



PJC7439-AU

60V P-Channel Enhancement Mode MOSFET

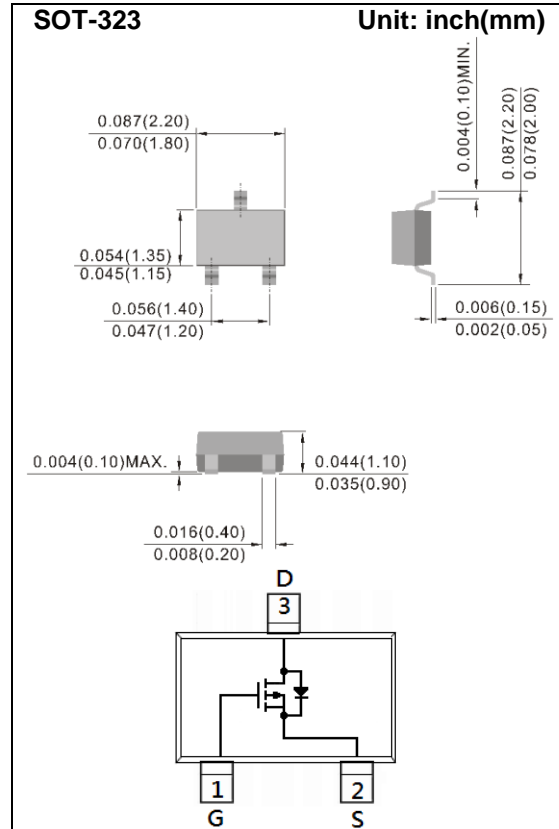
Voltage -60 V **Current** -250mA

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 IEC61249 standard

Mechanical Data

- Case : SOT-323 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.00018 ounces, 0.005 grams



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ 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)		I_D	-250	mA
Pulsed Drain Current ^(Note 1)		I_{DM}	-1000	
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	350	mW
	Derate above 25°C		2.8	mW/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal Resistance		$R_{\theta JA}$	357	$^\circ\text{C/W}$
- Junction to Ambient ^(Note 3,4)				



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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}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.5	-2.5	V
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}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 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	$t_{d(on)}$	$V_{DD}=-25V, I_D=-100mA,$ $V_{GS}=-10V,$ $R_G=6\Omega$ (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	---	-	-	-250	mA
Diode Forward Voltage	V_{SD}	$I_S=-500mA, V_{GS}=0V$	-	-0.95	-1.3	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.
5. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

