

PJA3419AE-AU

20V P-Channel Enhancement Mode MOSFET – ESD Protected

Voltage

-20 V

Current

-4 A

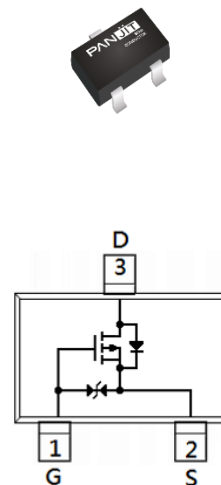
Features

- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-4A<50m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-2.5A<70m\Omega$
- Advanced Trench Process Technology
- ESD Protected
- 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 : 0.0084 grams

SOT-23



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

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±12	
Continuous Drain Current ^(Note 4)	T _A =25°C	I _D	-4	A
	T _A =70°C		-3.2	
Pulsed Drain Current ^(Note 1)	T _A =25°C	I _{DM}	-16	
Power Dissipation	T _A =25°C	P _D	1.25	W
	Derate above 25°C		10	mW/°C
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Thermal Resistance		R _{θJA}	100	°C/W
- Junction to Ambient ^(Note 5)				



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Electrical Characteristics (T_A=25°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	-20	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.4	-0.7	-1	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-4A	-	38	50	mΩ
		V _{GS} =-2.5V, I _D =-2.5A	-	52	70	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±10	
Dynamic ^(Note 6)						
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-4A, V _{GS} =-4.5V ^(Note 2,3)	-	7	-	nC
Gate-Source Charge	Q _{gs}		-	1	-	
Gate-Drain Charge	Q _{gd}		-	3	-	
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHz	-	515	-	pF
Output Capacitance	C _{oss}		-	100	-	
Reverse Transfer Capacitance	C _{rss}		-	80	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =-10V, I _D =-4A, V _{GS} =-4.5V, R _G =3Ω ^(Note 2,3)	-	5	-	ns
Turn-On Rise Time	t _r		-	40	-	
Turn-Off Delay Time	t _{d(off)}		-	30	-	
Turn-Off Fall Time	t _f		-	45	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	T _A =25°C	-	-	-1.5	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.7	-1	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_J(MAX)=150°C.Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
- 4.The maximum current rating is package limited.
- 5.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 inch² with 2oz.square pad of copper.
- 6.Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

