



PJQ2405

20V P-Channel Enhancement Mode MOSFET

Voltage -20 V **Current** -7.2A

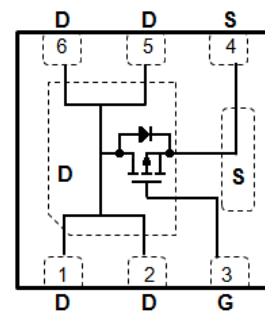
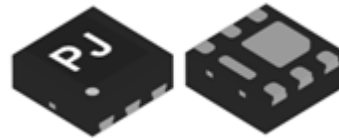
Features

- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-7.2A < 32m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-5.0A < 39m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-1.8V$, $I_D@-2.5A < 48m\Omega$
- Advanced Trench Process Technology
- High density cell design for ultra low on-resistance
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive)
- Green molding compound as per IEC61249 Std.. (Halogen Free)

Mechanical Data

- Case: DFN2020B-6L Package
- Terminals: Solderable per MIL-STD-750, Method 2026

DFN2020B-6L



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	V
Continuous Drain Current	I_D	-7.2	A
Pulsed Drain Current	I_{DM}	-28.8	A
Power Dissipation	P_D	$T_a=25^\circ C$	2.8
		Derate above $25^\circ C$	22
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$
Typical Thermal Resistance	$R_{\theta JA}$	44.6	$^\circ C/W$
- Junction to Ambient, $t < 10s$ ^(Note 3)			



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Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.6	-0.9	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-7.2A$	-	25	32	m Ω
		$V_{GS}=-2.5V, I_D=-5.0A$	-	30	39	
		$V_{GS}=-1.8V, I_D=-2.5A$	-	35	48	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-16V, V_{GS}=0V$	-	-0.01	-1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	-	± 10	± 100	nA
Dynamic (Note 6)						
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-7.2A,$ $V_{GS}=-4.5V$ (Note 1,2)	-	18.9	-	nC
Gate-Source Charge	Q_{gs}		-	2.8	-	
Gate-Drain Charge	Q_{gd}		-	4.2	-	
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1785	-	pF
Output Capacitance	C_{oss}		-	152	-	
Reverse Transfer Capacitance	C_{rss}		-	125	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-10V, I_D=-7.2A,$ $V_{GEN}=-4.5V, R_L=10\Omega$ $R_G=6\Omega$ (Note 1,2)	-	12	-	ns
Turn-On Rise Time	t_r		-	68	-	
Turn-Off Delay Time	$t_{d(off)}$		-	82	-	
Turn-Off Fall Time	t_f		-	35	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	-1.5	A
Diode Forward Voltage	V_{SD}	$I_S=-1A, V_{GS}=0V$	-	-0.64	-1.2	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. The maximum current rating is package limited.
4. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.
5. $R_{\theta JA}$ 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 inch² with 2oz. square pad of copper.
6. Guaranteed by design, not subject to production testing.



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TYPICAL CHARACTERISTIC CURVES

