



# PJA3470

## 100V N-Channel Enhancement Mode MOSFET

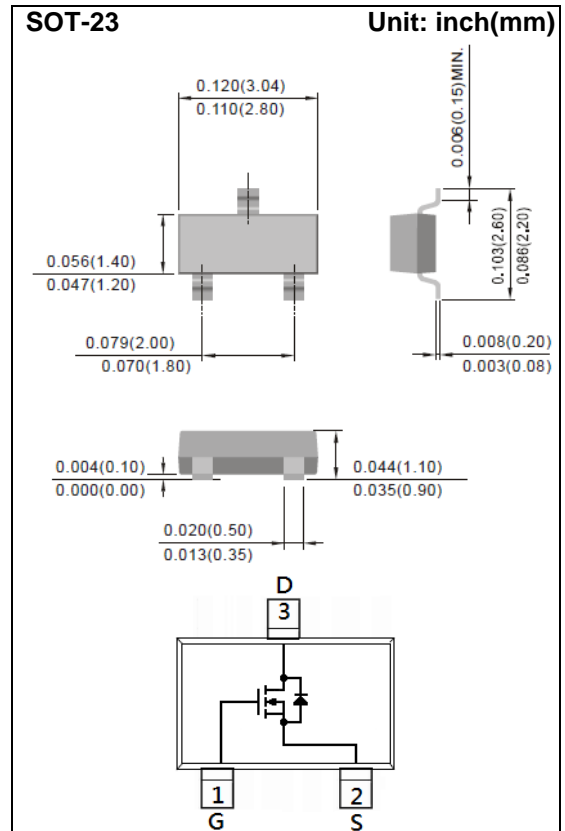
**Voltage** 100 V **Current** 1.3 A

### Features

- $R_{DS(ON)}$ ,  $V_{GS}@10V$ ,  $I_D@1.3A < 320m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@4.5V$ ,  $I_D@0.6A < 330m\Omega$
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc
- 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	$V_{DS}$	100	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current (Note 4)	$I_D$	$T_A=25^\circ C$	1.3	A
		$T_A=70^\circ C$	1	
Pulsed Drain Current (Note 1)	$I_{DM}$	5.2		
Power Dissipation	$P_D$	$T_A=25^\circ C$	1.25	W
		$T_A=70^\circ C$	0.8	
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 3,4)				



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## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	100	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1	2.06	2.5	
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =1.3A	-	290	320	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.6A	-	295	330	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V	-	-	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>Dynamic</b> (Note 6)						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, I <sub>D</sub> =1.3A, V <sub>GS</sub> =10V (Note 2,3)	-	9.1	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	2.1	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	1.4	-	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHZ	-	508	-	pF
Output Capacitance	C <sub>oss</sub>		-	29	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	18	-	
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, I <sub>D</sub> =1A, V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω (Note 2,3)	-	2	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	21	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	12	-	
Turn-Off Fall Time	t <sub>f</sub>		-	19	-	
<b>Drain-Source Diode</b>						
Maximum Continuous Drain-Source Diode Forward Current (Note 4)	I <sub>S</sub>	---	-	-	1.5	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V	-	0.78	1.2	V

**NOTES :**

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub> = 25°C.
4. The maximum current rating is package limited.
5. R<sub>θJA</sub> 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.
6. Guaranteed by design, not subject to production testing.



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## TYPICAL CHARACTERISTIC CURVES

