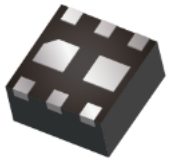
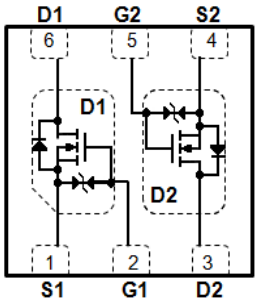
PJQ1820U-20V

20V N-Channel Enhancement Mode MOSFET

Voltage	20 V	Current	1 A

DFN1010B-6L





Features

- Advanced Trench Process Technology
- ESD Protected
- Low Gate Charge
- Fast Switching
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : DFN1010B-6L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0011 grams

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	
Continuous Drain Current(Note 4)		I_D	1.0	A
Pulsed Drain Current(Note 1)		I_{DM}	2.0	
Power Dissipation	T_A=25°C	P_D	400	mW
	Derate above 25°C		3.2	mW/°C
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance - Junction to Ambient(Note 5)		$R_{\theta JA}$	312	°C/W

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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	0.3	0.6	0.8	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=500mA	-	220	300	mΩ
		V_{GS}=2.5V, I_D=400mA	-	250	400	
		V_{GS}=1.8V, I_D=200mA	-	300	550	
		V_{GS}=1.5V, I_D=100mA	-	370	800	
		V_{GS}=1.2V, I_D=10mA		640	1500	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	-	-	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V	-	-	±10	
Dynamic(Note 6)						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=0.5A, V_{GS}=4.5V(Note 2,3)	-	1.1	-	nC
Gate-Source Charge	Q_{gs}		-	0.2	-	
Gate-Drain Charge	Q_{gd}		-	0.2	-	
Input Capacitance	Ciss	V_{DS}=16V, V_{GS}=0V, f=1MHZ	-	46	-	pF
Output Capacitance	Coss		-	12	-	
Reverse Transfer Capacitance	Crss		-	6	-	
Turn-On Delay Time	$td_{(on)}$	V_{DS}=16V, I_D=0.5A, V_{GS}=4.5V, R_G=3Ω (Note 2,3)	-	2.8	-	ns
Turn-On Rise Time	t_r		-	21	-	
Turn-Off Delay Time	$td_{(off)}$		-	61	-	
Turn-Off Fall Time	t_f		-	37	-	
Drain-Source Diode						
Diode Forward Voltage	V_{SD}	I_S=0.2A,V_{GS}=0V	-	0.8	1	V
Reverse Recovery Time	Trr	V_{GS}=0V, I_S=0.5A dIs/dt=100A/us(Note 2,3)	-	9	-	nS
Reverse Recovery Charge	Qrr		-	1	-	nC

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℃.Ratings are based on low frequency and duty cycles to keep initial T_J =25℃.

4.The maximum current rating is package limited.

