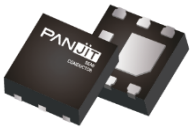
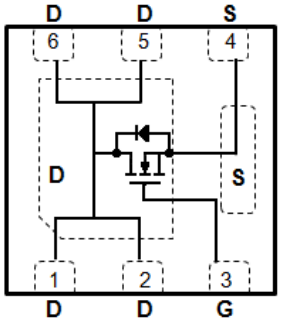
PJQ2566A

60V N-Channel Enhancement Mode MOSFET

Voltage	60 V	Current	20 A

DFN2020B-6L





Features

- $R_{DS(ON)}$, V_{GS}@10V, I_D@10A<14mΩ
- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@6A<21mΩ
- Excellent FOM
- Logic Level Drive
- 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	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current(Note 3)	T_C=25°C	I_D	20	A
	T_C=100°C		12.7	
Pulsed Drain Current(Note 1)	T_C=25°C	I_{DM}	80	
Power Dissipation	T_C=25°C	P_D	9.6	W
	T_C=100°C		3.8	
Continuous Drain Current(Note 4)	T_A=25°C	I_D	8.4	A
	T_A=70°C		6.7	
Power Dissipation	T_A=25°C	P_D	1.7	W
	T_A=70°C		1.1	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Thermal Resistance(Note 4)	Junction to Case	$R_{\theta JC}$	13	°C/W
	Junction to Ambient	$R_{\theta JA}$	75	

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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	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	1.4	2.5	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=10A	-	11.2	14	mΩ
		V_{GS}=4.5V, I_D=6A	-	16.3	21	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Dynamic(Note 6)						
Total Gate Charge	Q_g	V_{DS}=30V, I_D=10A, V_{GS}=10V(Note 2,3)	-	16.7	22	nC
Gate-Source Charge	Q_{gs}		-	3.3	-	
Gate-Drain Charge	Q_{gd}		-	4	-	
Input Capacitance	Ciss	V_{DS}=30V, V_{GS}=0V, f=1MHz	-	834	1168	pF
Output Capacitance	Coss		-	323	485	
Reverse Transfer Capacitance	Crss		-	18	-	
Gate resistance	R_g	f=1MHz	-	1.3	-	Ω
Turn-On Delay Time	$td_{(on)}$	V_{DS}=30V, I_D=10A, V_{GS}=10V, R_G=3Ω (Note 2,3)	-	7	-	ns
Turn-On Rise Time	t_r		-	20	-	
Turn-Off Delay Time	$td_{(off)}$		-	17	-	
Turn-Off Fall Time	t_f		-	16	-	
Drain-Source Diode						
Diode Forward Current	I_S	T_C=25°C	-	-	20	A
Pulsed Diode Forward Current	I_{SM}		-	-	80	
Diode Forward Voltage	V_{SD}	I_S=10A, V_{GS}=0V	-	0.85	1.3	V
Reverse Recovery Time	Trr	V_{DD}=30V,V_{GS}=0V	-	40	-	ns
Reverse Recovery Charge	Qrr	I_S=10A,dI_S/dt=100A/us	-	21	-	nC

NOTES :

1. Pulse width≤300us, Duty cycle≤2%.
2. Essentially independent of operating temperature typical characteristics.
3. Chip capability with an $R_{\theta JC}$=13°C/W.
4. $R_{\theta JA}$ 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.
5. 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.
6. Guaranteed by design, not subject to production testing.