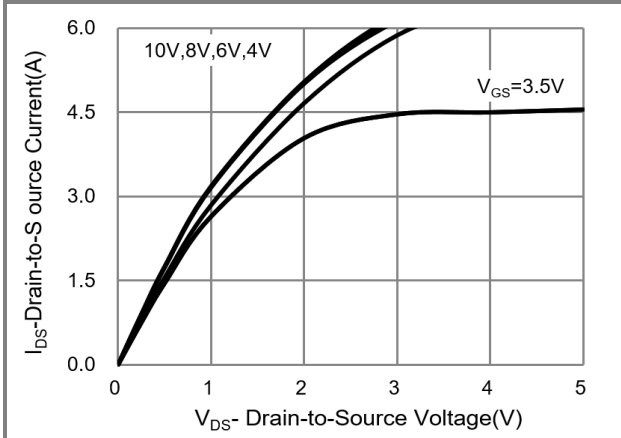


Fig.1 On-Region Characteristics

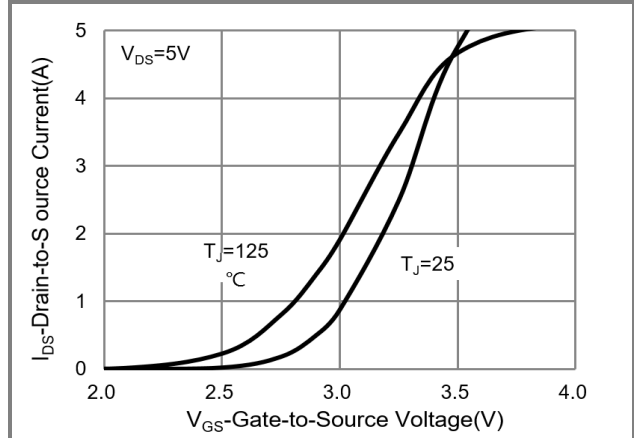


Fig.2 Transfer Characteristics

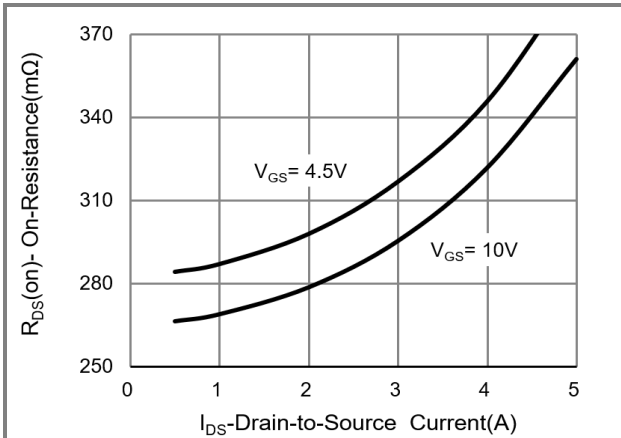


Fig.3 On-Resistance vs. Drain Current

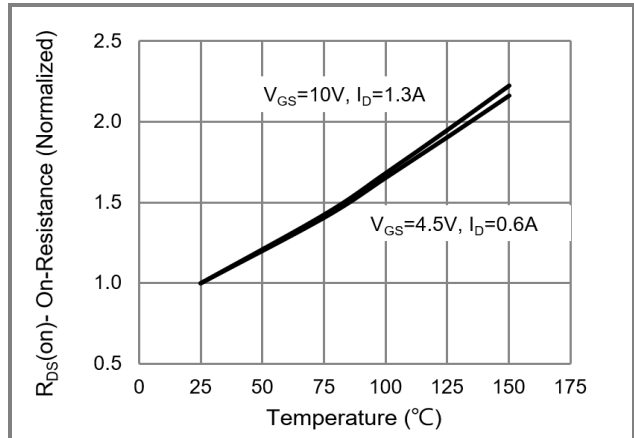


Fig.4 On-Resistance vs. Junction temperature

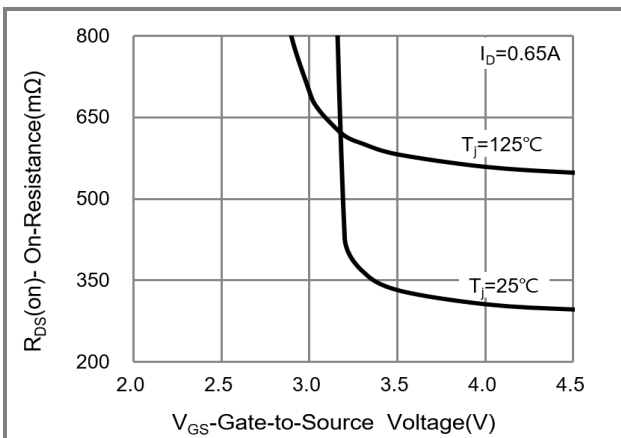


Fig.5 On-Resistance Variation with  $V_{GS}$

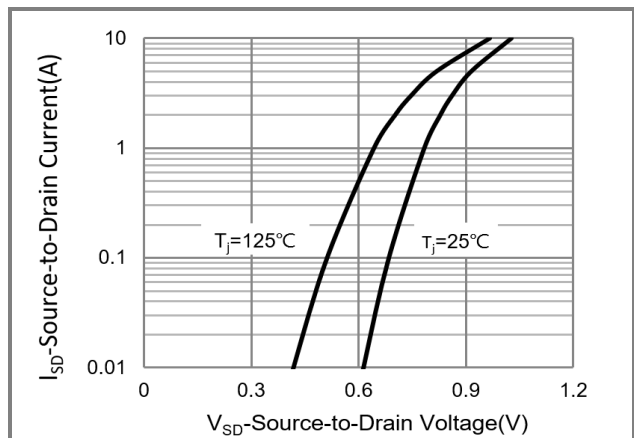


Fig.6 Body Diode Characteristics



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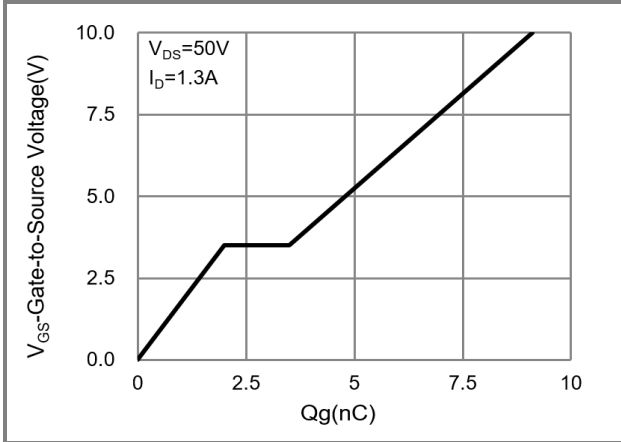


