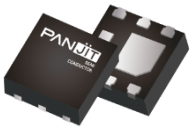
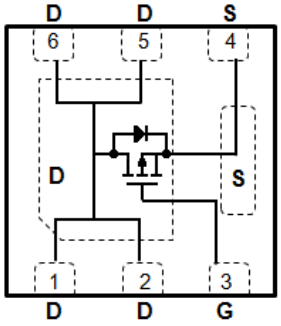
PJQ2411B-AU

20V P-Channel Enhancement Mode MOSFET

Voltage	-20 V	Current	-7 A

DFN2020B-6L





Features

- $R_{DS(ON)}$, V_{GS}@-4.5V, I_D@-3.1A<110mΩ
- $R_{DS(ON)}$, V_{GS}@-2.5V, I_D@-2A<140mΩ
- $R_{DS(ON)}$, V_{GS}@-1.8V, I_D@-1.1A<190mΩ
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : DFN2020B-6L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0086 grams

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

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current(Note 3)	T_C=25°C	I_D	-7	A
	T_C=100°C		-4.5	
Pulsed Drain Current(Note 1)	T_C=25°C	I_{DM}	-14	
Power Dissipation	T_C=25°C	P_D	8.3	W
	T_C=100°C		3.3	
Continuous Drain Current(Note 4)	T_A=25°C	I_D	-2.9	A
	T_A=70°C		-2.3	
Power Dissipation	T_A=25°C	P_D	1.4	W
	T_A=70°C		0.9	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Thermal Resistance(Note 4)	Junction to Case	$R_{\theta JC}$	15	°C/W
	Junction to Ambient	$R_{\theta JA}$	89	

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
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	-0.68	-1.2	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-3.1A	-	85	110	mΩ
		V_{GS}=-2.5V,I_D=-2A	-	105	140	
		V_{GS}=-1.8V,I_D=-1.1A	-	130	190	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Dynamic(Note 6)						
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-3.1A, V_{GS}=-4.5V(Note 2)	-	12	25	nC
Gate-Source Charge	Q_{gs}		-	2	-	
Gate-Drain Charge	Q_{gd}		-	2.4	-	
Input Capacitance	Ciss	V_{DS}=-10V, V_{GS}=0V, f=1MHz	-	427	650	pF
Output Capacitance	Coss		-	40	80	
Reverse Transfer Capacitance	Crss		-	32	65	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=-10V, I_D=-3.1A, V_{GS}=-4.5V, R_G=6Ω (Note 2)	-	3.7	-	ns
Turn-On Rise Time	t_r		-	3.5	-	
Turn-Off Delay Time	$td_{(off)}$		-	72	-	
Turn-Off Fall Time	t_f		-	40	-	
Drain-Source Diode						
Diode Forward Current	I_S	T_C=25°C (Package Limit)	-	-	-7	A
Pulsed Diode Forward Current	I_{SM}		-	-	-14	
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. Chip capability with an $R_{\theta JC}$=15°C/W.
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 inch^2 with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

