



PJA3419E

20V P-Channel Enhancement Mode MOSFET– ESD Protected

Voltage

-20 V

Current

-3.7 A

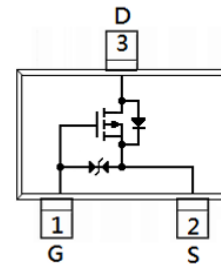
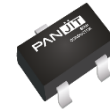
Features

- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-3.3A < 66m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-2.0A < 90m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-1.8V$, $I_D@-0.5A < 135m\Omega$
- Advanced Trench Process Technology
- ESD Protected HBM Class 1C
- 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 : 0.0084 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}	± 8	
Continuous Drain Current ^(Note 4)	$T_A=25^\circ C$	I_D	-3.7	A
	$T_A=70^\circ C$		-3.1	
Pulsed Drain Current ^(Note 1)	$T_A=25^\circ C$	I_{DM}	-16	
Power Dissipation	$T_A=25^\circ C$	P_D	1.25	W
	Derate above $25^\circ C$		10	mW/ $^\circ C$
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 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	-0.5	-0.63	-1.2	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3.3A	-	53	66	mΩ
		V _{GS} =-2.5V, I _D =-2.0A	-	67	90	
		V _{GS} =-1.8V, I _D =-0.5A	-	96	135	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	-	-	±10	
Dynamic ^(Note 6)						
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-3.3A, V _{GS} =-4.5V ^(Note 2,3)	-	6.9	-	nC
Gate-Source Charge	Q _{gs}		-	1.5	-	
Gate-Drain Charge	Q _{gd}		-	1.9	-	
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHZ	-	602	-	pF
Output Capacitance	C _{oss}		-	70	-	
Reverse Transfer Capacitance	C _{rss}		-	47	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =-10V, I _D =-3.3A, V _{GS} =-4.5V, R _G =3Ω ^(Note 2,3)	-	8.8	-	ns
Turn-On Rise Time	t _r		-	66	-	
Turn-Off Delay Time	t _{d(off)}		-	29	-	
Turn-Off Fall Time	t _f		-	14	-	
Drain-Source Diode						
Diode Forward Current	I _S	---	-	-	-1.5	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.8	-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

