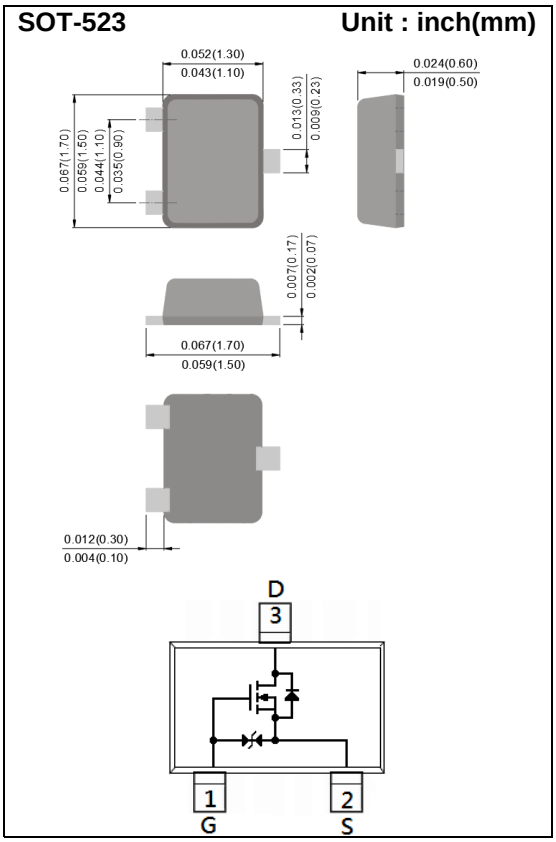
PJE8402

20V N-Channel Enhancement Mode MOSFET – ESD Protected

Voltage	20 V	Current	0.7A



Features

- RDS(ON) , VGS@4,5V, ID@0.7A<150mΩ
- RDS(ON) , VGS@2.5V, ID@0.5A<220mΩ
- RDS(ON) , VGS@1.8V, ID@0.2A<400mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-523 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.002 grams
- Marking : E02

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current		I_D	0.7	A
Pulsed Drain Current		I_{DM}	2.8	A
Power Dissipation	T_a=25°C	P_D	300	mW
	Derate above 25°C		2.4	mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient(Note 3)		$R_{\theta JA}$	417	°C/W

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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	0.78	1.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=0.7A	-	129	150	mΩ
		V_{GS}=2.5V, I_D=0.5A	-	167	220	
		V_{GS}=1.8V, I_D=0.2A	-	260	400	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	0.01	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	±2	±10	uA
Dynamic						
Total Gate Charge	Q_g	V_{DS}=10V, I_D=0.7A, V_{GS}=4.5V(Note 1,2)	-	1.6	-	nC
Gate-Source Charge	Q_{gs}		-	0.3	-	
Gate-Drain Charge	Q_{gd}		-	0.4	-	
Input Capacitance	Ciss	V_{DS}=10V, V_{GS}=0V, f=1.0MHZ	-	92	-	pF
Output Capacitance	Coss		-	25	-	
Reverse Transfer Capacitance	Crss		-	9	-	
Switching						
Turn-On Delay Time	$td_{(on)}$	V_{DD}=10V, I_D=0.7A, V_{GS}=4.5V, R_G=6Ω(Note 1,2)	-	6	-	ns
Turn-On Rise Time	tr		-	26	-	
Turn-Off Delay Time	$td_{(off)}$		-	41	-	
Turn-Off Fall Time	tf		-	31	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	0.4	A
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V	-	0.89	1.2	V

NOTES :

1. Pulse width≤300us, Duty cycle≤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

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TYPICAL CHARACTERISTIC CURVES