PJQ2566A

TYPICAL CHARACTERISTIC CURVES

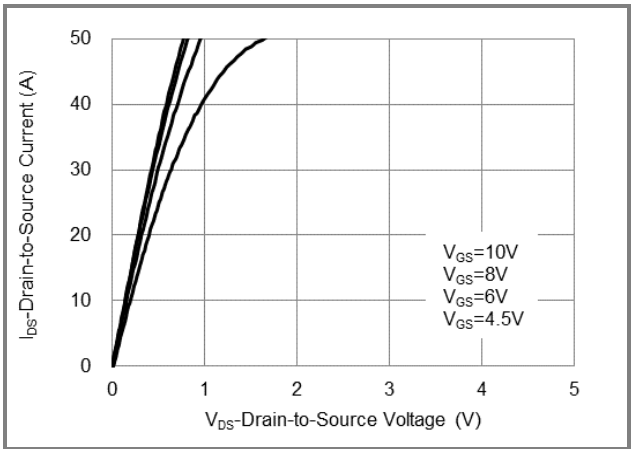


Fig.1 On-Region Characteristics

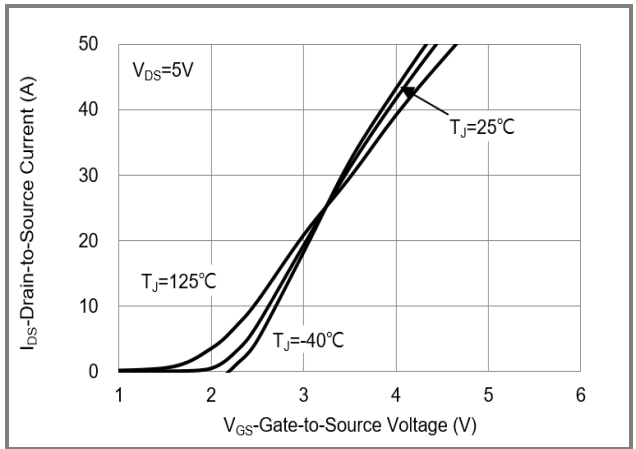


Fig.2 Transfer Characteristics

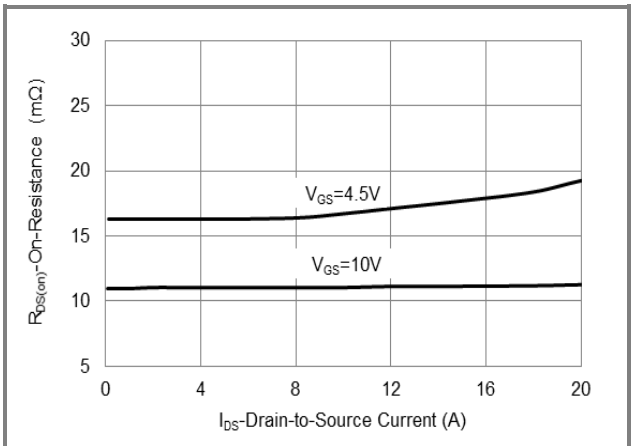


Fig.3 On-Resistance vs. Drain Current

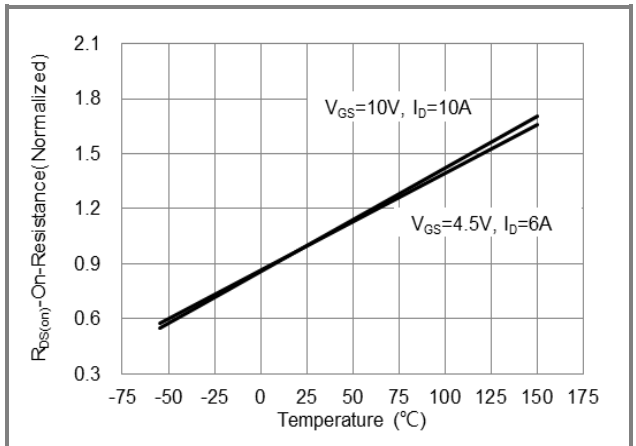


Fig.4 On-Resistance vs. Junction temperature

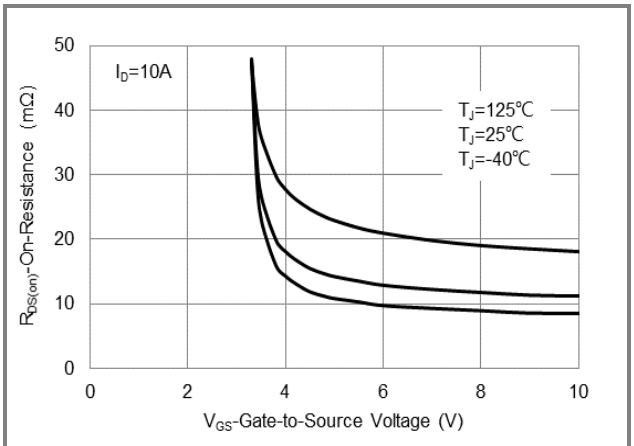


Fig.5 On-Resistance Variation with V_{GS}

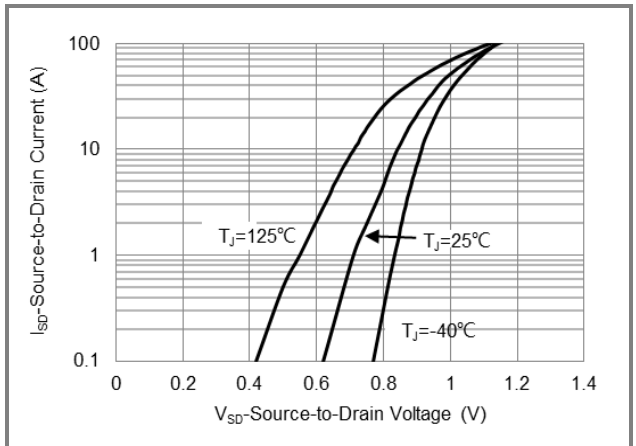


