

PJA3461-AU

60V P-Channel Enhancement Mode MOSFET

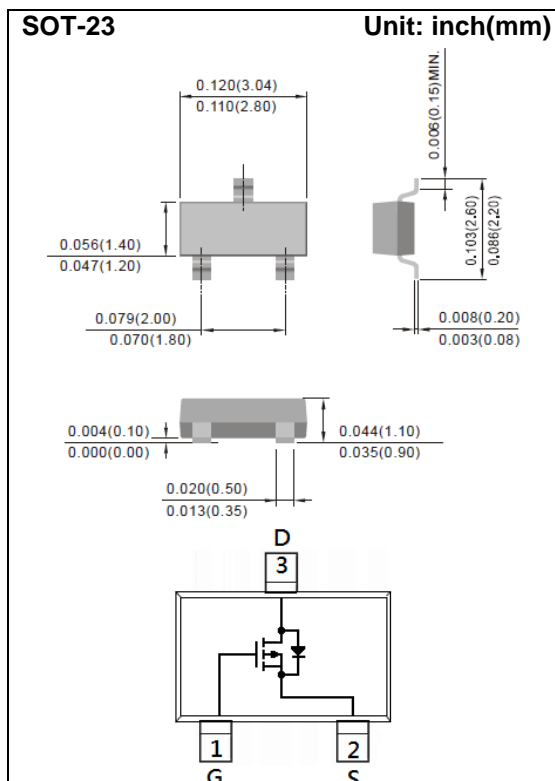
Voltage	-60 V	Current	-1.9A
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Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-1.9A<170m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-1.5A<220m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	-60	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current ^(Note 4)	T _A =25°C	I _D	-1.9	A
	T _A =70°C		-1.5	
Pulsed Drain Current ^(Note 1)		I _{DM}	-7.6	
Power Dissipation	T _A =25°C	P _D	1.25	W
	T _A =70°C		0.8	
Single Pulse Avalanche Energy ^(Note 6)		E _{AS}	32	mJ
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Typical Thermal Resistance		R _{θJA}	100	°C/W
- Junction to Ambient ^(Note 4,5)				



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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	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1	-1.88	-2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-1.9A	-	140	170	mΩ
		V _{GS} =-4.5V, I _D =-1.5A	-	190	220	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 7)						
Total Gate Charge	Q _g	V _{DS} =-30V, I _D =-1.9A, V _{GS} =-10V (Note 2,3)	-	8.3	-	nC
Gate-Source Charge	Q _{gs}		-	1.8	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1.0MHZ	-	430	-	pF
Output Capacitance	C _{oss}		-	33	-	
Reverse Transfer Capacitance	C _{rss}		-	29	-	
Turn-On Delay Time	td _(on)	V _{DD} =-30V, I _D =-1A, V _{GS} =-10V, R _G =6Ω (Note 2,3)	-	5.1	-	ns
Turn-On Rise Time	tr		-	20	-	
Turn-Off Delay Time	td _(off)		-	36	-	
Turn-Off Fall Time	tf		-	11	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current (Note 3)	I _S	---	-	-	-1.5	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.78	-1	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}\text{C}$.
4. The maximum current rating is package limited.
5. $R_{\theta JA}$ 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 inch² with 2oz.square pad of copper.
6. The test condition is $L=1\text{mH}$, $I_{AS}=-8A$, $V_{DD}=-25V$, $V_{GS}=-10V$.
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