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

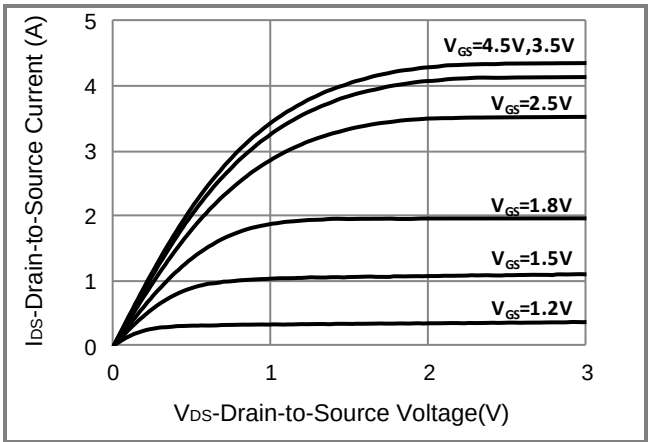

Fig.1 Output Characteristics

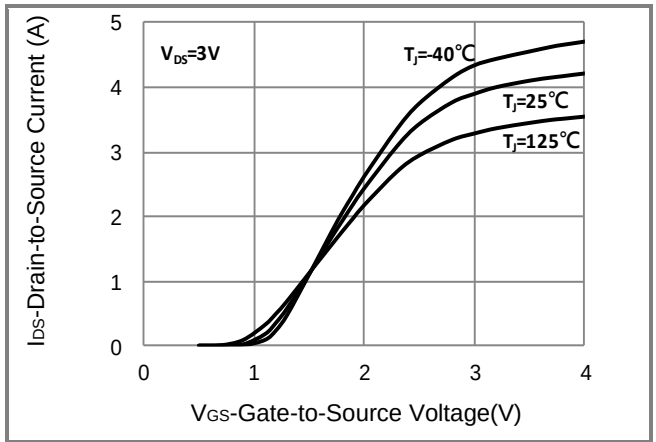

Fig.2 Transfer Characteristics

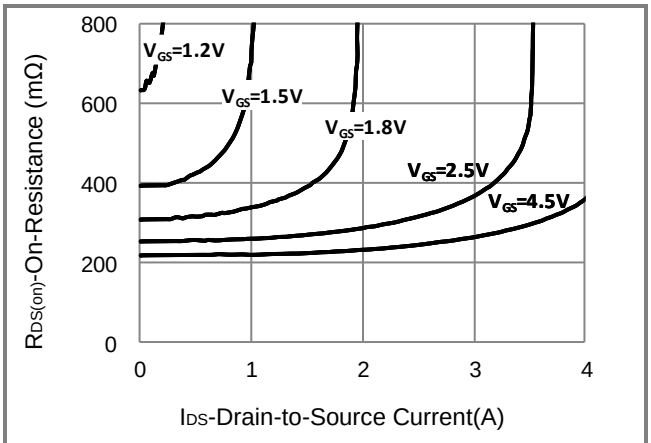

Fig.3 On-Resistance vs. Drain Current

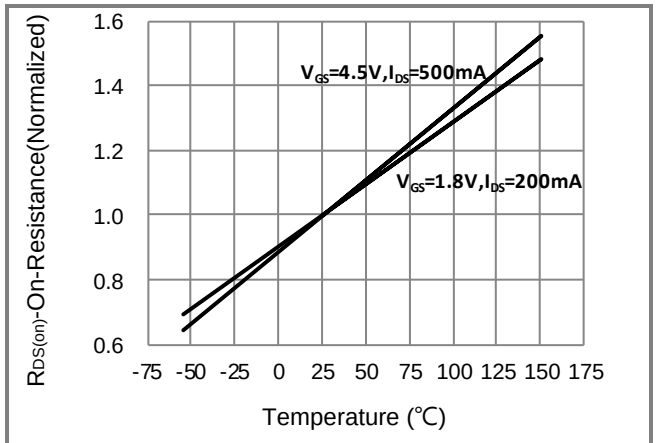

Fig.4 On-Resistance vs. Junction temperature

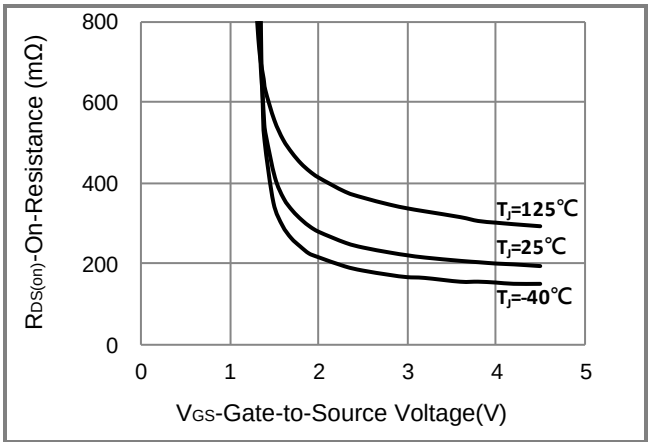

Fig.5 On-Resistance Variation with V_{GS}

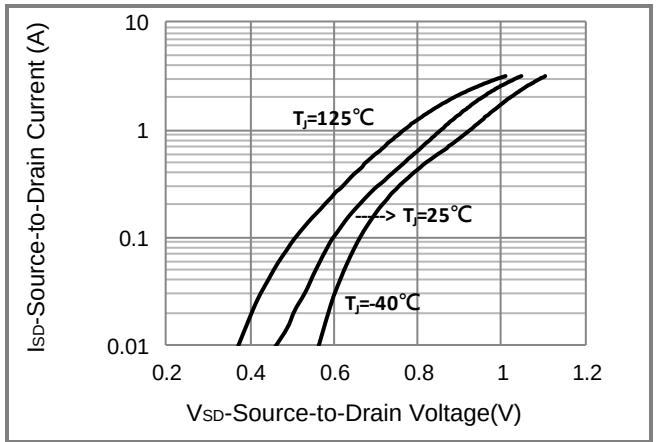

Fig.6 Source-Drain Diode Forward Voltage

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TYPICAL CHARACTERISTIC CURVES