Fig.6 Source-Drain Diode Forward Voltage

PJQ2566A

TYPICAL CHARACTERISTIC CURVES

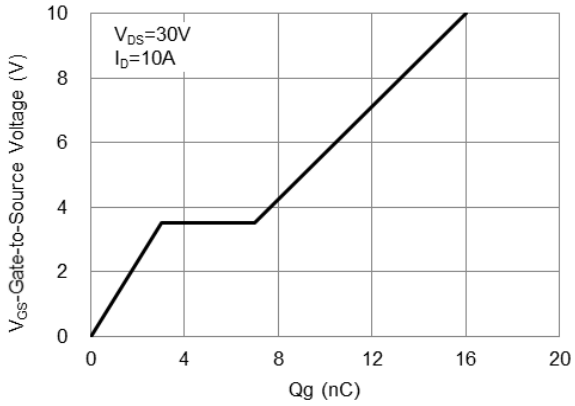


Fig.7 Gate-Charge Characteristics

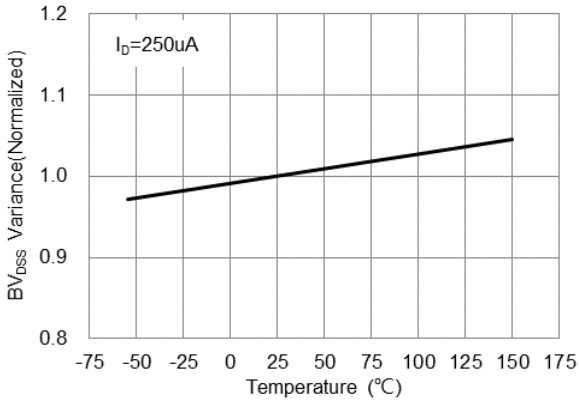


Fig.8 Breakdown Voltage Variation vs. Temperature

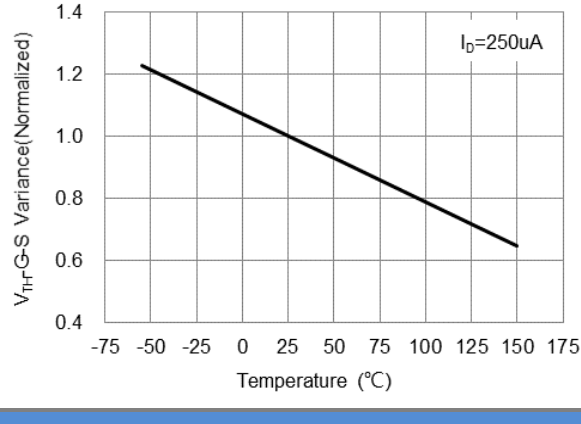


Fig.9 Threshold Voltage Variation with Temperature

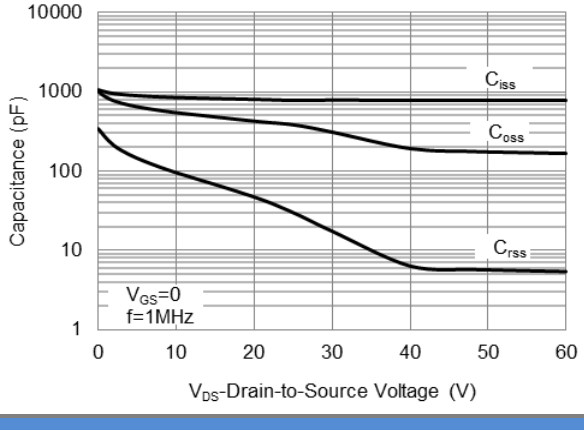


Fig.10 Capacitance vs. Drain-Source Voltage

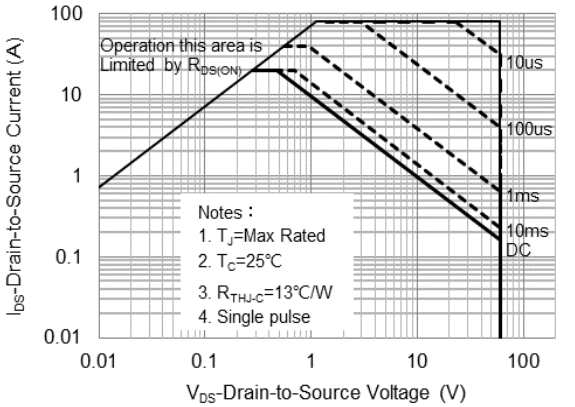


Fig.11 Maximum Safe Operating Area

