



PJA3439-AU

60V P-Channel Enhancement Mode MOSFET

Voltage

-60 V

Current

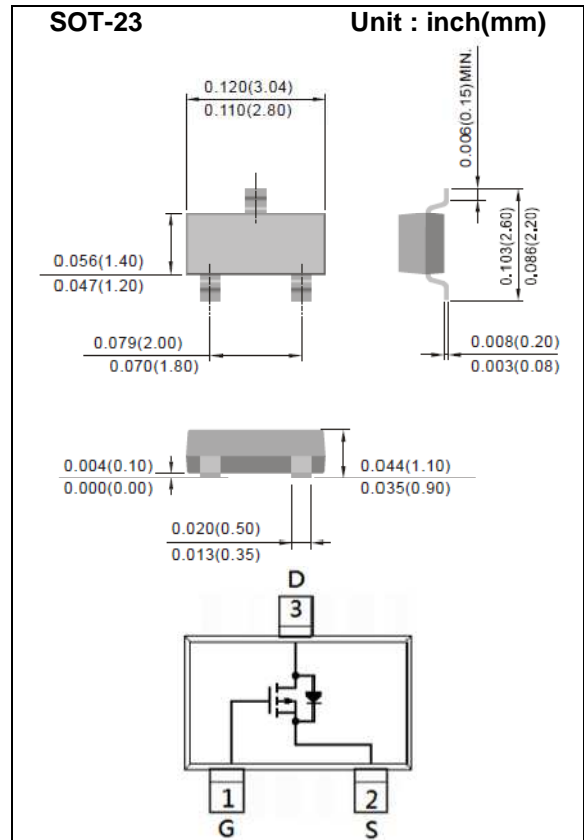
-300mA

Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-500mA < 4\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-200mA < 6\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-50mA < 13\Omega$
- Advanced Trench Process Technology
- Specially Designed for Relay driver, Speed line drive, 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		I_D	-300	mA
Pulsed Drain Current		I_{DM}	-1000	
Power Dissipation	$T_A=25^\circ C$	P_D	500	mW
	Derate above $25^\circ C$		4	mW/ $^\circ C$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ C$
Typical Thermal Resistance		$R_{\theta JA}$	250	$^\circ C/W$
- Junction to Ambient (Note 3)				



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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static (Note 1)						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-500mA	-	2.4	4	Ω
		V _{GS} =-4.5V, I _D =-200mA	-	2.65	6	
		V _{GS} =-2.5V, I _D =-50mA	-	4.5	13	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V	-	-	-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 5)						
Total Gate Charge	Q _g	V _{DS} =-25V, I _D =-100mA, V _{GS} =-4.5V	-	1.1	-	nC
Gate-Source Charge	Q _{gs}		-	0.3	-	
Gate-Drain Charge	Q _{gd}		-	0.2	-	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1.0MHZ	-	51	-	pF
Output Capacitance	C _{oss}		-	15	-	
Reverse Transfer Capacitance	C _{rss}		-	2.2	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =-25V, I _D =-100mA, V _{GS} =-10V, R _G =6Ω (Note 1,2)	-	4.8	-	ns
Turn-On Rise Time	t _r		-	19	-	
Turn-Off Delay Time	t _{d(off)}		-	52	-	
Turn-Off Fall Time	t _f		-	32	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-300	mA
Diode Forward Voltage	V _{SD}	I _S =-500mA, V _{GS} =0V	-	-0.95	-1.3	V

NOTES :

1. Pulse width ≤ 300μs, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. R_{θJA} 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