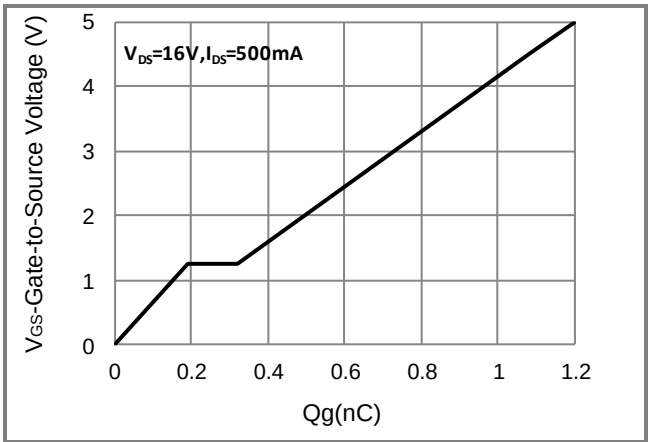


Fig.7 Gate-Charge Characteristics

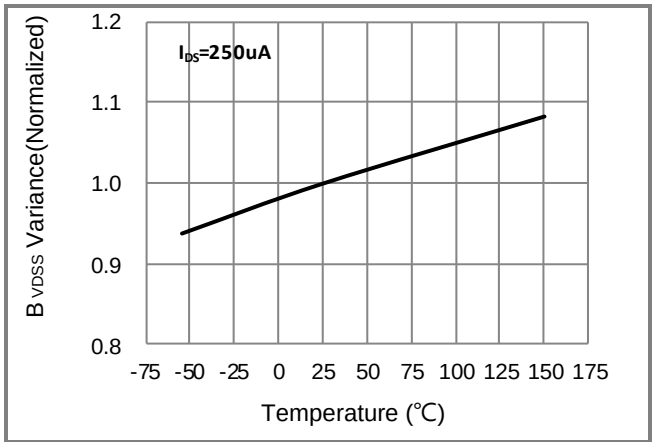


Fig.8 Breakdown Voltage Variation vs. Temperature

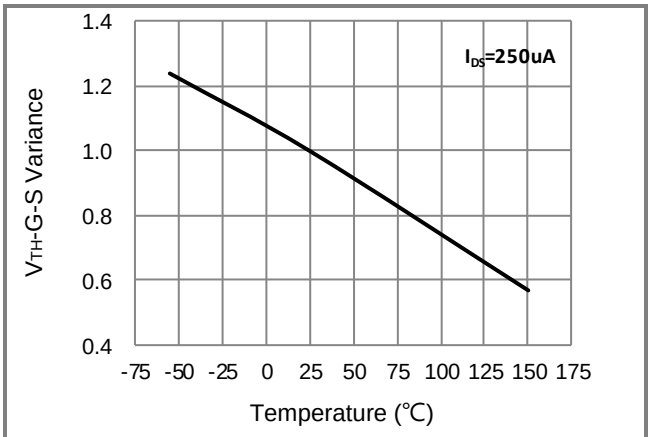


Fig.9 Threshold Voltage Variation with Temperature

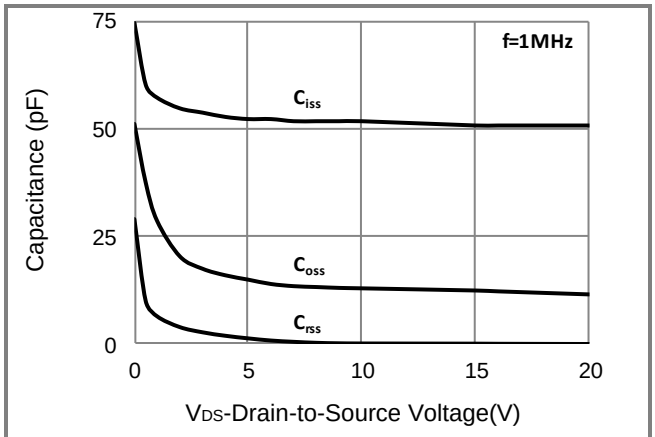


Fig.10 Capacitance vs. Drain-Source Voltage

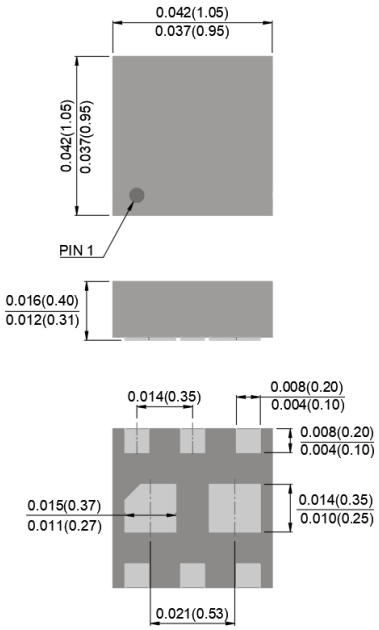
PJQ1820U-20V

Part No. Packing Code Version

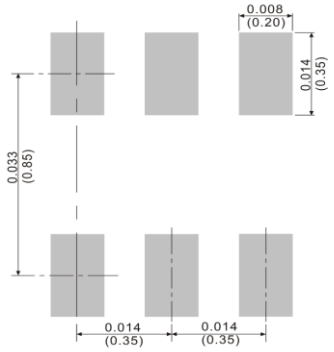
Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ1820U-20V_R1_00201	DFN1010B-6L	5K pcs / 7" reel	20	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout

DFN1010B-6L Dimension — Unit: inch(mm)



DFN1010B-6L Pad Layout — Unit: inch(mm)



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