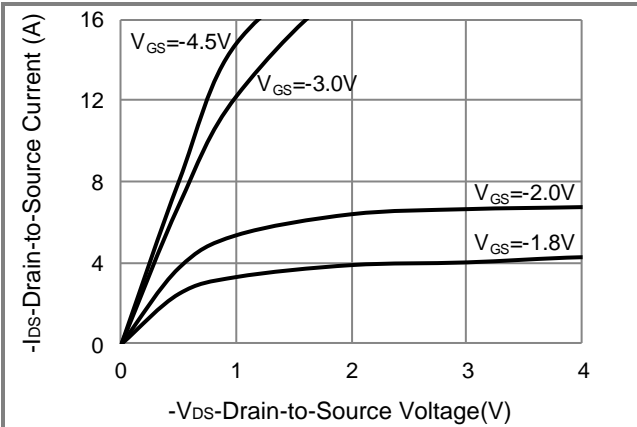


Fig.1 Output Characteristics

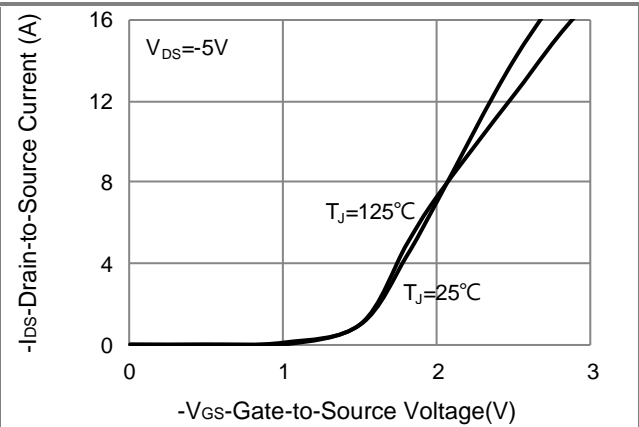


Fig.2 Transfer Characteristics

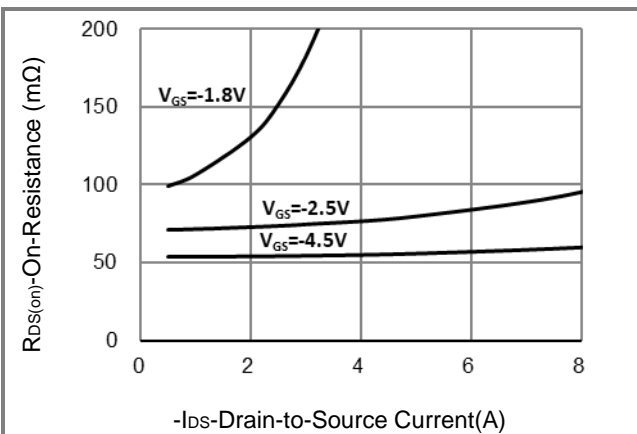


Fig.3 On-Resistance vs. Drain Current

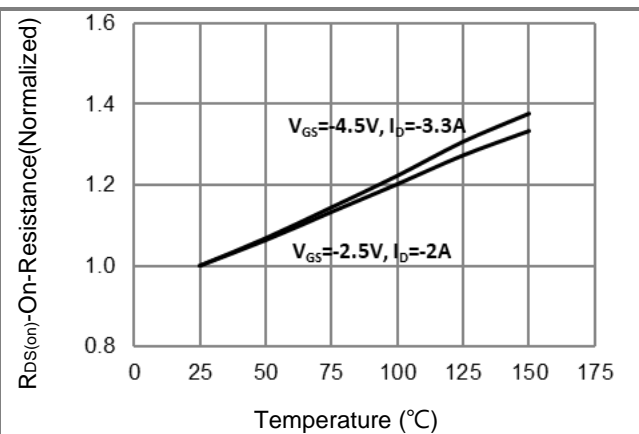


Fig.4 On-Resistance vs. Junction temperature

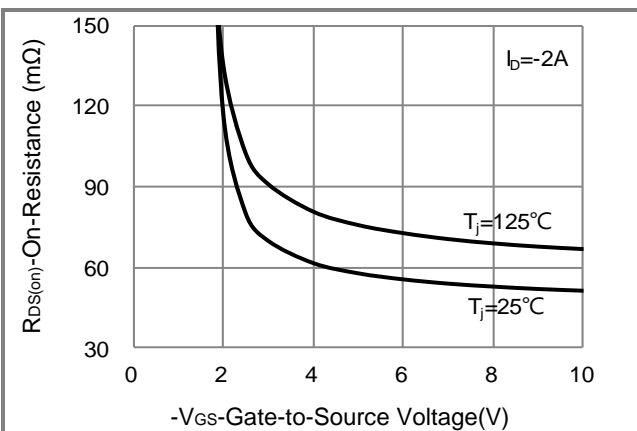


Fig.5 On-Resistance Variation with V_{GS}

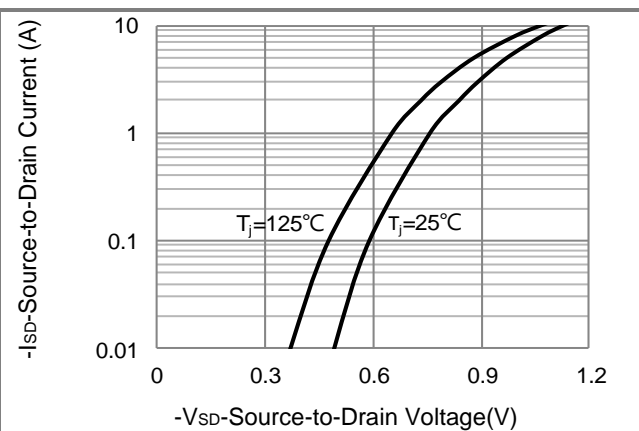


Fig.6 Body Diode Characteristic



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TYPICAL CHARACTERISTIC CURVES