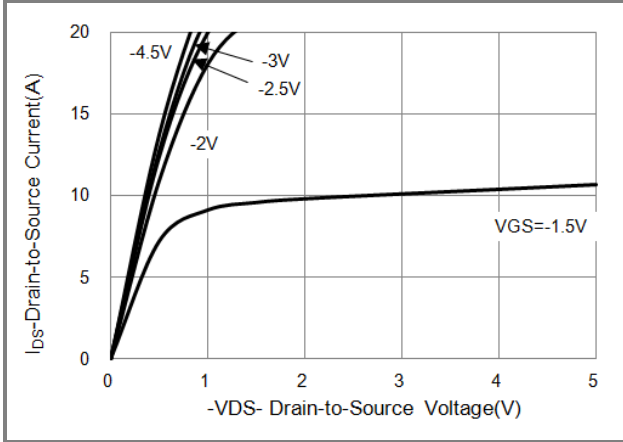


Fig.1 On-Region Characteristics

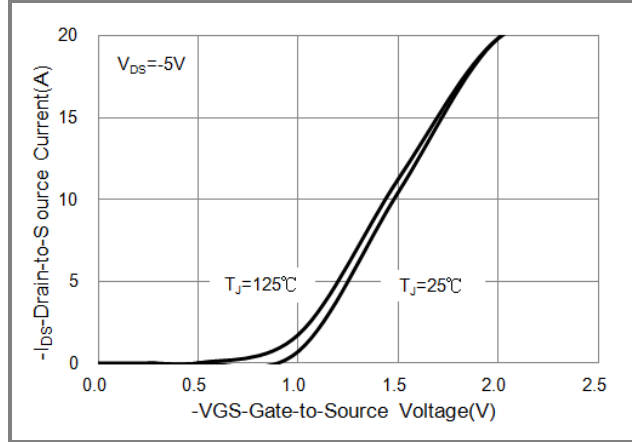


Fig.2 Transfer Characteristics

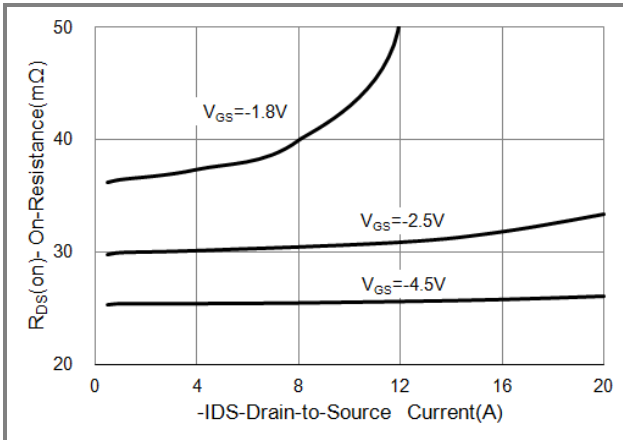


Fig.3 On-Resistance vs. Drain Current

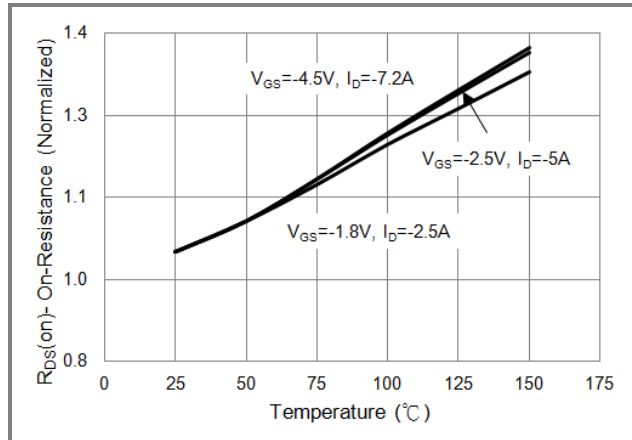


Fig.4 On-Resistance vs. Junction temperature

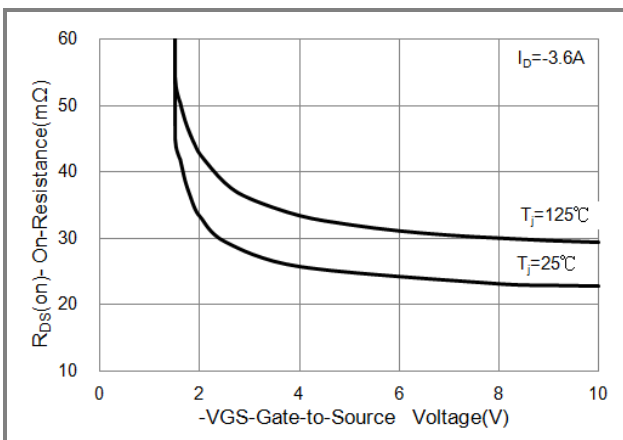


Fig.5 On-Resistance Variation with VGS.

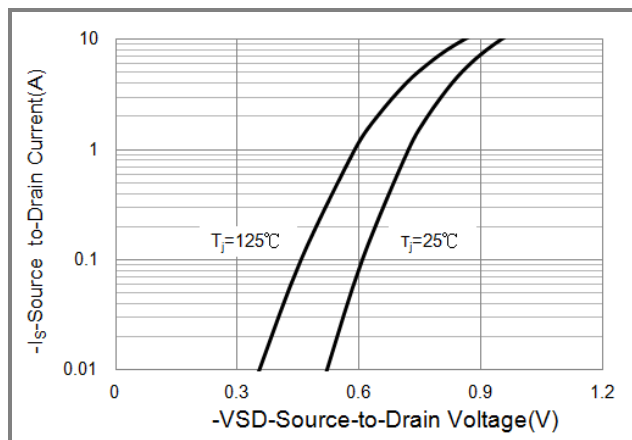


Fig.6 Body Diode Characteristics



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TYPICAL CHARACTERISTIC CURVES

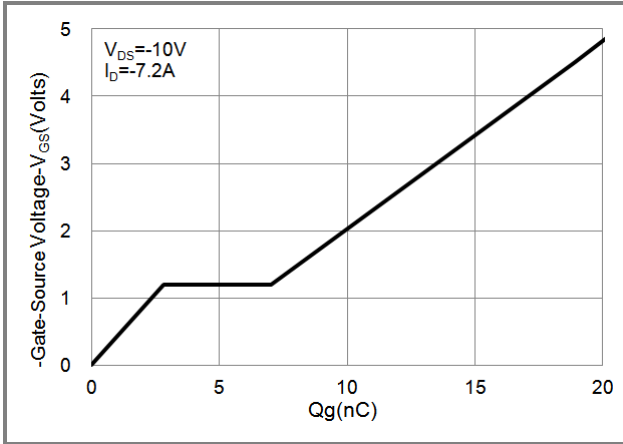


Fig.7 Gate-Charge Characteristics

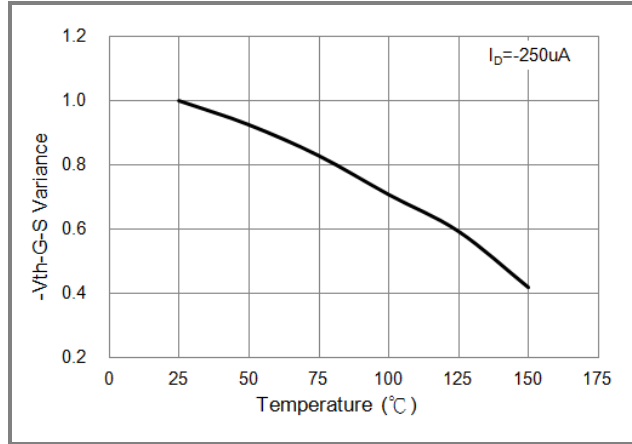


Fig.8 Threshold Voltage Variation with Temperature.

