



PJE8402

20V N-Channel Enhancement Mode MOSFET – ESD Protected

Voltage

20 V

Current

0.7A

Features

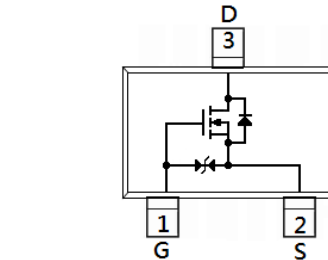
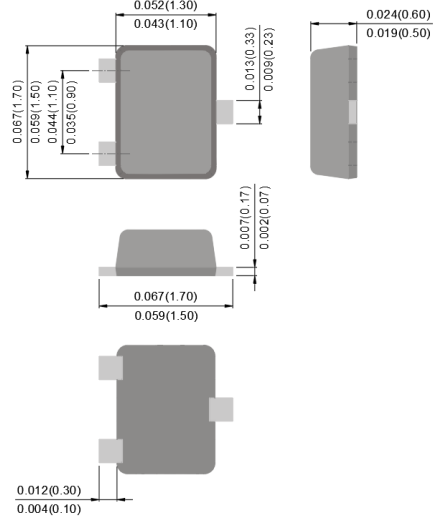
- RDS(ON) , VGS@4.5V, ID@0.7A<150mΩ
- RDS(ON) , VGS@2.5V, ID@0.5A<220mΩ
- RDS(ON) , VGS@1.8V, ID@0.2A<400mΩ
- Advanced Trench Process Technology
- Specially Designed for Switch Load, PWM Application, etc.
- ESD Protected 2KV HBM
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

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

SOT-523

Unit : inch(mm)



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	P _D	T _a =25°C	300
		Derate above 25°C	2.4
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~150	°C
Typical Thermal Resistance	R _{θJA}	417	°C/W
- Junction to Ambient ^(Note 3)			



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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	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1.0MHZ	-	92	-	pF
Output Capacitance	C _{oss}		-	25	-	
Reverse Transfer Capacitance	C _{rss}		-	9	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V, I _D =0.7A, V _{GS} =4.5V, R _G =6Ω ^(Note 1,2)	-	6	-	ns
Turn-On Rise Time	t _r		-	26	-	
Turn-Off Delay Time	t _{d(off)}		-	41	-	
Turn-Off Fall Time	t _f		-	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_{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 inch FR-4 with 2oz. square pad of copper
4. The maximum current rating is package limited



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TYPICAL CHARACTERISTIC CURVES

