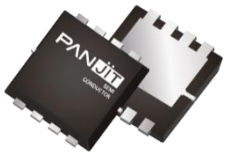
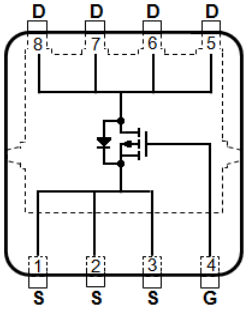
PJQ4425DP

20V P-Channel Enhancement Mode MOSFET

Voltage	-20 V	Current	-43 A

DFN3333-8L





Features

- $R_{DS(ON)}$, V_{GS}@-4.5V, I_D@-6A<10.5mΩ
- $R_{DS(ON)}$, V_{GS}@-2.5V, I_D@-4A<15mΩ
- $R_{DS(ON)}$, V_{GS}@-1.8V, I_D@-2A<24mΩ
- Low $R_{DS(ON)}$
- High current rating
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : DFN3333-8L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.03 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}	±10	
Continuous Drain Current(Note 4)	T_A=25°C	I_D	-13	A
	T_A=70°C		-11	
Pulsed Drain Current(Note 1)	T_A=25°C	I_{DM}	-85	
Power Dissipation	T_A=25°C	P_D	2.8	W
	T_A=70°C		1.8	
Continuous Drain Current(Note 4)	T_C=25°C	I_D	-43	A
	T_C=100°C		-27	
Power Dissipation	T_C=25°C	P_D	30	W
	T_C=100°C		12	
Single Pulse Avalanche Energy(Note 6)		E_{AS}	37	mJ
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	°C
Typical Thermal Resistance(Note 5)	Junction to Case	$R_{\theta JC}$	4.2	°C/W
	Junction to Ambient	$R_{\theta JA}$	45	

PJQ4425DP

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	-0.5	-0.77	-1.1	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-6A	-	8.5	10.5	mΩ
		V_{GS}=-2.5V, I_D=-4A	-	11	15	
		V_{GS}=-1.8V, I_D=-2A	-	18	24	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V	-	-	±100	nA
Dynamic(Note 7)						
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-6A, V_{GS}=-4.5V(Note 2,3)	-	29	-	nC
Gate-Source Charge	Q_{gs}		-	3.4	-	
Gate-Drain Charge	Q_{gd}		-	7.3	-	
Input Capacitance	Ciss	V_{DS}=-15V, V_{GS}=0V, f=1.0MHZ	-	2736	-	pF
Output Capacitance	Coss		-	242	-	
Reverse Transfer Capacitance	Crss		-	180	-	
Gate resistance	R_g	f=1.0MHZ	-	6	-	Ω
Turn-On Delay Time	$td_{(on)}$	V_{DD}=-10V, I_D=-6A, V_{GS}=-4.5V, R_G=25Ω (Note 2,3)	-	29	-	ns
Turn-On Rise Time	t_r		-	102	-	
Turn-Off Delay Time	$td_{(off)}$		-	277	-	
Turn-Off Fall Time	t_f		-	142	-	
Drain-Source Diode						
Diode Forward Current	I_S	---	-	-	-45	A
Diode Forward Voltage	V_{SD}	I_S=-1A,V_{GS}=0V	-	-0.6	-1.0	V
Reverse Recovery Time	Trr	V_{GS}=0V, I_S=-6A dIs/dt=100A/us	-	12	-	ns
Reverse Recovery Charge	Qrr		-	1.5	-	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.The test condition is L=0.1mH, I_{AS}=-27A, V_{DD}=-15V, R_G=25 ohm, Starting T_J=25℃.

7.Guaranteed by design, not subject to production testing.