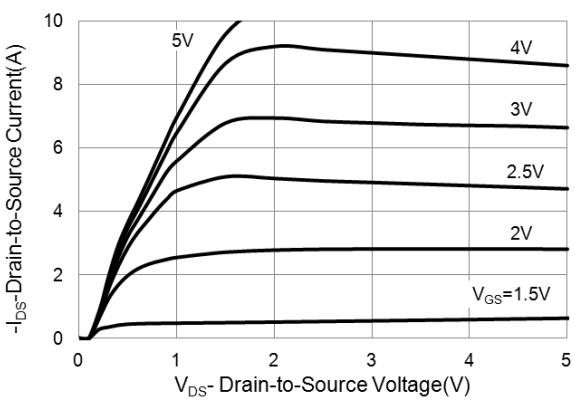

Fig.1 On-Region Characteristics

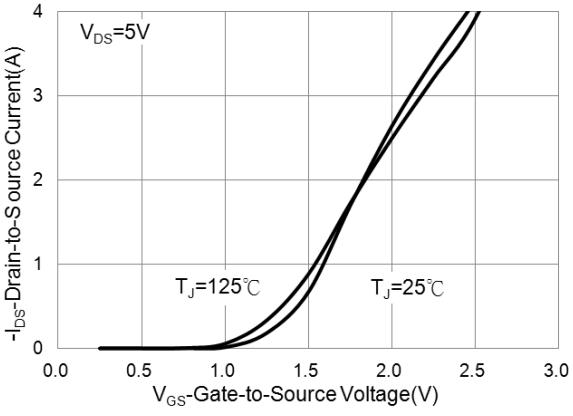

Fig.2 Transfer Characteristics

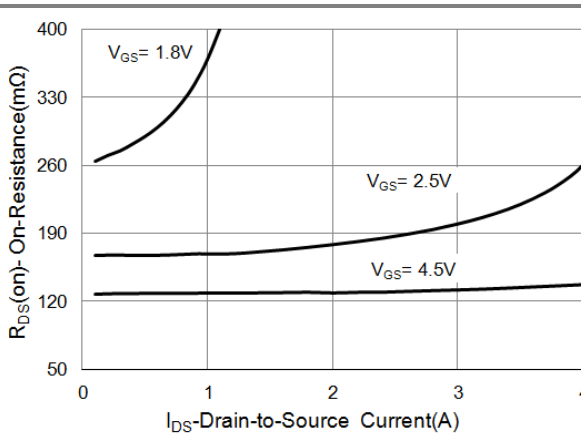

Fig.3 On-Resistance vs. Drain Current

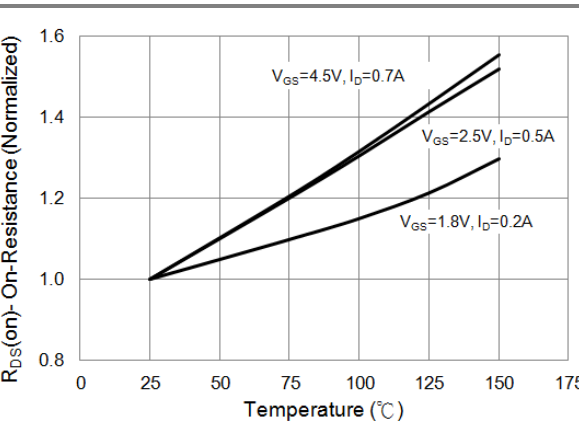

Fig.4 On-Resistance vs. Junction temperature

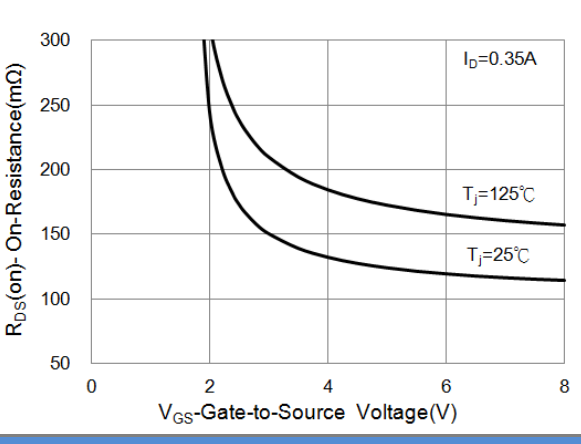

Fig.5 On-Resistance Variation with VGS.

