $I_D@2.5A < 66m\Omega$
- $R_{DS(ON)}$, $V_{GS}@1.8V$, $I_D@1.5A < 92m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- Lead free in comply with EU RoHS 2011/65/EU directives.
- 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 : A02



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}	+12	V
Continuous Drain Current	I_D	4.4	A
Pulsed Drain Current	I_{DM}	17.6	A
Power Dissipation	P_D	$T_a=25^\circ C$	1.25
		Derate above $25^\circ C$	10
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$
Typical Thermal resistance	$R_{\theta JA}$	100	$^\circ C/W$
- Junction to Ambient ^(Note 3)			



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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}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	0.72	1.2	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=4.4A$	-	37	48	mΩ
		$V_{GS}=4.5V, I_D=3.6A$	-	40	53	
		$V_{GS}=2.5V, I_D=2.5A$	-	48	66	
		$V_{GS}=1.8V, I_D=1.5A$	-	62	92	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	0.01	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	+10	+100	nA
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=4.4A,$ $V_{GS}=10V$ (Note 1,2)	-	11.3	-	nC
Gate-Source Charge	Q_{gs}		-	1	-	
Gate-Drain Charge	Q_{gd}		-	1.2	-	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	447	-	pF
Output Capacitance	C_{oss}		-	34	-	
Reverse Transfer Capacitance	C_{rss}		-	22	-	
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=4.4A,$ $V_{GS}=10V,$ $R_G=3\Omega$ (Note 1,2)	-	1.7	-	ns
Turn-On Rise Time	t_r		-	38	-	
Turn-Off Delay Time	$t_{d(off)}$		-	82	-	
Turn-Off Fall Time	t_f		-	64	-	
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 $\leq 300\mu s$, 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



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TYPICAL CHARACTERISTIC CURVES