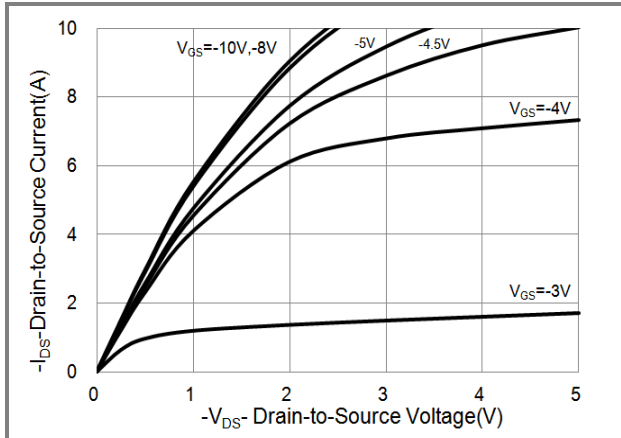


Fig.1 On-Region Characteristics

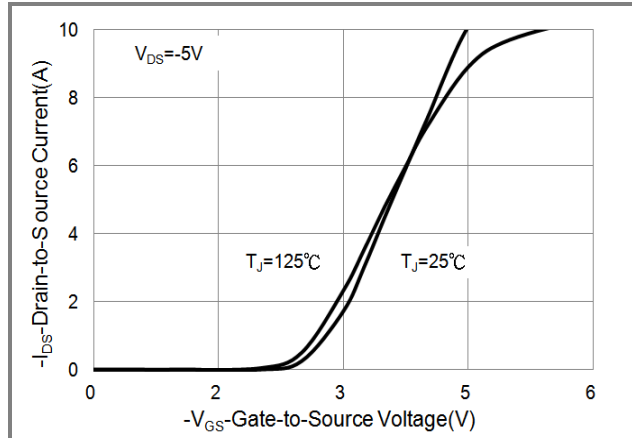


Fig.2 Transfer Characteristics

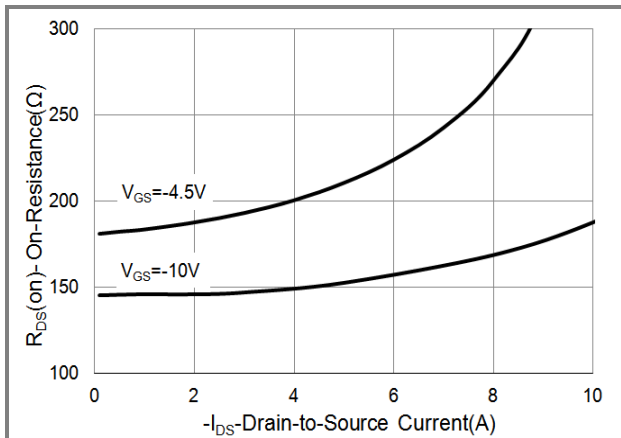


Fig.3 On-Resistance vs. Drain Current

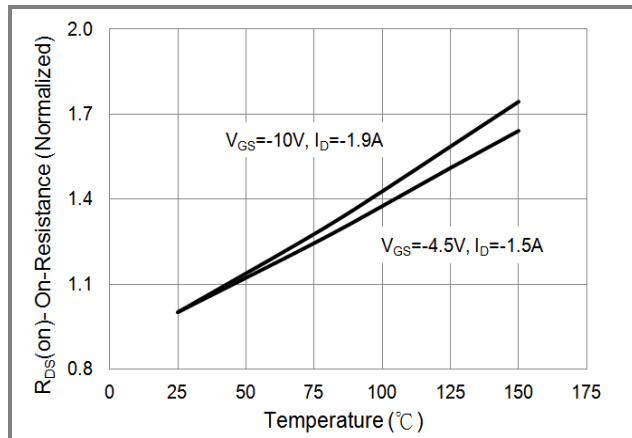


Fig.4 On-Resistance vs. Junction temperature

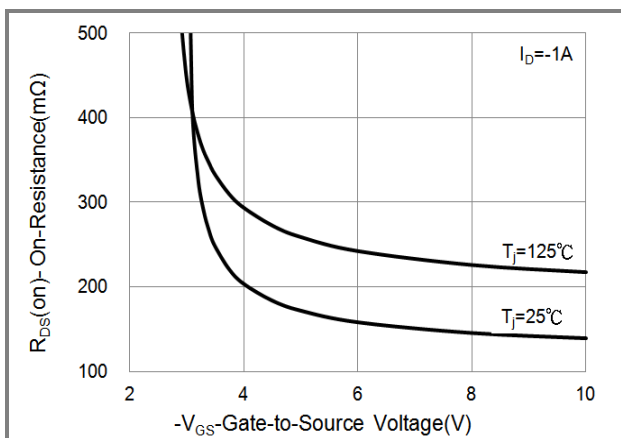


Fig.5 On-Resistance Variation with V_{GS}