PJQ4425DP

TYPICAL CHARACTERISTIC CURVES

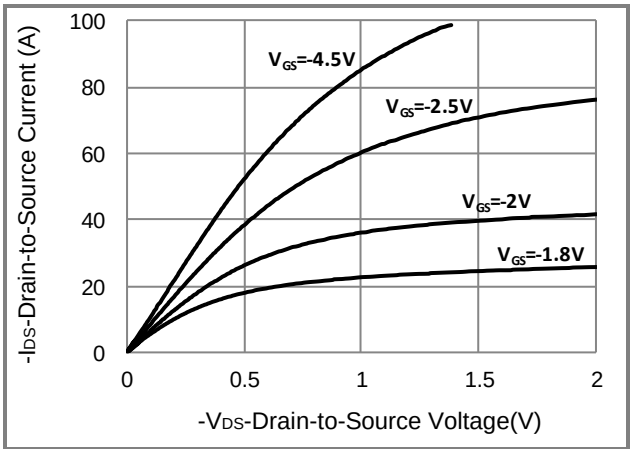


Fig.1 Output Characteristics

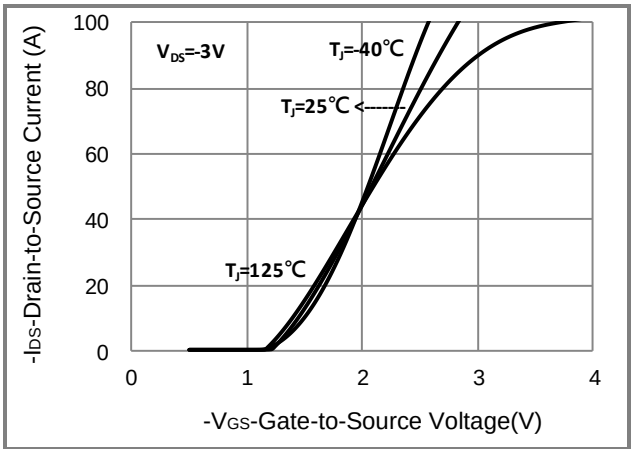


Fig.2 Transfer Characteristics

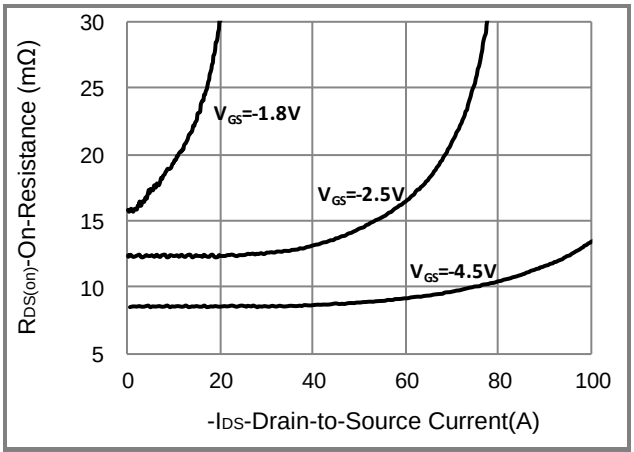


Fig.3 On-Resistance vs. Drain Current

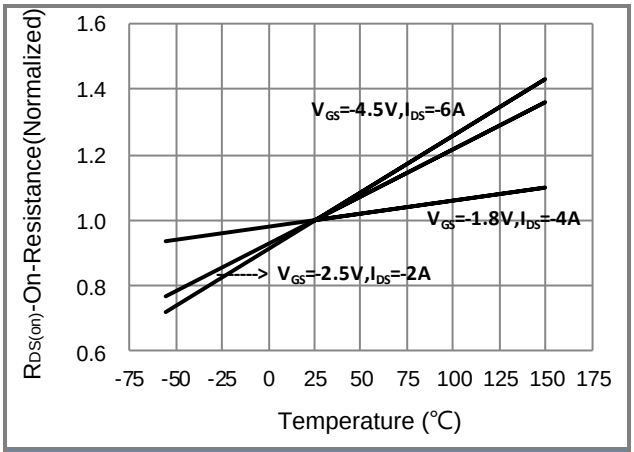


Fig.4 On-Resistance vs. Junction temperature