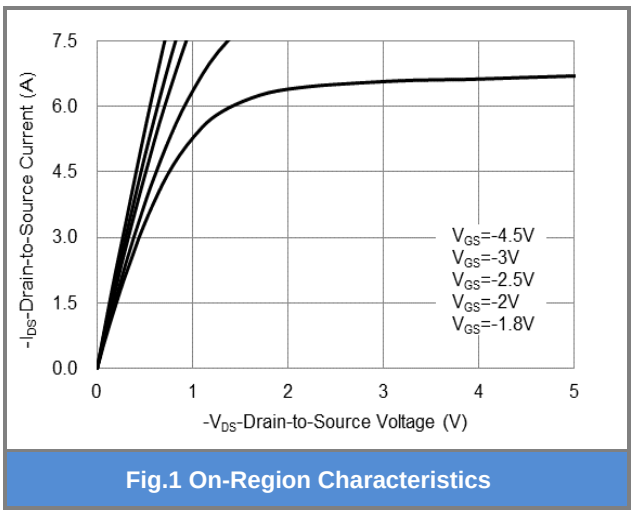

Fig.1 On-Region Characteristics

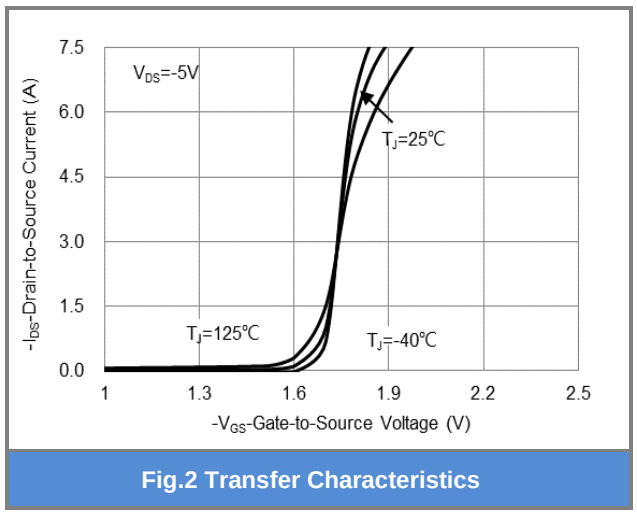

Fig.2 Transfer Characteristics

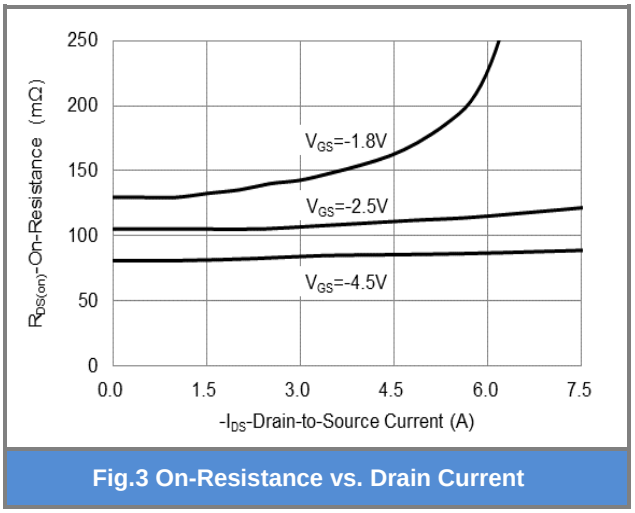

Fig.3 On-Resistance vs. Drain Current

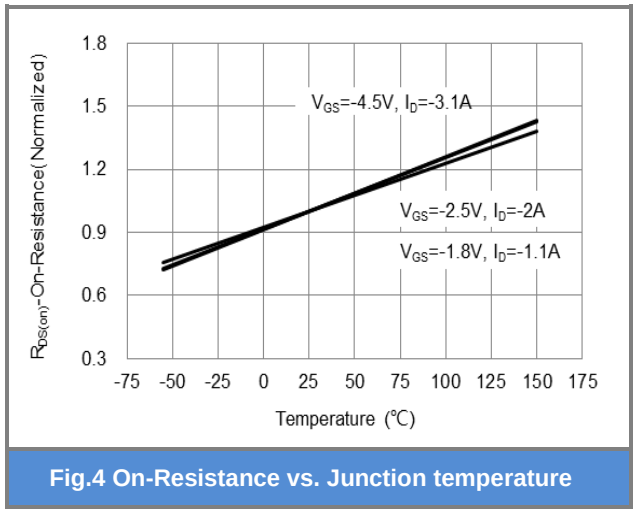

Fig.4 On-Resistance vs. Junction temperature

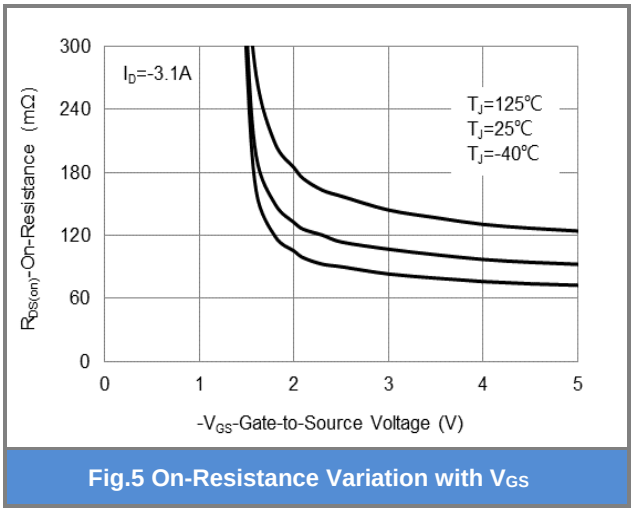