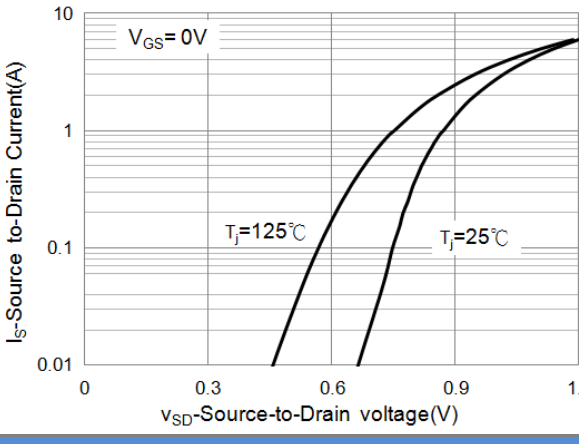

Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

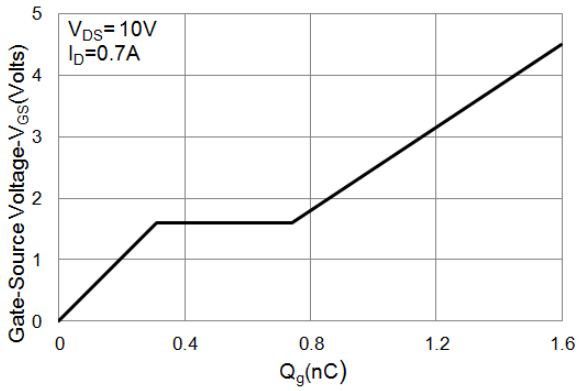

Fig.7 Gate-Charge Characteristics

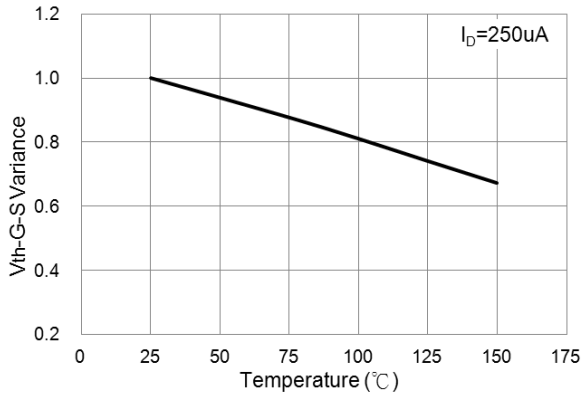

Fig.8 Threshold Voltage Variation with Temperature.

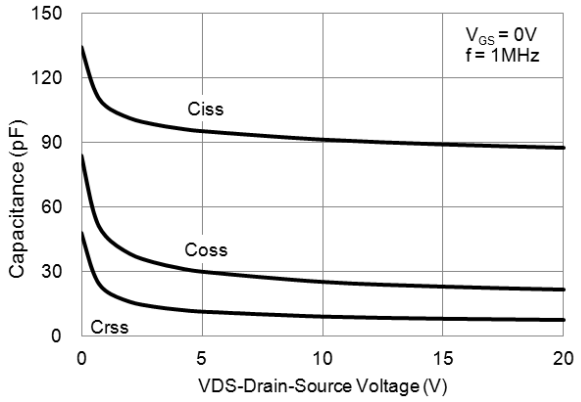

Fig.9 Capacitance vs. Drain-Source Voltage.

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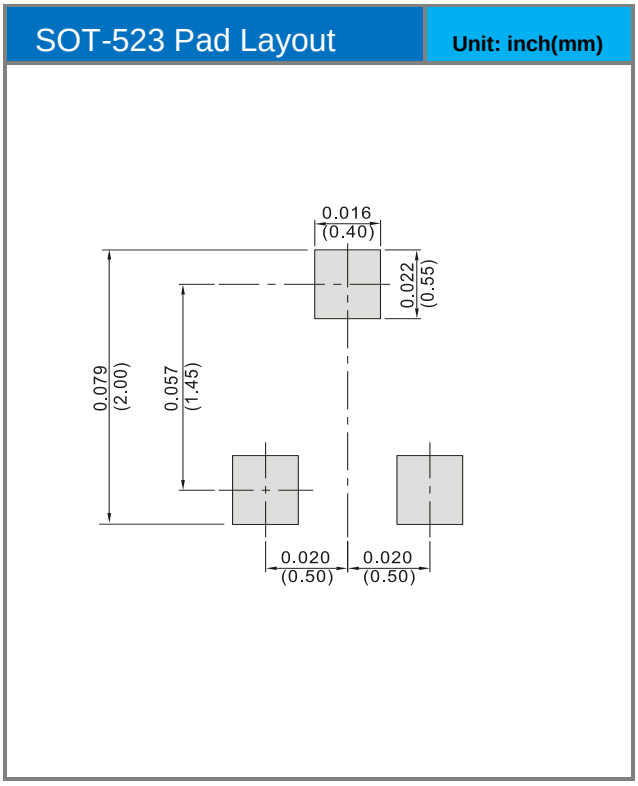
Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PJE8402	SOT-523	4K pcs / 7” reel	E02

Mounting Pad Layout

SOT-523 Pad Layout — Unit: inch(mm)



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