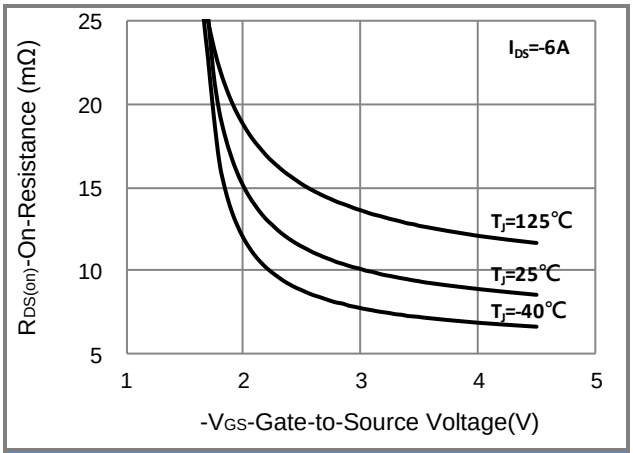


Fig.5 On-Resistance Variation with V_{GS}

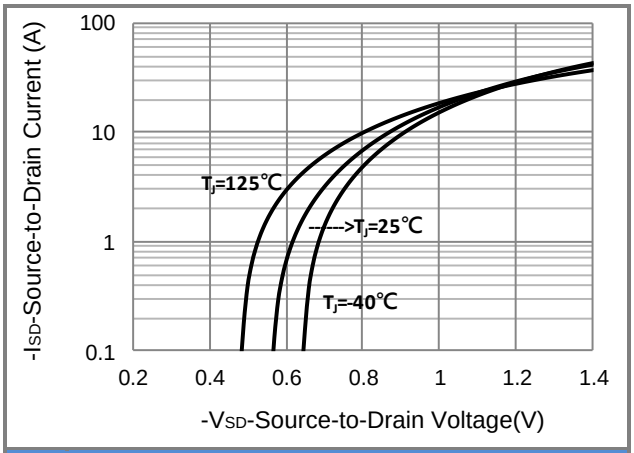


Fig.6 Source-Drain Diode Forward Voltage

PJQ4425DP

TYPICAL CHARACTERISTIC CURVES

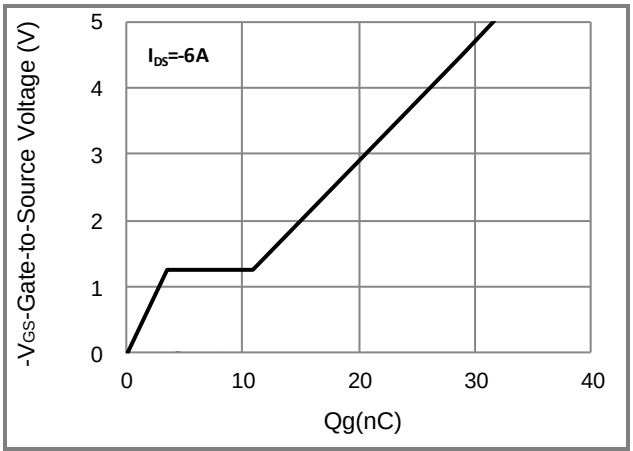


Fig.7 Gate-Charge Characteristics

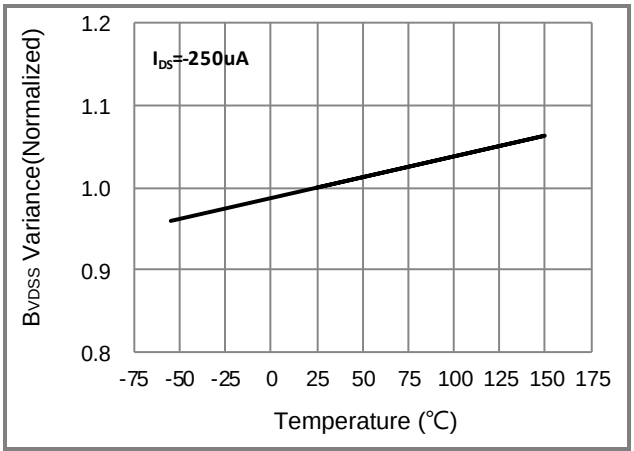


Fig.8 Breakdown Voltage Variation vs. Temperature