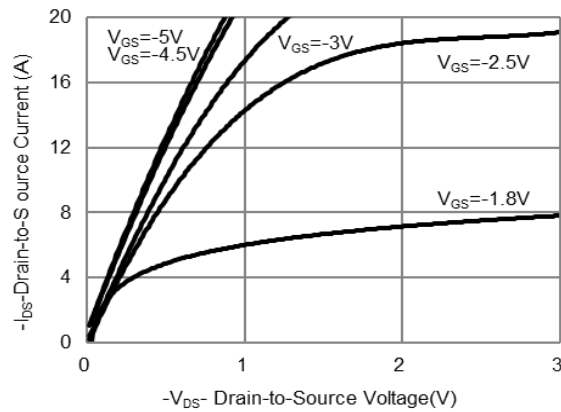


Fig.1 On-Region Characteristics

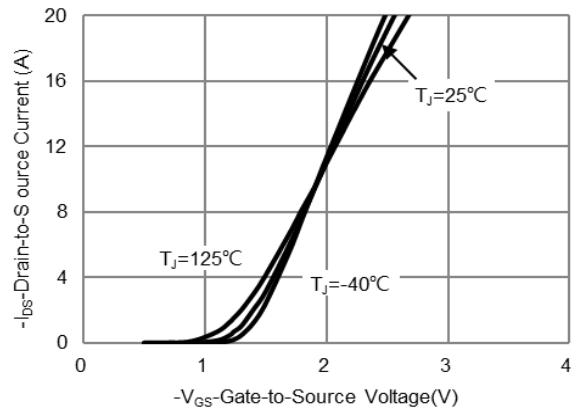


Fig.2 Transfer Characteristics

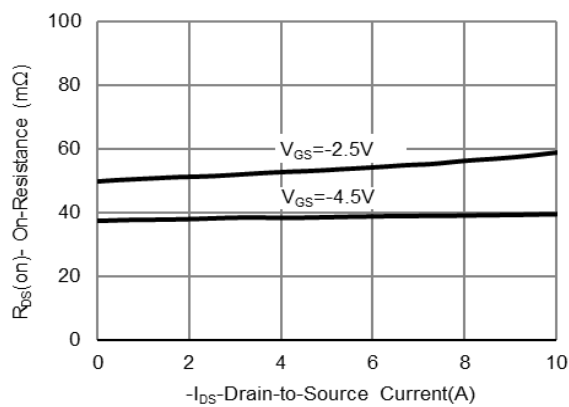


Fig.3 On-Resistance vs. Drain Current

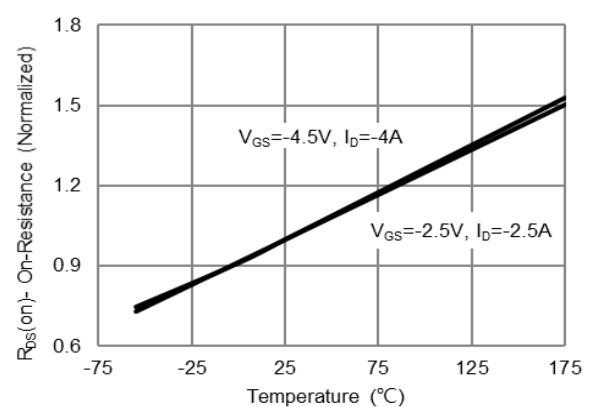


Fig.4 On-Resistance vs. Junction temperature

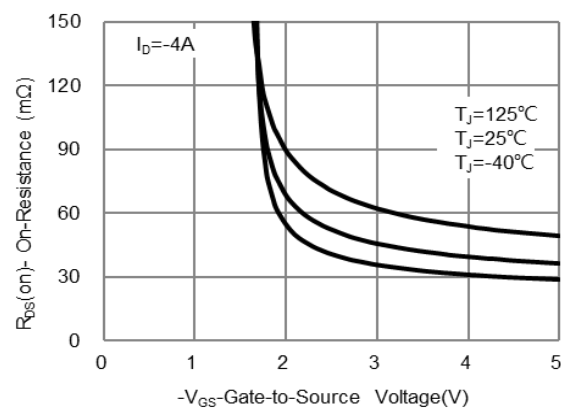


Fig.5 On-Resistance Variation with V_{GS}

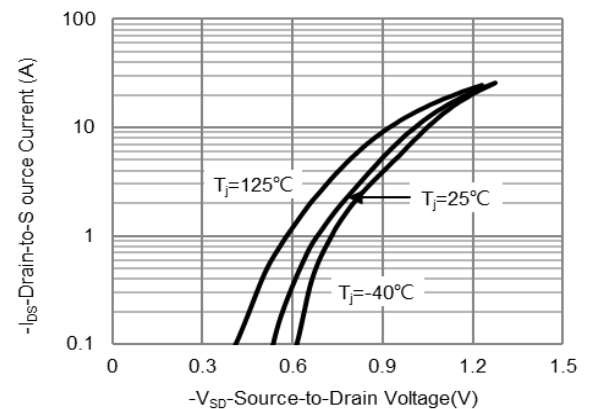


Fig.6 Source-Drain Diode Forward Voltage



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TYPICAL CHARACTERISTIC CURVES