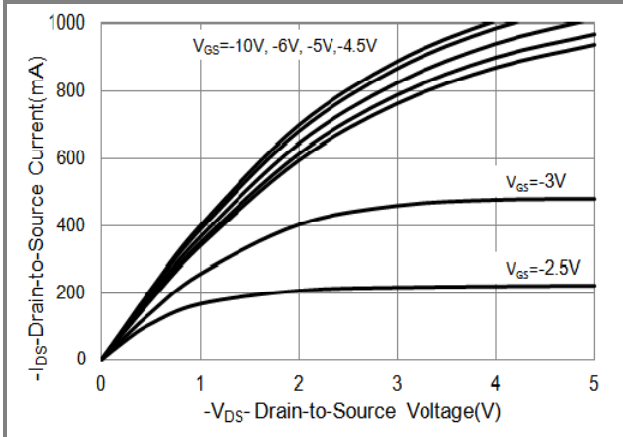


Fig.1 On-Region Characteristics

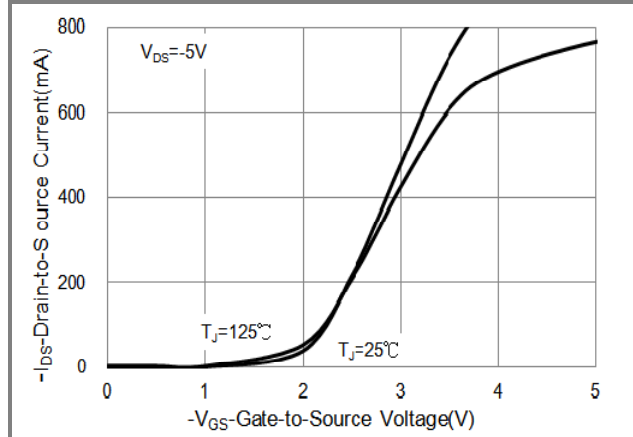


Fig.2 Transfer Characteristics

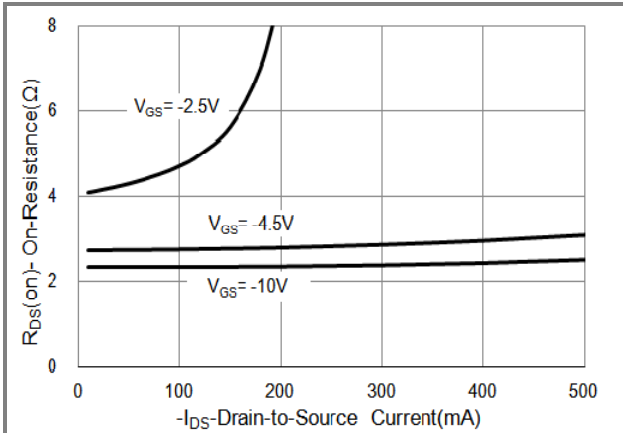


Fig.3 On-Resistance vs. Drain Current

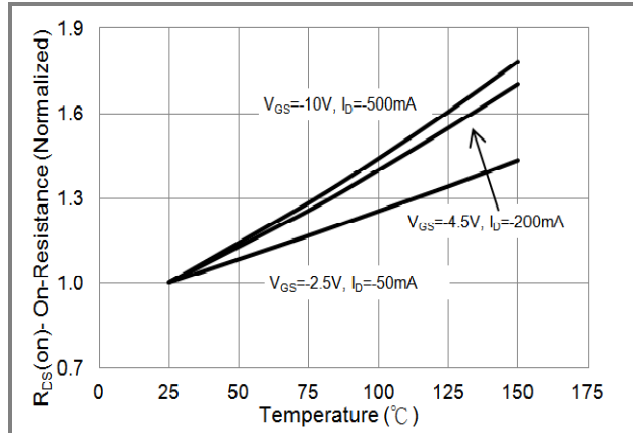


Fig.4 On-Resistance vs. Junction temperature

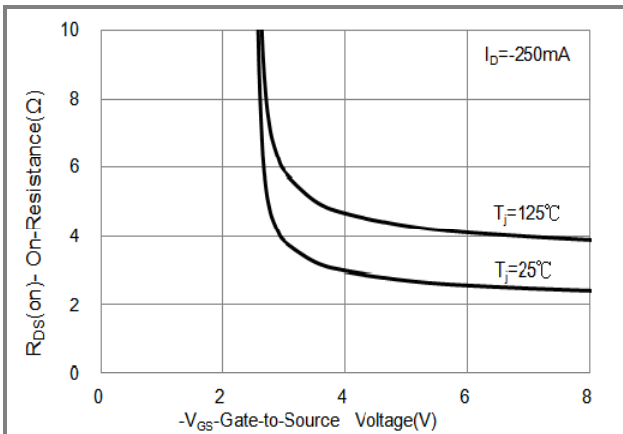


Fig.5 On-Resistance Variation with V_GS

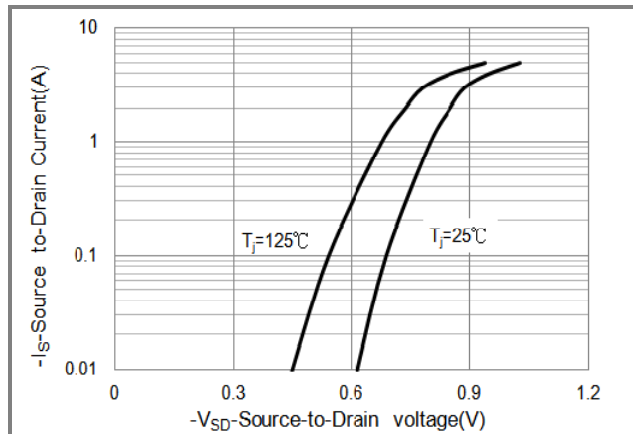


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

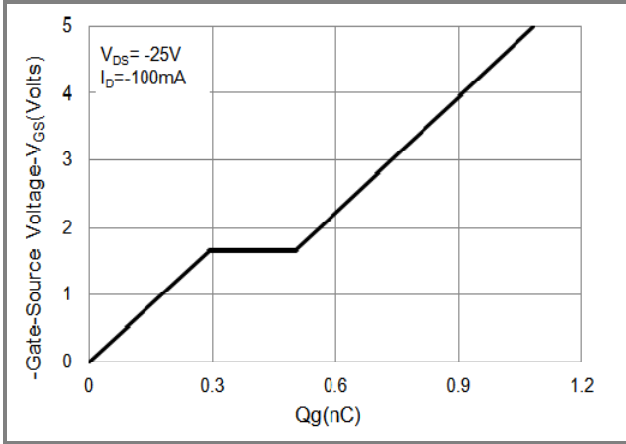


Fig.7 Gate-Charge Characteristics