Fig.5 On-Resistance Variation with V_{GS}

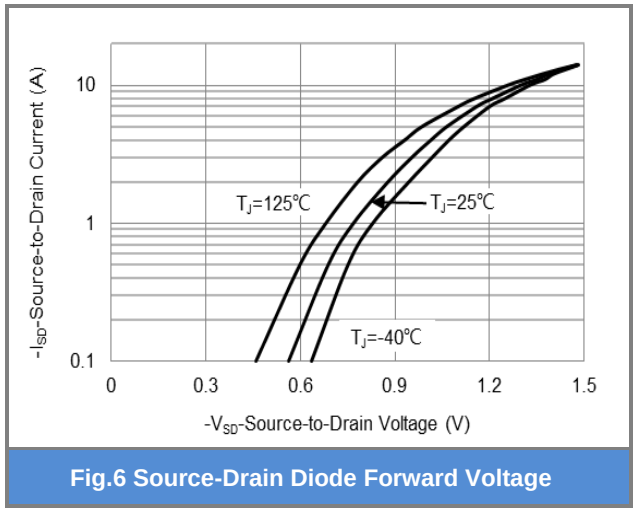

Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

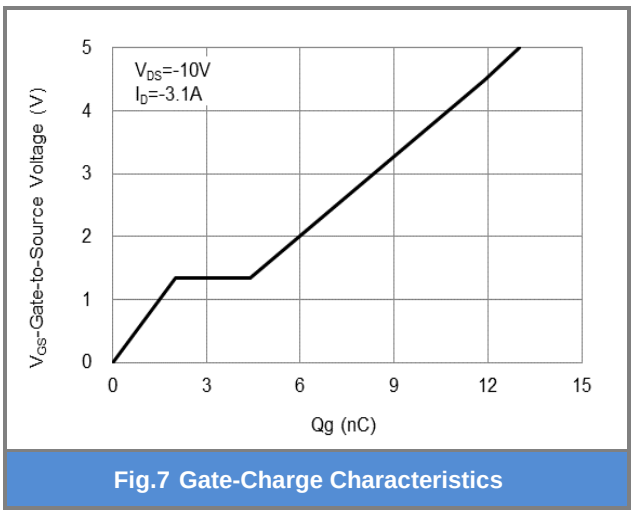

Fig.7 Gate-Charge Characteristics

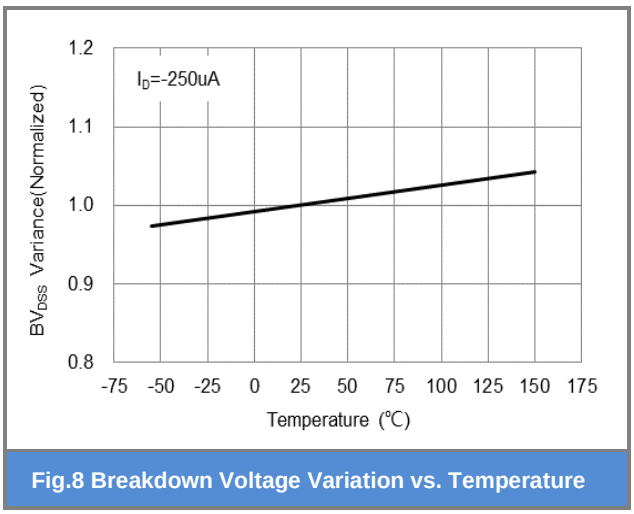

Fig.8 Breakdown Voltage Variation vs. Temperature

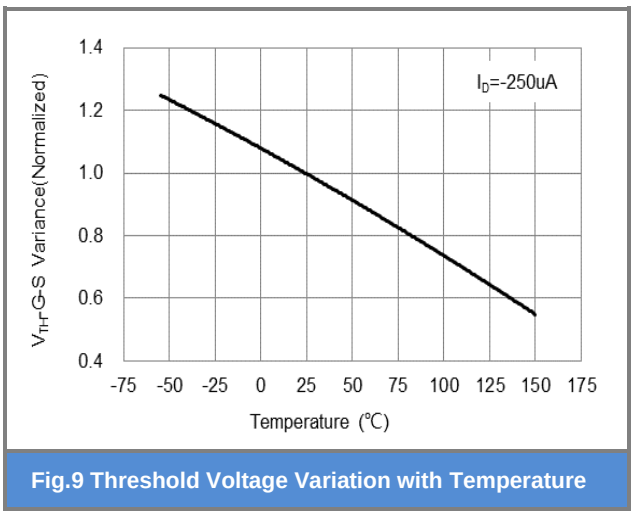