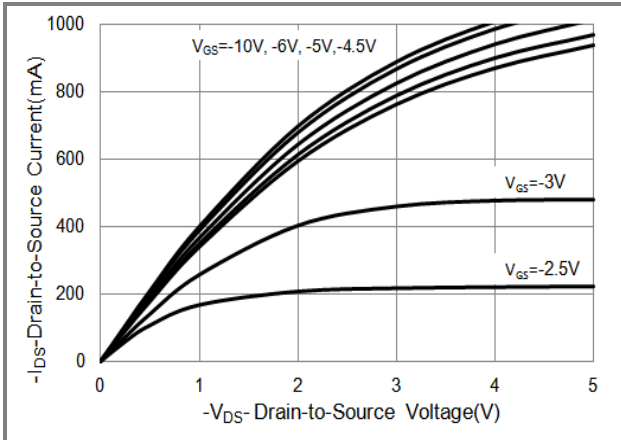


Fig.1 On-Region Characteristics

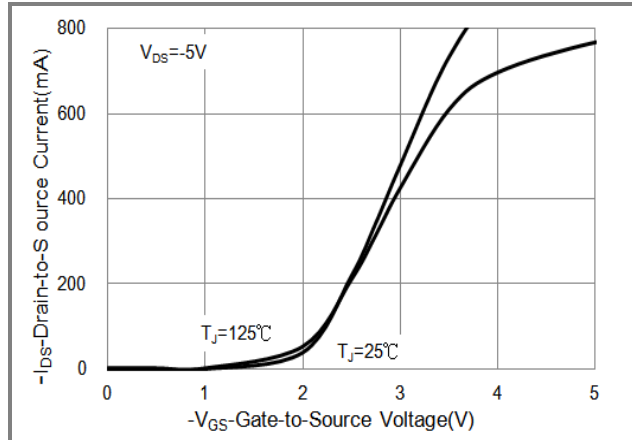


Fig.2 Transfer Characteristics

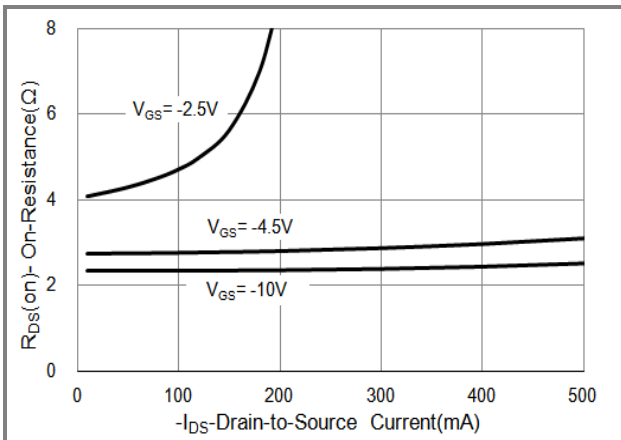


Fig.3 On-Resistance vs. Drain Current

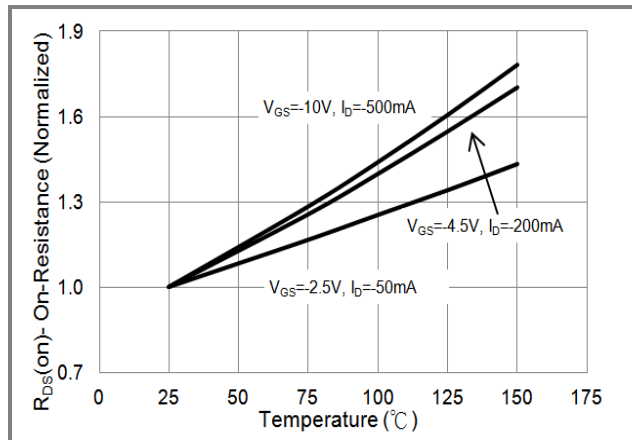


Fig.4 On-Resistance vs. Junction temperature

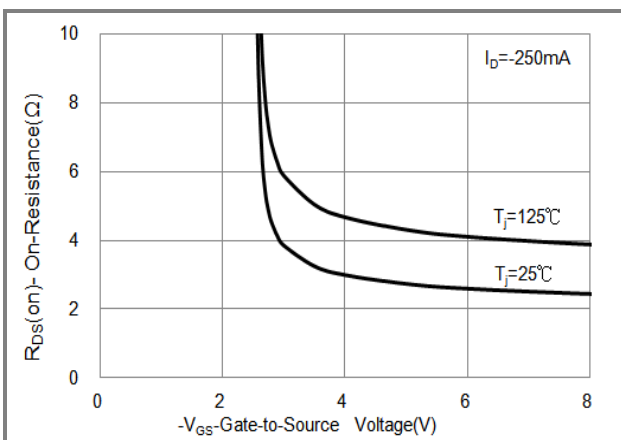


Fig.5 On-Resistance Variation with V_{GS}

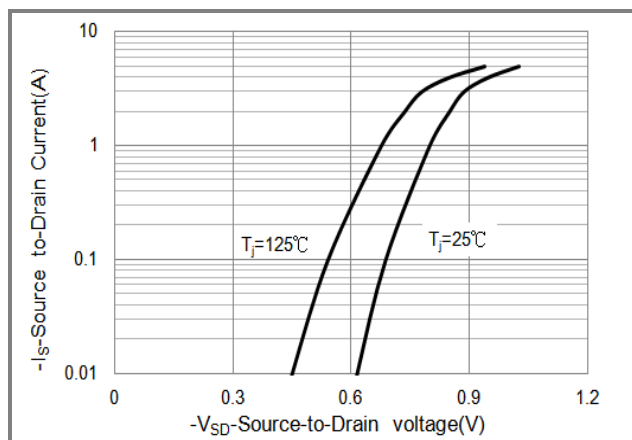


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

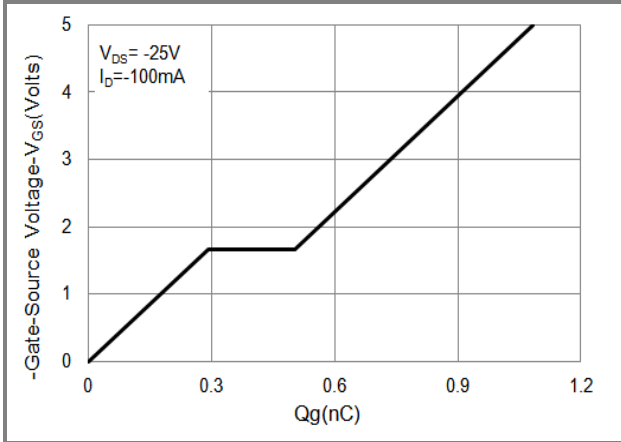


Fig.7 Gate-Charge Characteristics