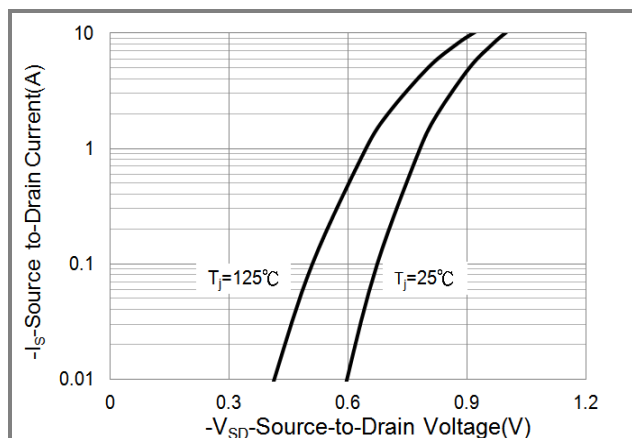


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

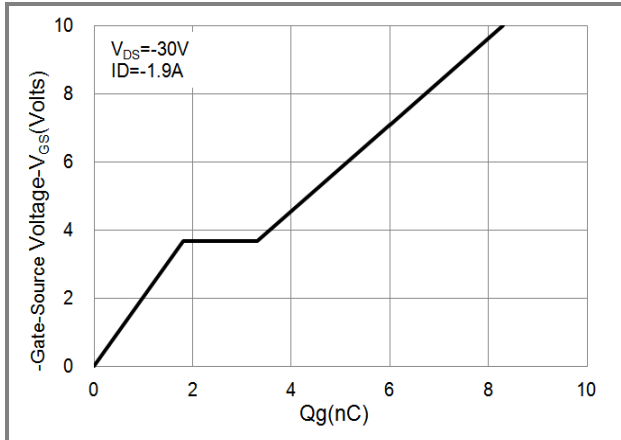


Fig.7 Gate-Charge Characteristics

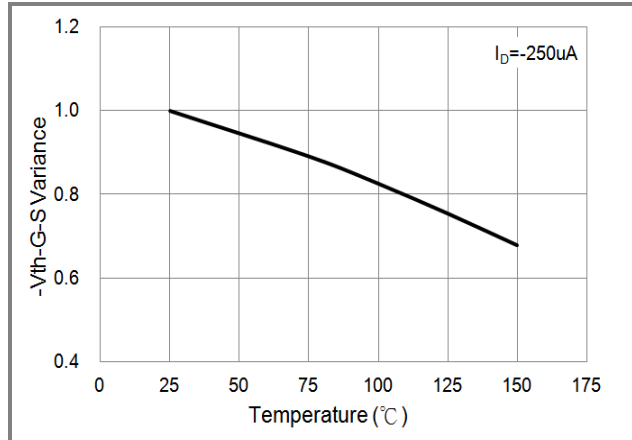


Fig.8 Threshold Voltage Variation with Temperature

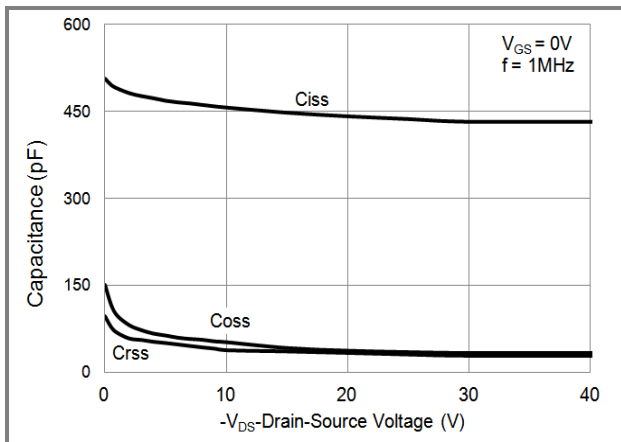


Fig.9 Capacitance vs. Drain-Source Voltage

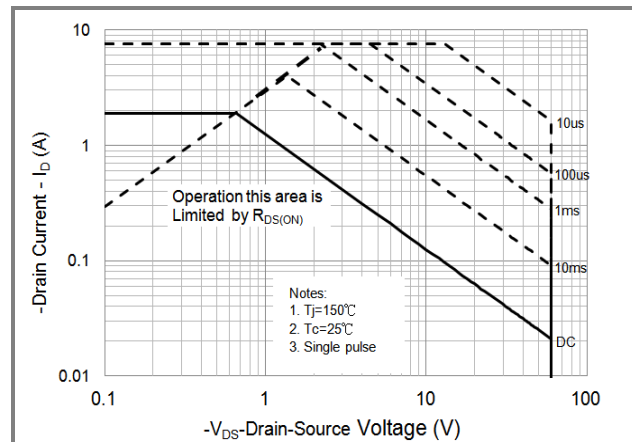


Fig.10 Maximum Safe Operating Area