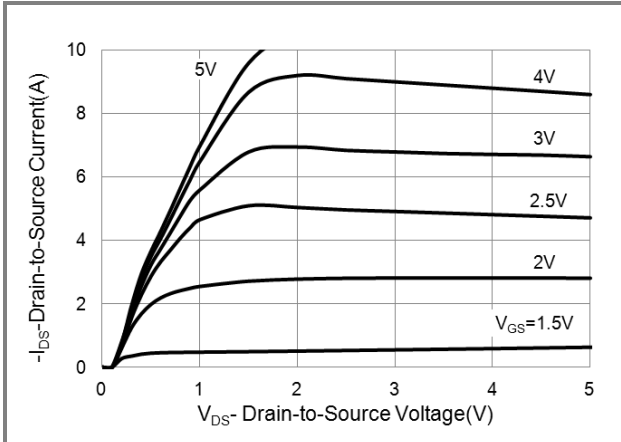


Fig.1 On-Region Characteristics

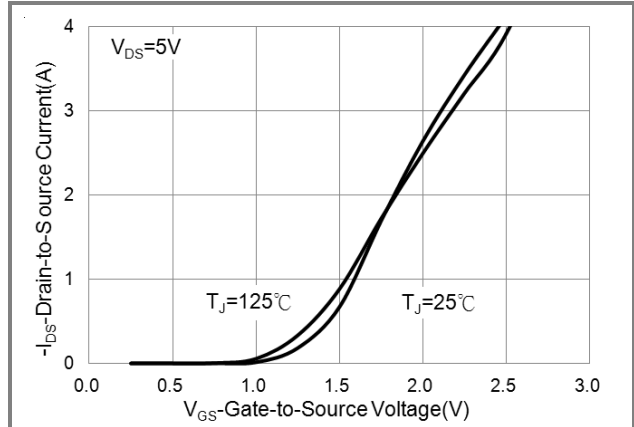


Fig.2 Transfer Characteristics

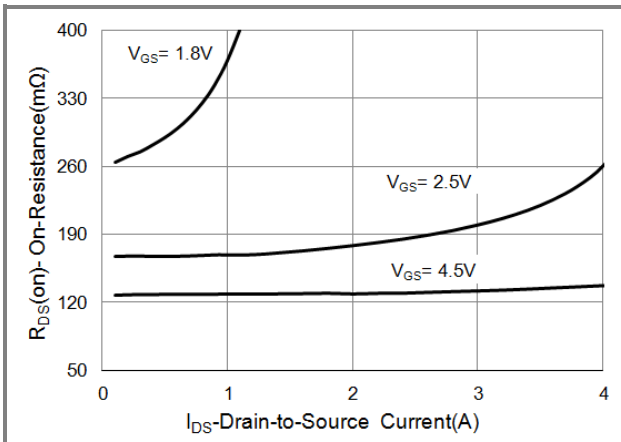


Fig.3 On-Resistance vs. Drain Current

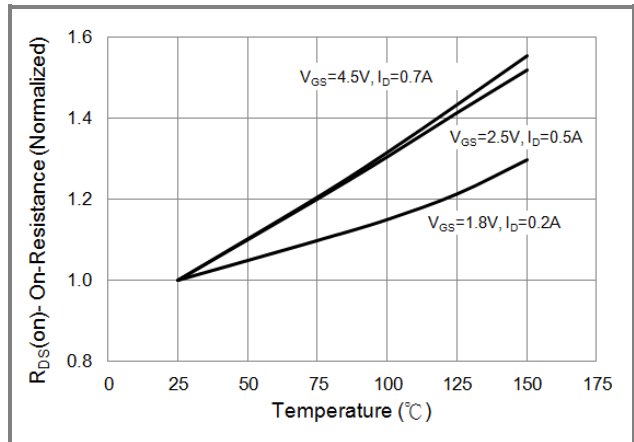


Fig.4 On-Resistance vs. Junction temperature

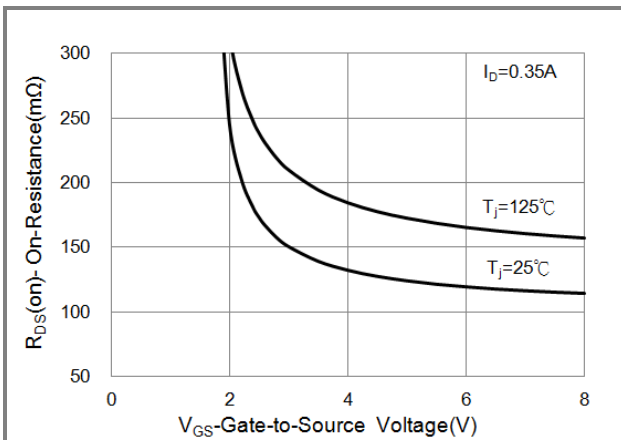


Fig.5 On-Resistance Variation with V_GS.