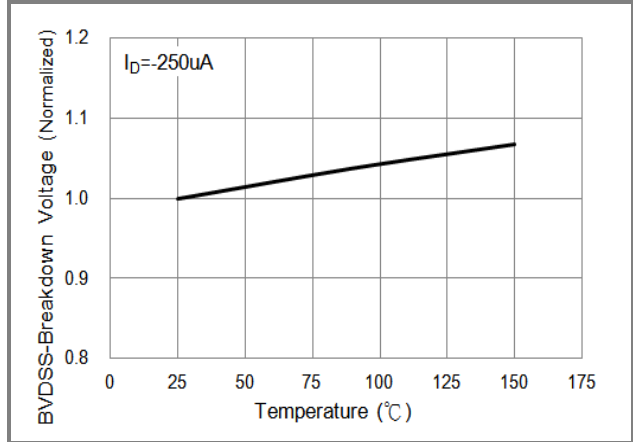


Fig.8 Breakdown Voltage Variation vs. Temperature

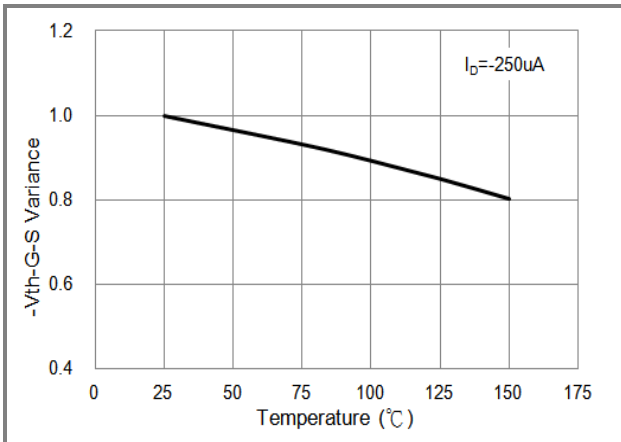


Fig.9 Threshold Voltage Variation with Temperature

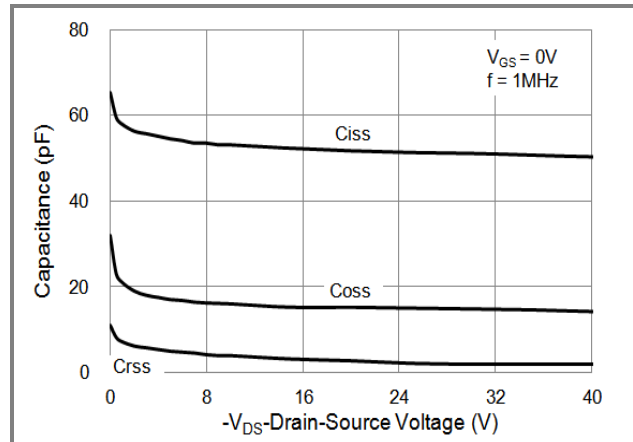


Fig.10 Capacitance vs. Drain-Source Voltage

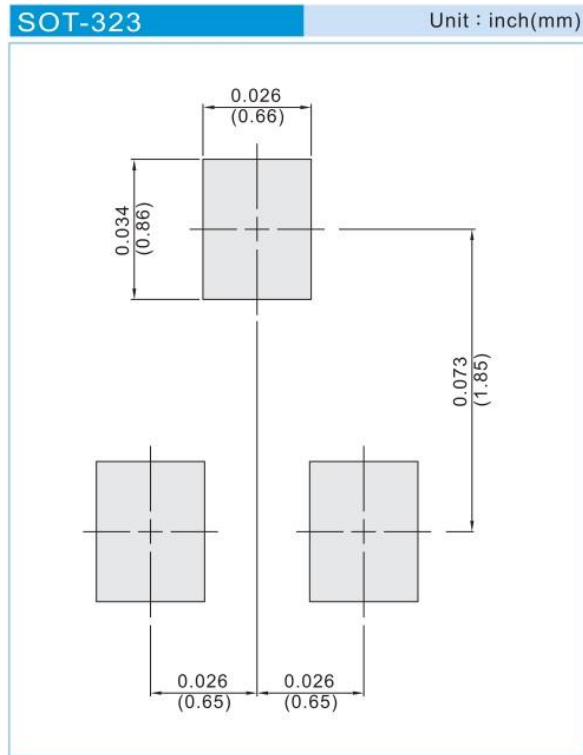


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Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJC7439-AU_R1_000A1	SOT-323	3K pcs / 7" reel	C39	Halogen free

Mounting Pad Layout





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