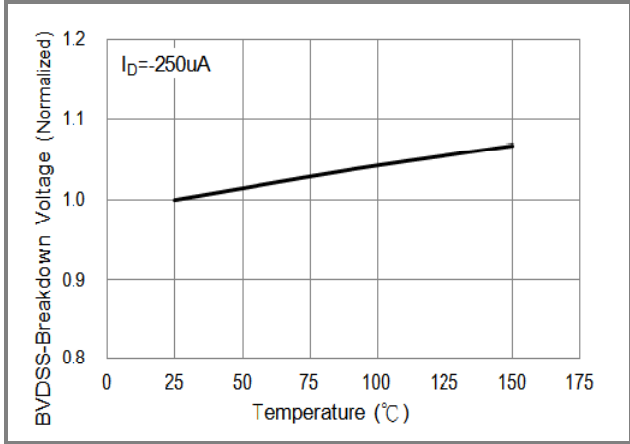


Fig.8 Breakdown Voltage Variation vs. Temperature

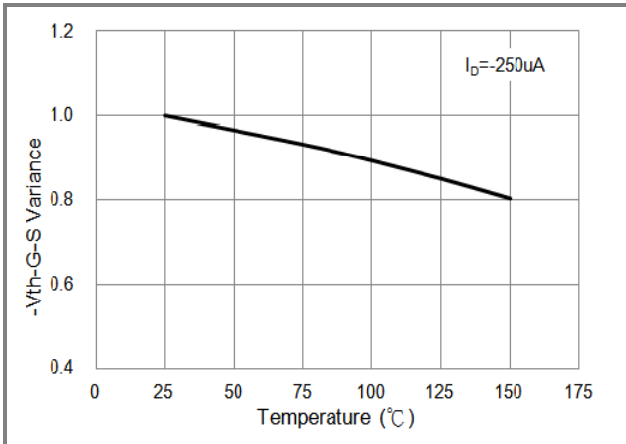


Fig.9 Threshold Voltage Variation with Temperature

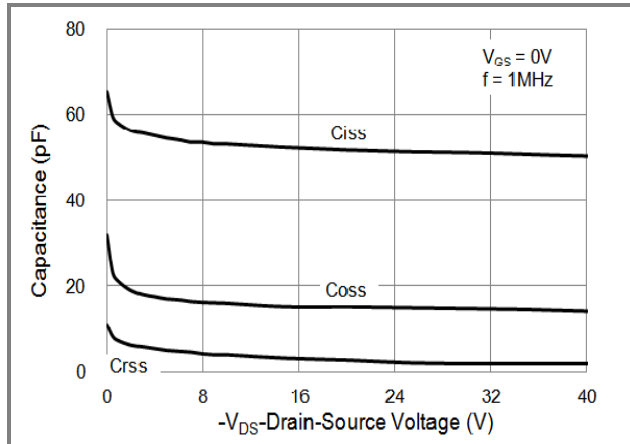


Fig.10 Capacitance vs. Drain-Source Voltage

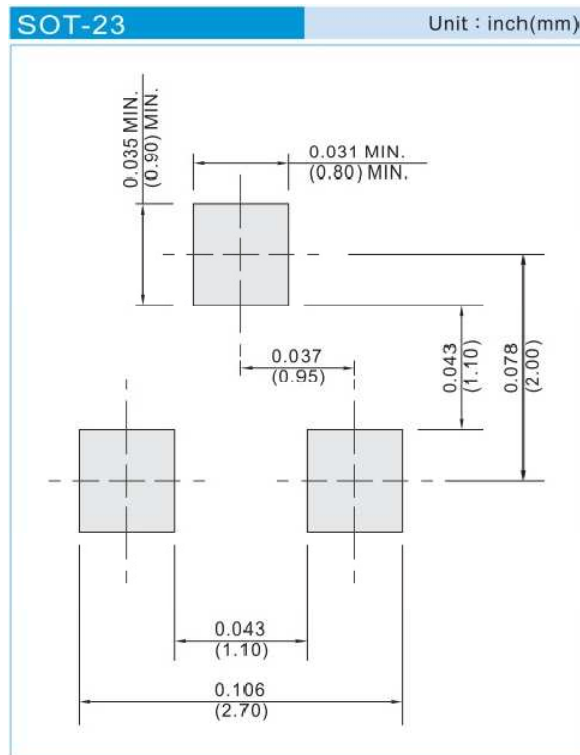


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Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJA3439-AU_R1_000A1	SOT-23	3K pcs / 7" reel	A39	Halogen free

Mounting Pad Layout





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