



PJE8401

20V P-Channel Enhancement Mode MOSFET

Voltage

-20 V

Current

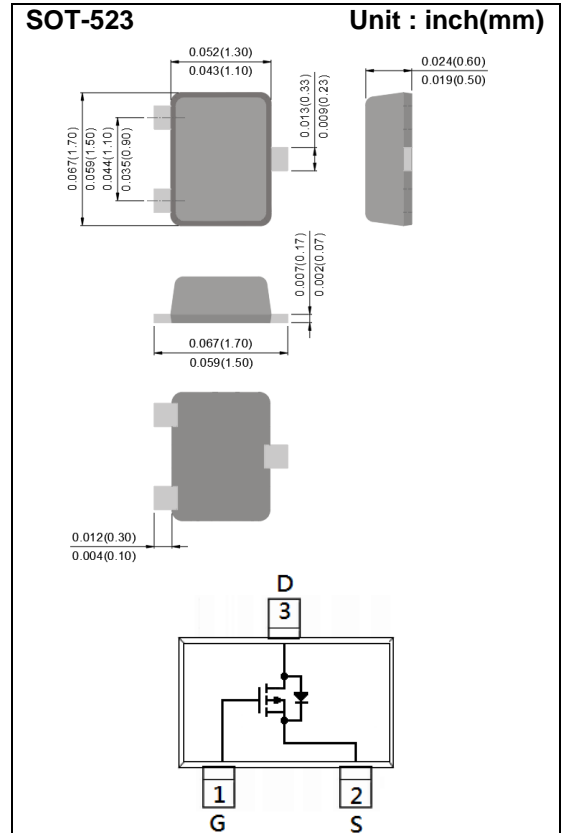
-0.9A

Features

- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-0.9A < 130m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-0.6A < 160m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-1.8V$, $I_D@-0.4A < 210m\Omega$
- 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-523 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.002 grams
- Marking: E01



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	V
Continuous Drain Current		I_D	-0.9	A
Pulsed Drain Current		I_{DM}	-3.6	A
Power Dissipation	$T_a=25^\circ C$	P_D	300	mW
	Derate above $25^\circ C$		2.4	mW/ $^\circ C$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ C$
Typical Thermal Resistance		$R_{\theta JA}$	417	$^\circ C/W$
- 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	-0.4	-0.69	-1.2	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-0.9A	-	110	130	mΩ
		V _{GS} =-2.5V, I _D =-0.6A	-	130	160	
		V _{GS} =-1.8V, I _D =-0.4A	-	160	210	
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} =±12V, V _{DS} =0V	-	±10	±100	nA
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-0.9A, V _{GS} =-4.5V(Notes 1,2)	-	5.4	-	nC
Gate-Source Charge	Q _{gs}		-	0.7	-	
Gate-Drain Charge	Q _{gd}		-	1.4	-	
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1.0MHZ	-	416	-	pF
Output Capacitance	C _{oss}		-	43	-	
Reverse Transfer Capacitance	C _{rss}		-	32	-	
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-10V, I _D =-0.9A, V _{GS} =-4.5V, R _G =6Ω(Notes 1,2)	-	4	-	ns
Turn-On Rise Time	t _r		-	27	-	
Turn-Off Delay Time	t _{d(off)}		-	78	-	
Turn-Off Fall Time	t _f		-	45	-	
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	-	-0.8	-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