Fig.7 Gate-Charge Characteristics

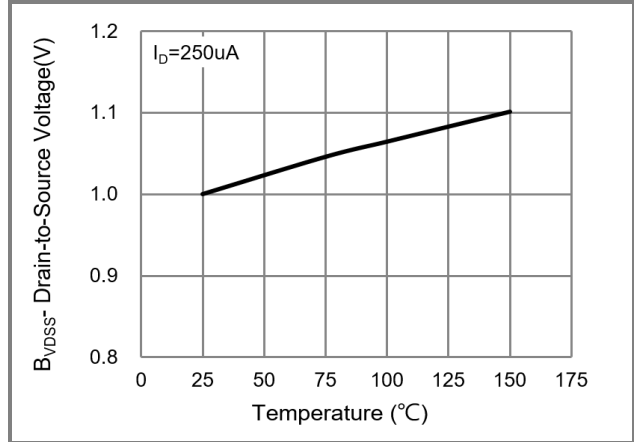


Fig.8 Breakdown Voltage Variation vs. Temperature

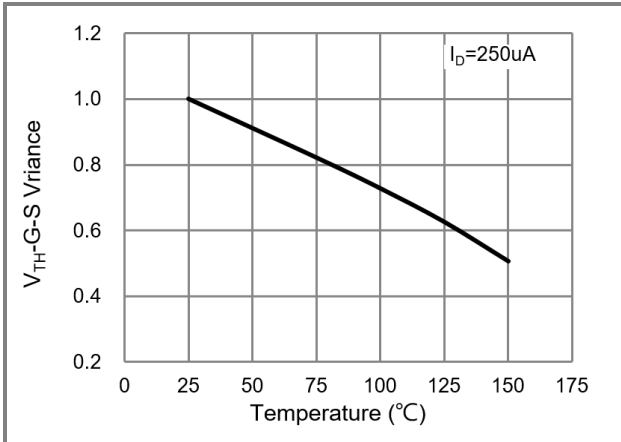


Fig.9 Threshold Voltage Variation with Temperature

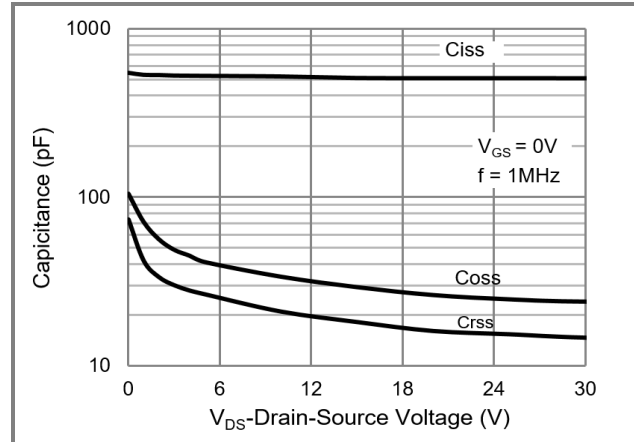


Fig.10 Capacitance vs. Drain-Source Voltage

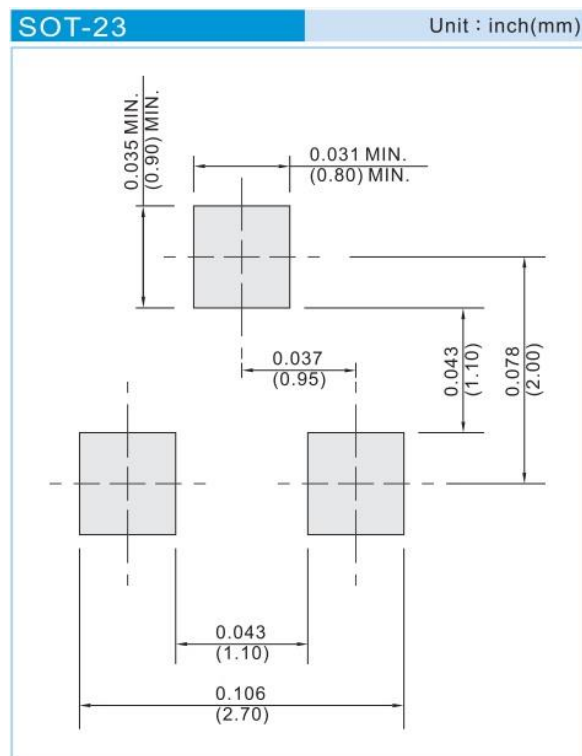


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## Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJA3470_R1_00001	SOT-23	3K pcs / 7" reel	A70	Halogen free

## Mounting Pad Layout





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