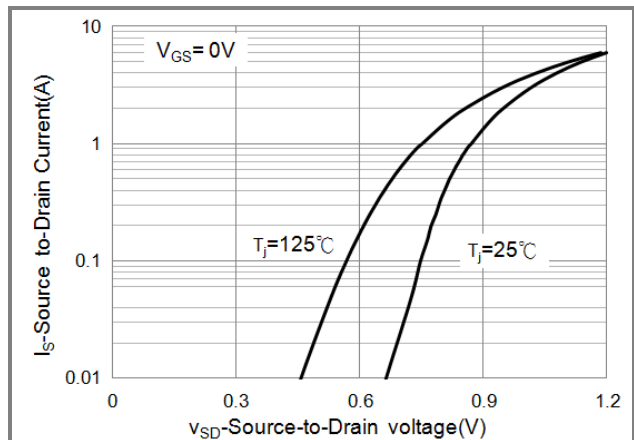


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

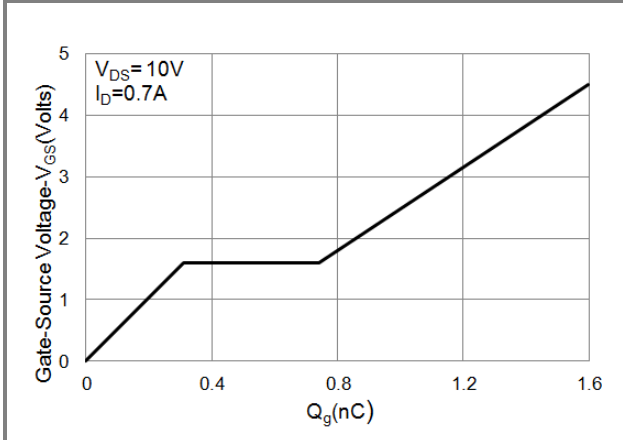


Fig.7 Gate-Charge Characteristics

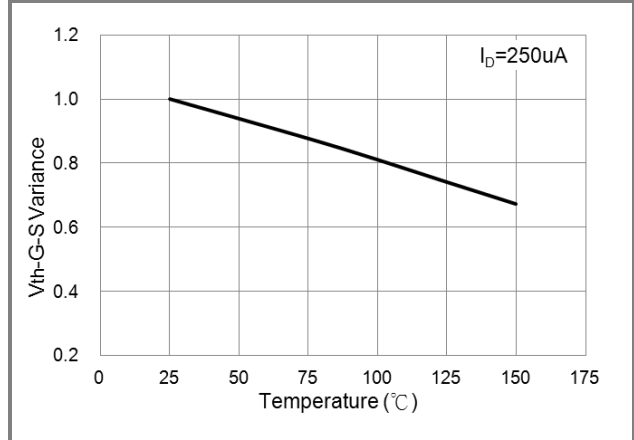


Fig.8 Threshold Voltage Variation with Temperature.

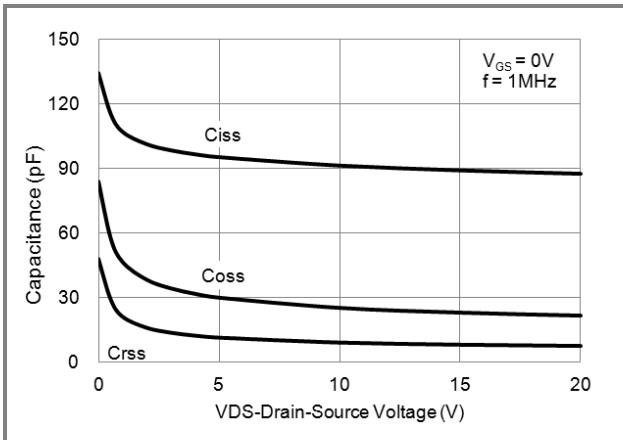


Fig.9 Capacitance vs. Drain-Source Voltage.

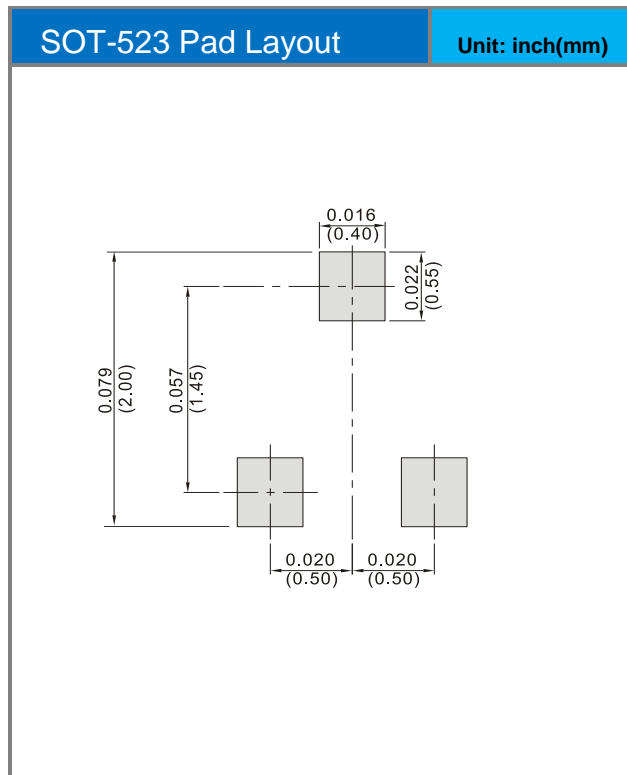


PJE8402

PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJE8402_R1_00001	SOT-523	4K pcs / 7" reel	E02	Halogen free RoHS compliant

MOUNTING PAD LAYOUT





PJE8402

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