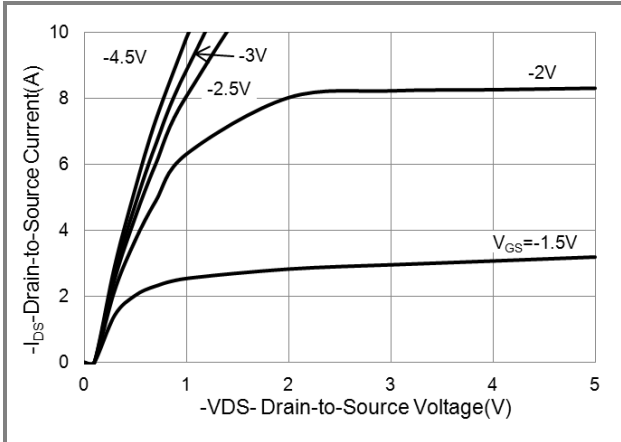


Fig.1 On-Region Characteristics

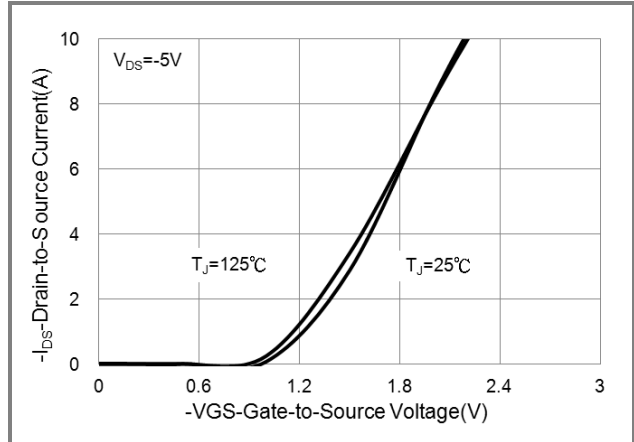


Fig.2 Transfer Characteristics

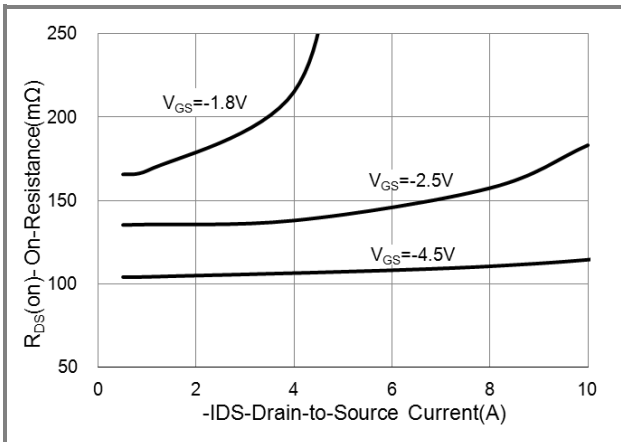


Fig.3 On-Resistance vs. Drain Current

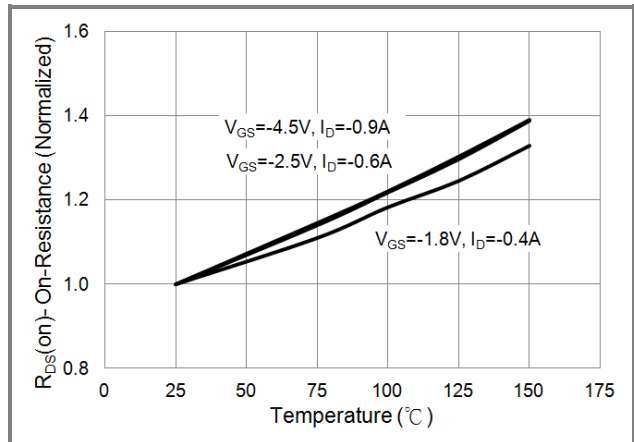


Fig.4 On-Resistance vs. Junction temperature

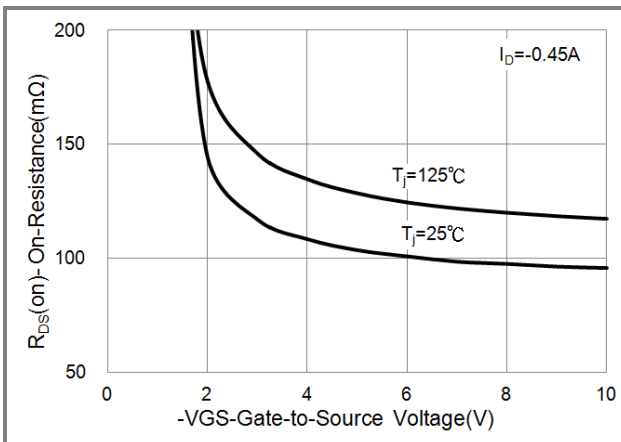


Fig.5 On-Resistance Variation with VGS.