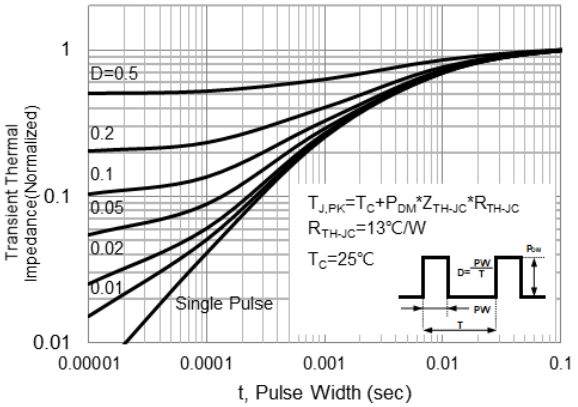


Fig.12 Normalized Transient Thermal Impedance

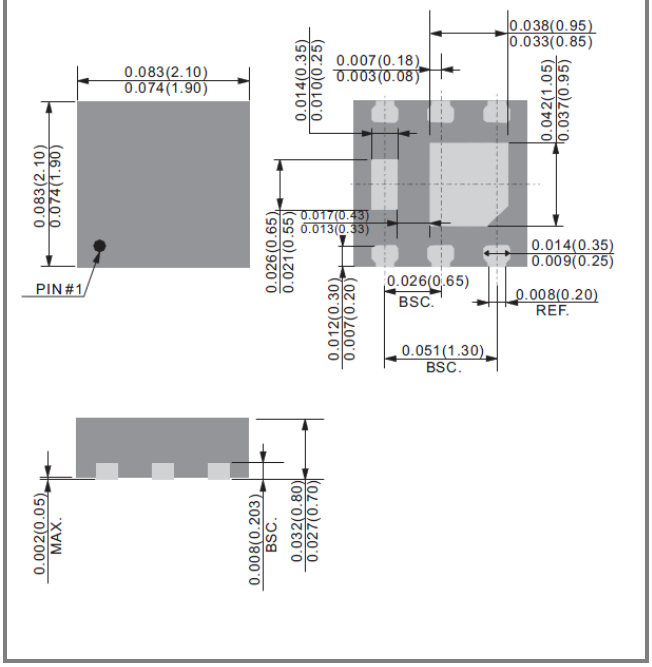
PJQ2566A

Product and Packing Information

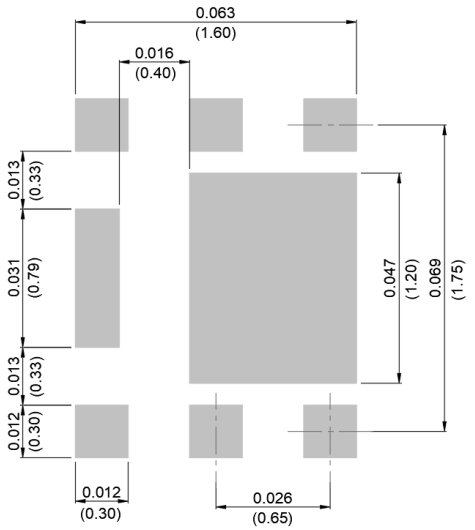
Part No.	Package Type	Packing Type	Marking
PJQ2566A	DFN2020B-6L	3K pcs / 7” reel	566

Packaging Information & Mounting Pad Layout

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



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



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