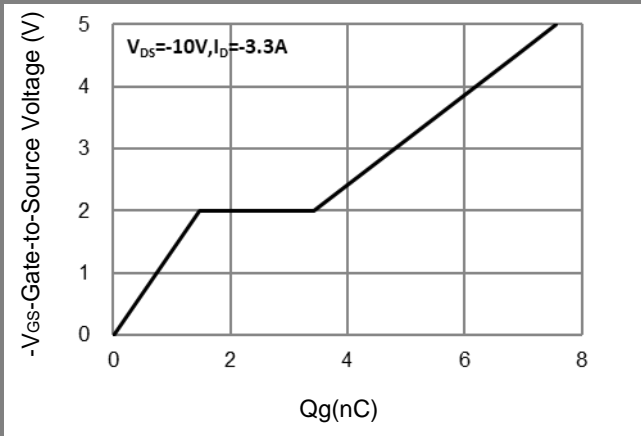


Fig.7 Gate-Charge Characteristics

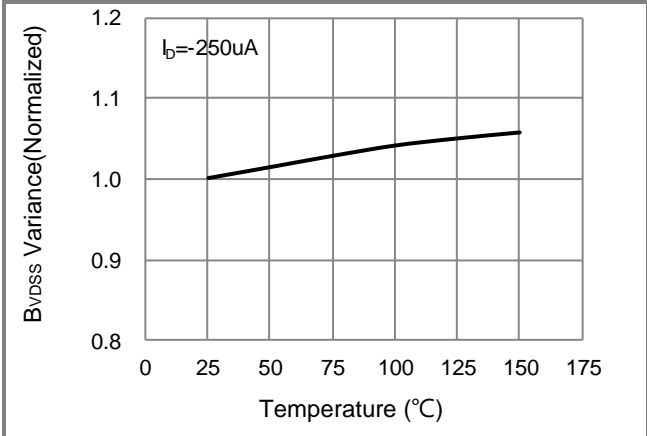


Fig.8 Breakdown Voltage Variation vs. Temperature

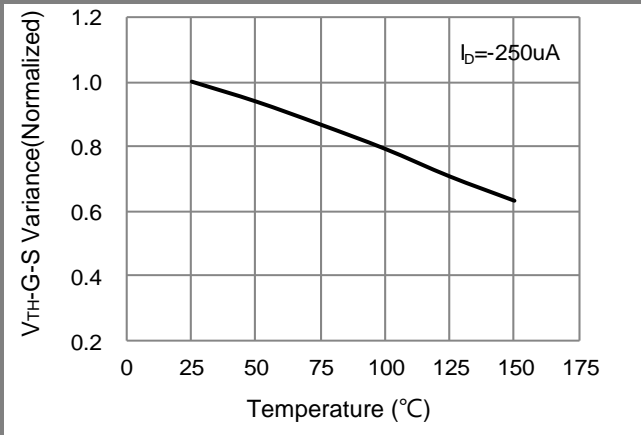


Fig.9 Threshold Voltage Variation with Temperature

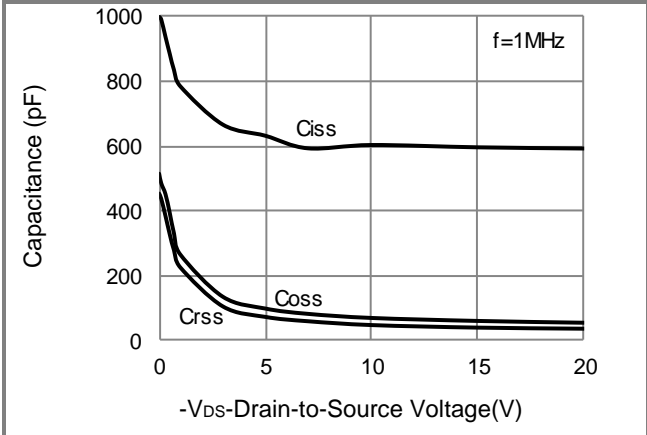