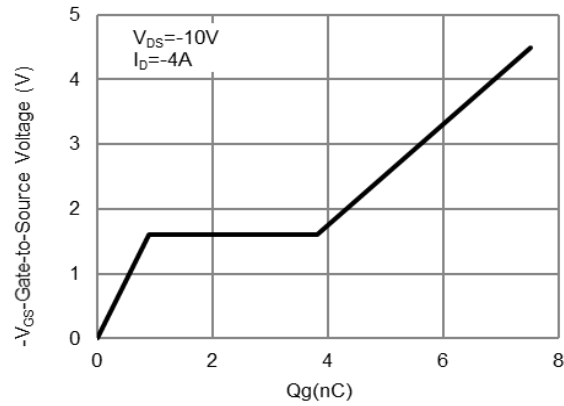


Fig.7 Gate-Charge Characteristics

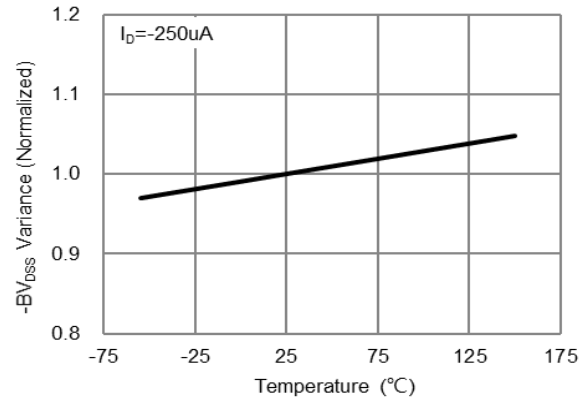


Fig.8 Breakdown Voltage Variation vs. Temperature

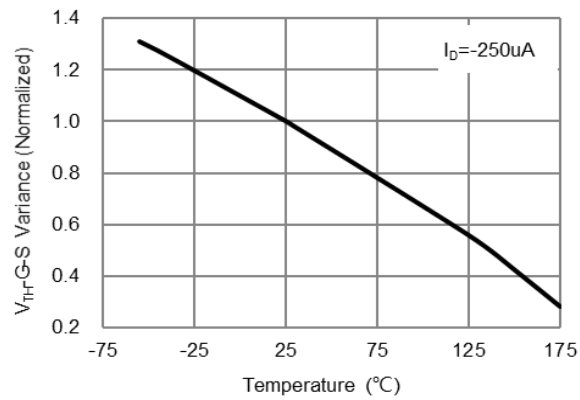


Fig.9 Threshold Voltage Variation with Temperature

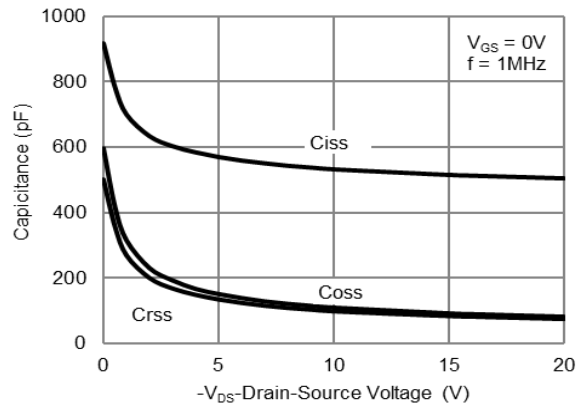


Fig.10 Capacitance vs. Drain-Source Voltage

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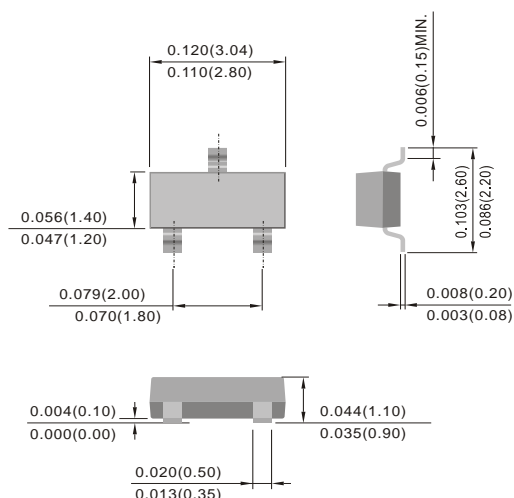
Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJA3419AE-AU_R1_000A1	SOT-23	3K pcs / 7" reel	9AE	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout

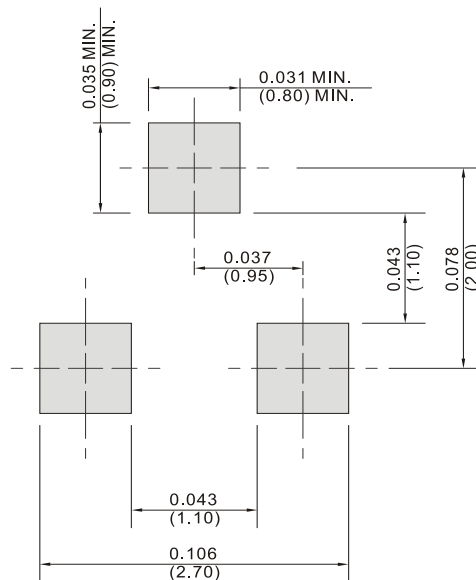
SOT-23 Dimension

Unit: inch(mm)



SOT-23 Pad Layout

Unit: inch(mm)





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