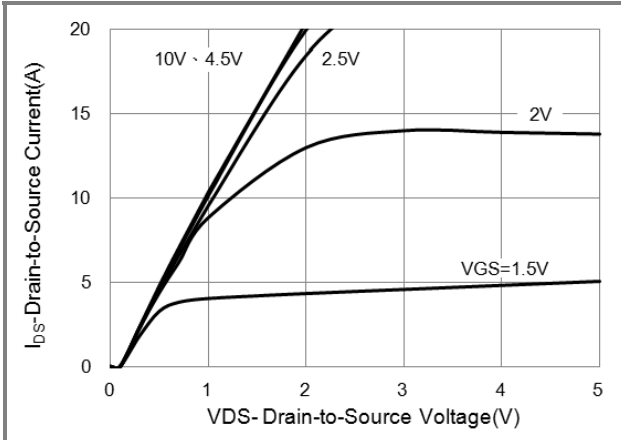


Fig.1 On-Region Characteristics

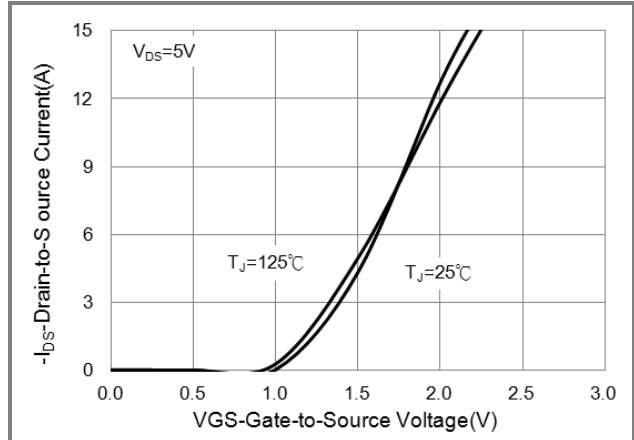


Fig.2 Transfer Characteristics

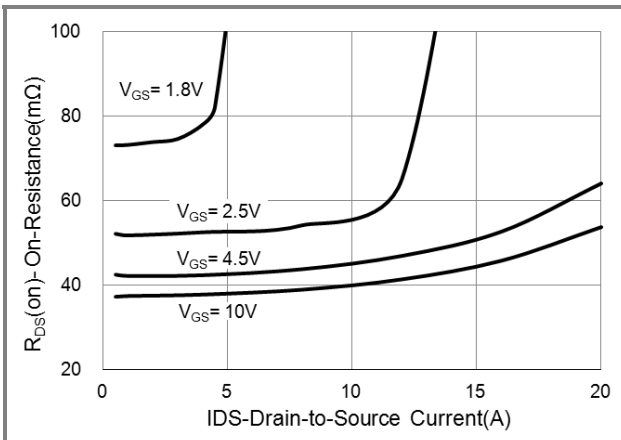


Fig.3 On-Resistance vs. Drain Current

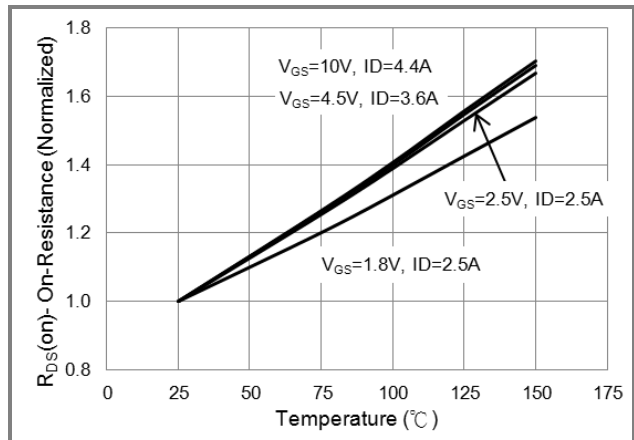


Fig.4 On-Resistance vs. Junction temperature

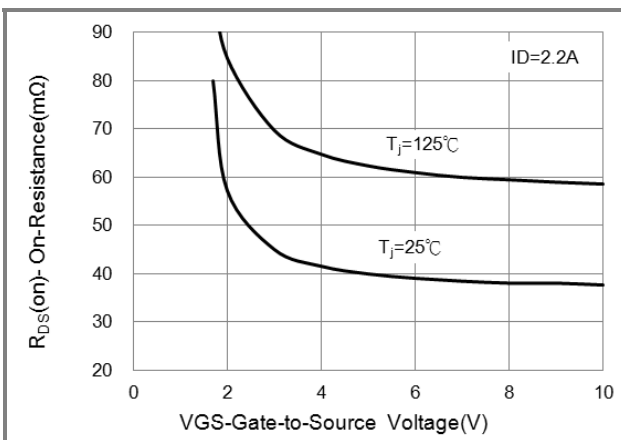


Fig.5 On-Resistance Variation with VGS.

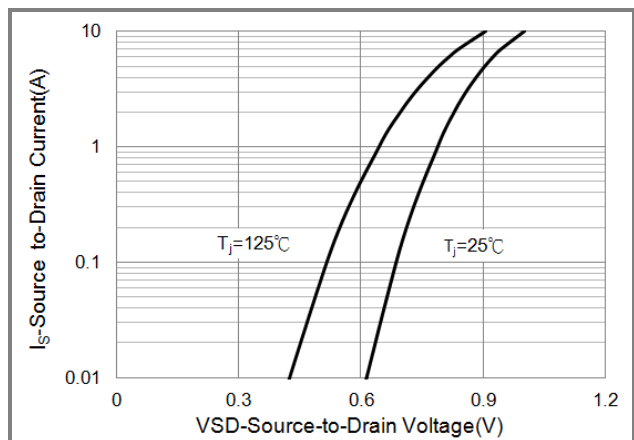


Fig.6 Body Diode Characteristics



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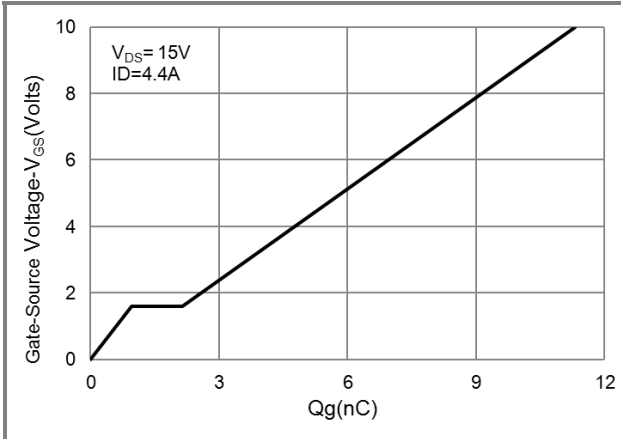


Fig.7 Gate-Charge Characteristics

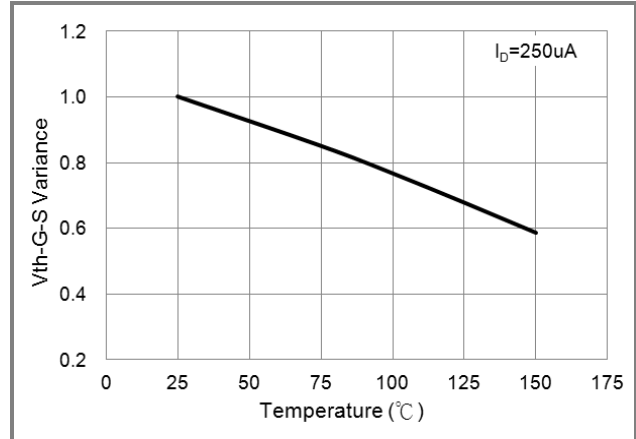


Fig.8 Threshold Voltage Variation with Temperature.

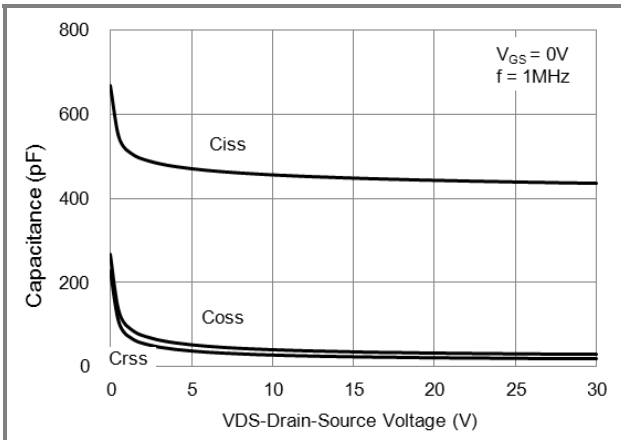


Fig.9 Capacitance vs. Drain-Source Voltage.



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PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PJA3402_R1_00001	SOT-23	3K pcs / 7" reel	A02	Halogen free
PJA3402_R2_00001	SOT-23	12K pcs / 13" reel	A02	Halogen free

MOUNTING PAD LAYOUT