Fig.10 Capacitance vs. Drain-Source Voltage

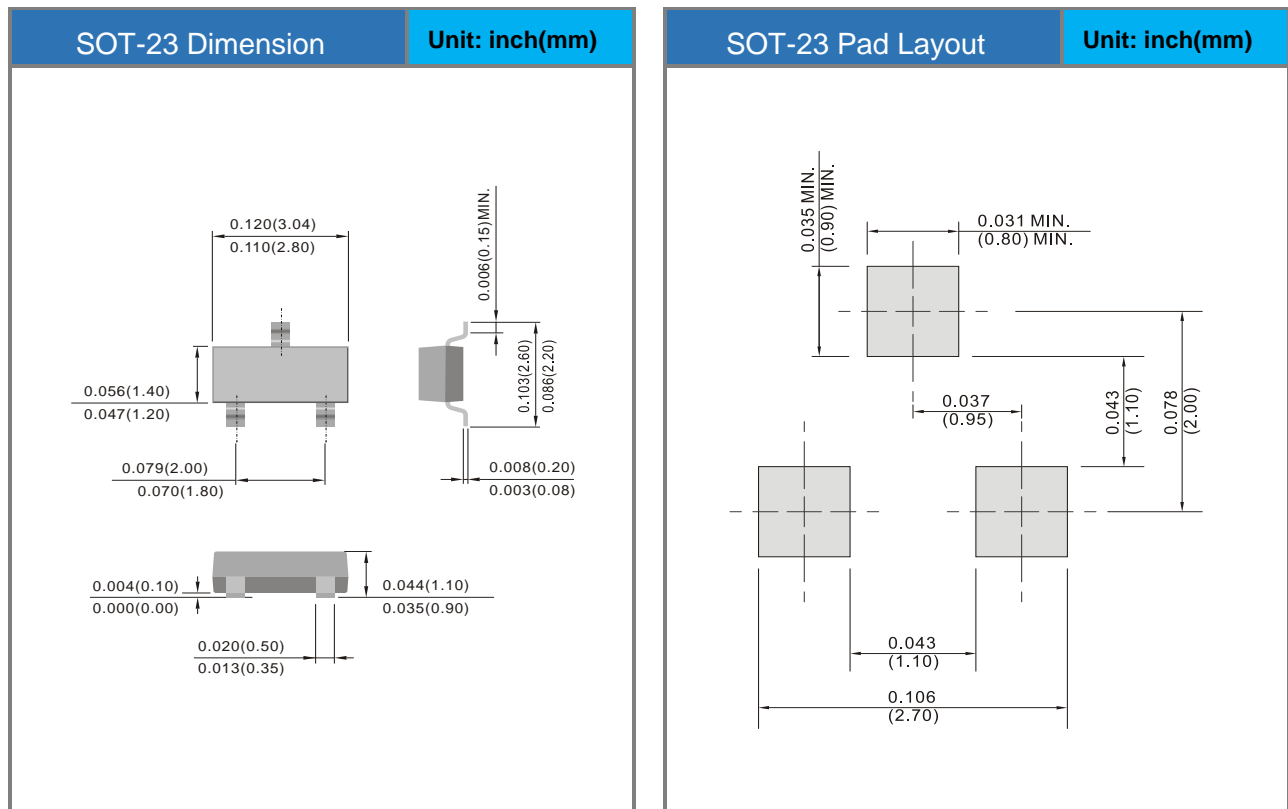


PJA3419E

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJA3419E_R1_00701	SOT-23	3K pcs / 7" reel	19E	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout





PJA3419E

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