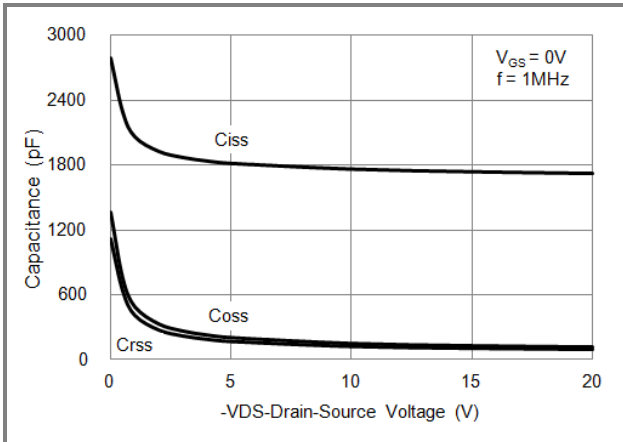


Fig.9 Capacitance vs. Drain-Source Voltage.

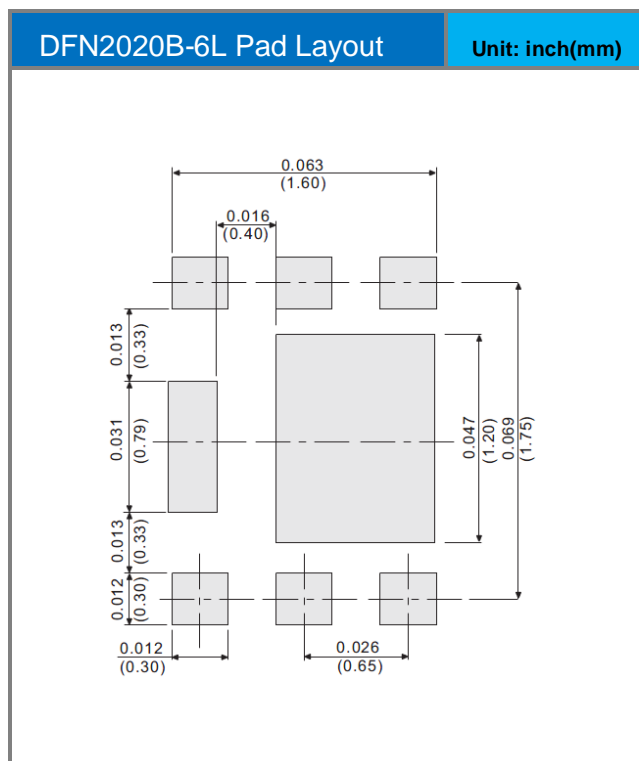
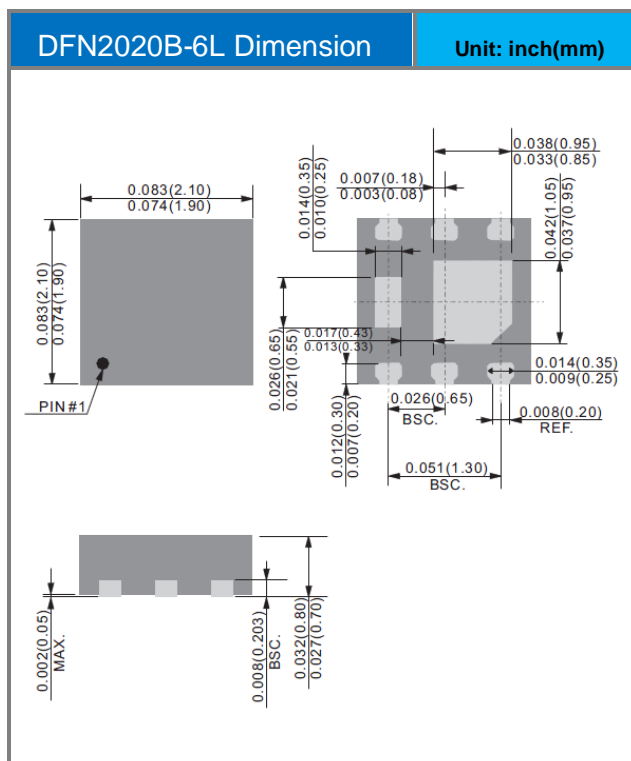


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PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type	Marking	Version
PJQ2405_R1_00001	DFN2020B-6L	3K pcs / 7" reel	405	Halogen free

MOUNTING PAD LAYOUT





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