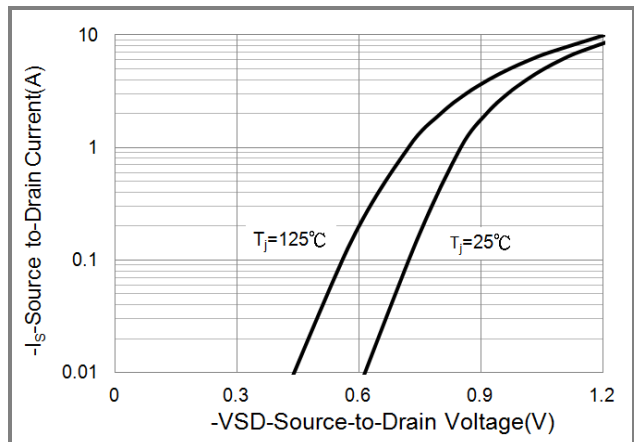


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

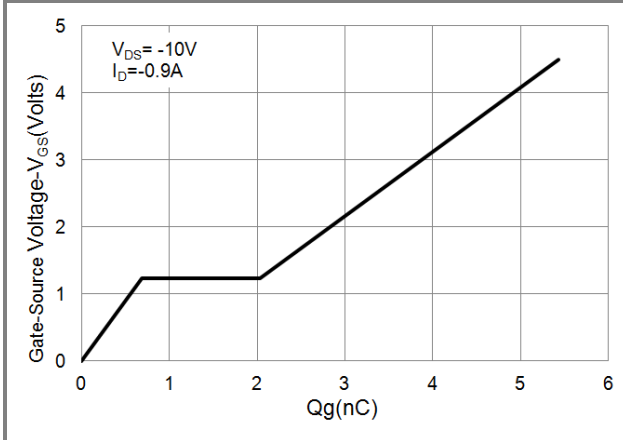


Fig.7 Gate-Charge Characteristics

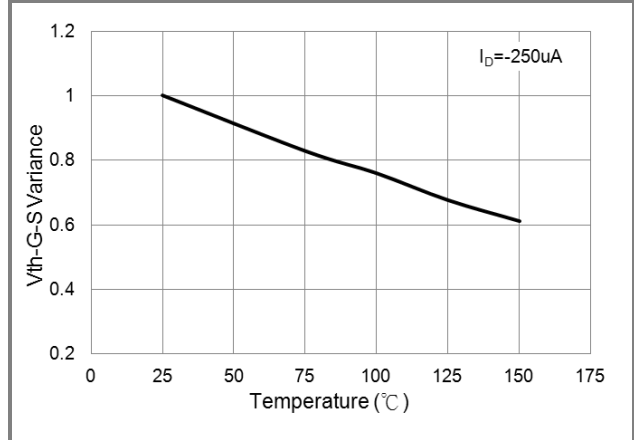


Fig.8 Threshold Voltage Variation with Temperature

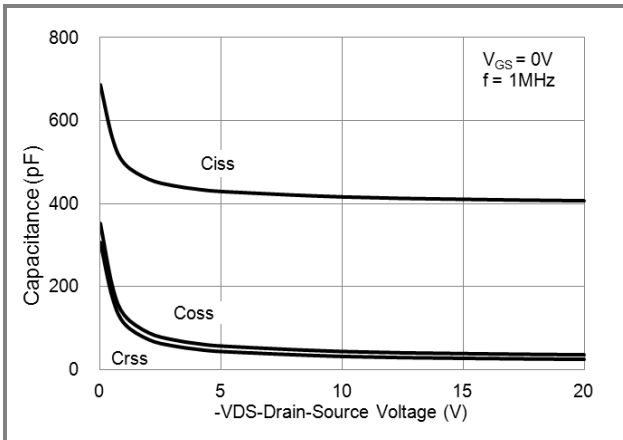


Fig.9 Capacitance vs. Drain-Source Voltage

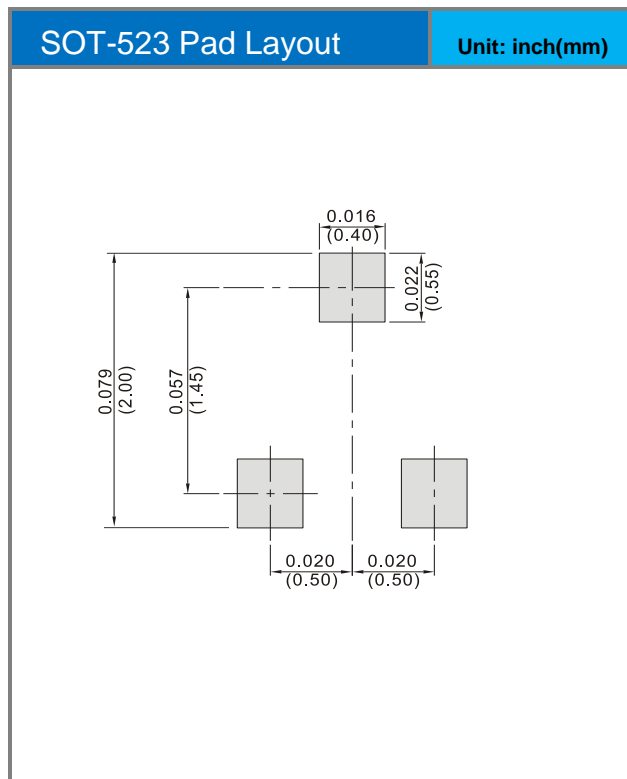


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PART NO. PACKING CODE VERSION

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJE8401_R1_00001	SOT-523	4K pcs / 7" reel	E01	Halogen free RoHS compliant

MOUNTING PAD LAYOUT





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