Fig.9 Threshold Voltage Variation with Temperature

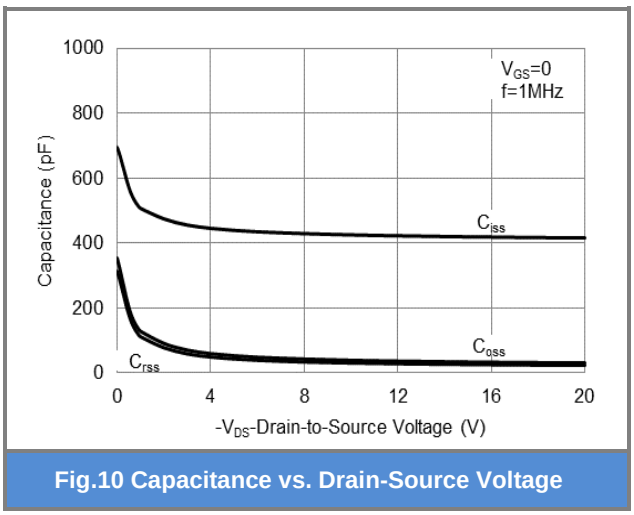

Fig.10 Capacitance vs. Drain-Source Voltage

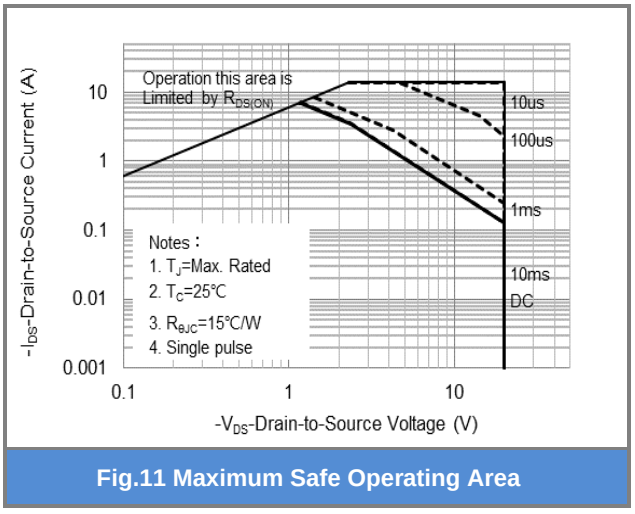

Fig.11 Maximum Safe Operating Area

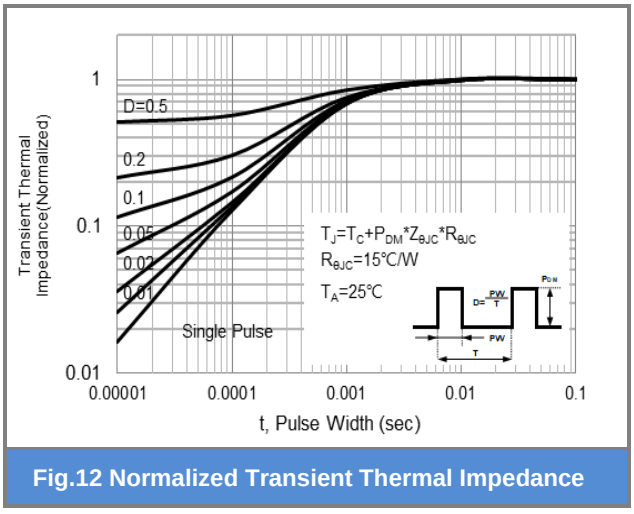

Fig.12 Normalized Transient Thermal Impedance

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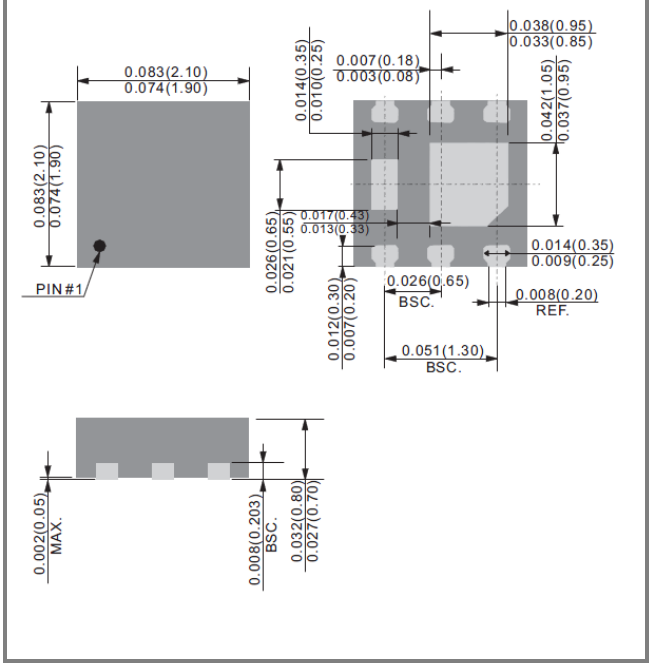
Product and Packing Information

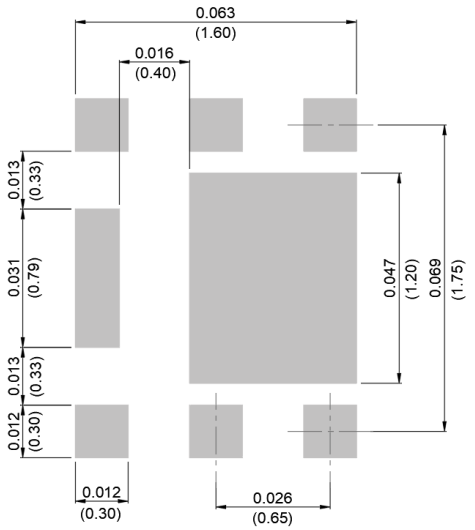
Part No.	Package Type	Packing Type	Marking
PJQ2411B-AU	DFN2020B-6L	3K pcs / 7” reel	41B

Packaging Information & Mounting Pad Layout

DFN2020B-6L Dimension — Unit: inch(mm)



DFN2020B-6L Pad Layout — Unit: inch(mm)



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