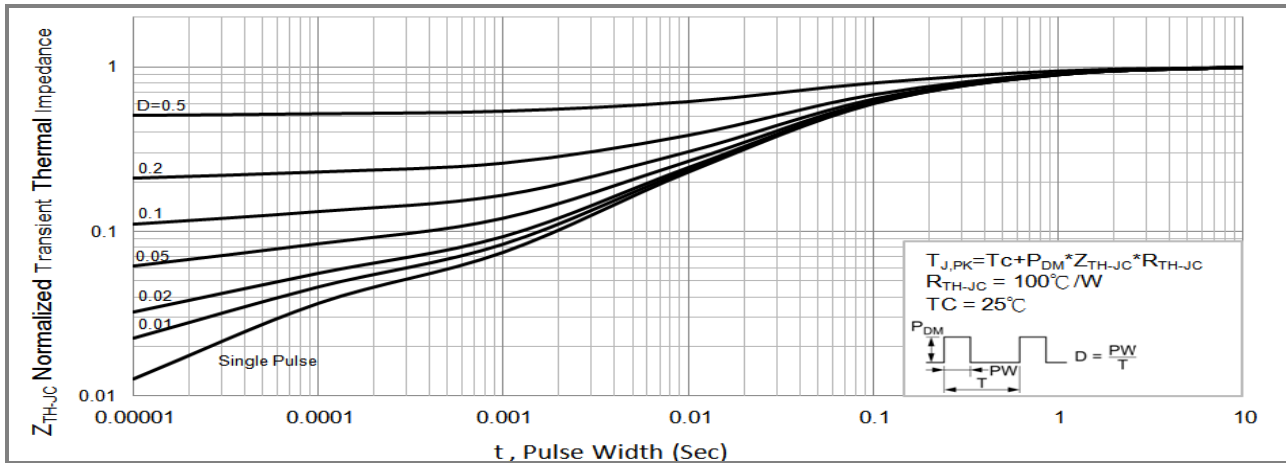


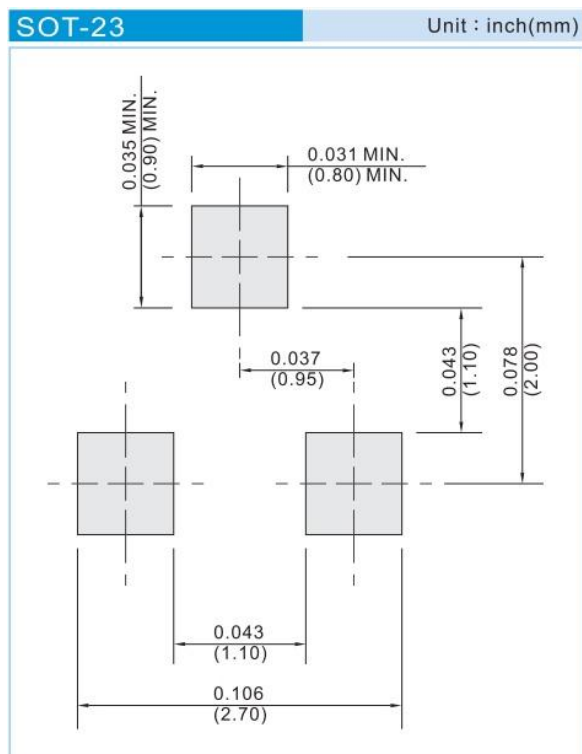
Fig.11 Normalized Transient Thermal Impedance vs. Pulse Width

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Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJA3461-AU_R1_000A1	SOT-23	3K pcs / 7" reel	A61	Halogen free

Packaging Information & Mounting Pad Layout





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