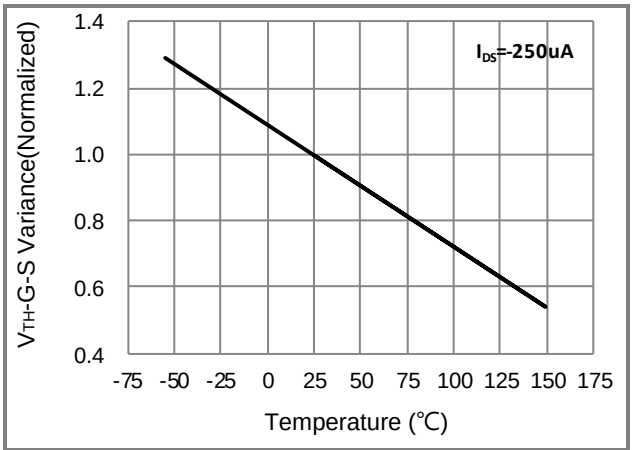


Fig.9 Threshold Voltage Variation with Temperature

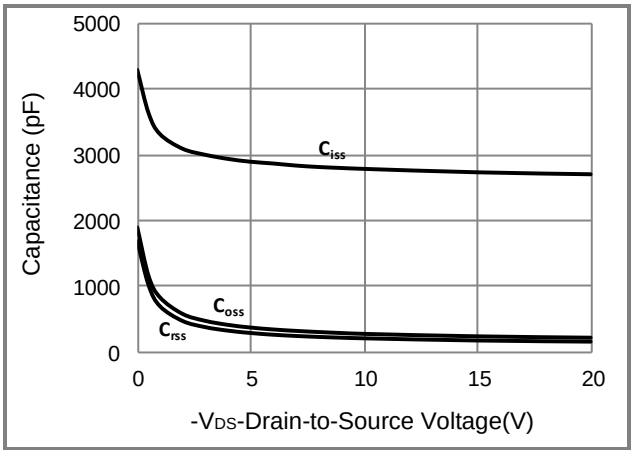


Fig.10 Capacitance vs. Drain-Source Voltage

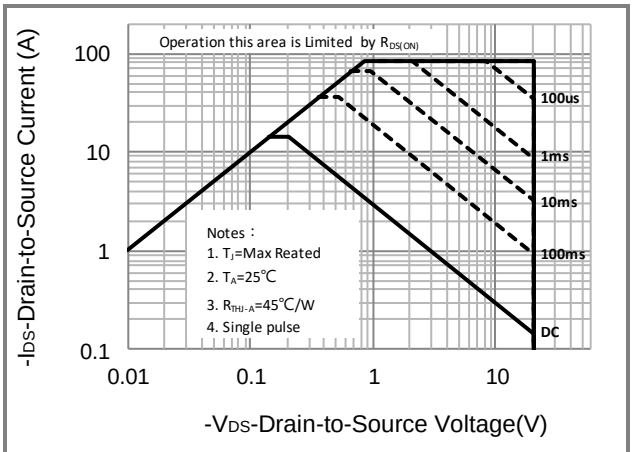


Fig.11 Maximum Safe Operating Area

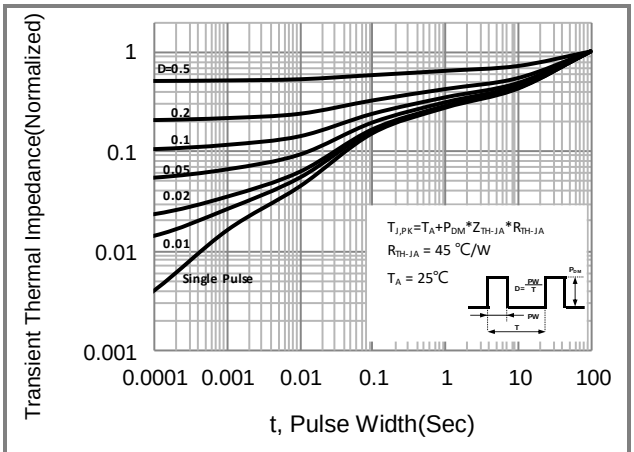


Fig.12 Normalized Transient Thermal Impedance

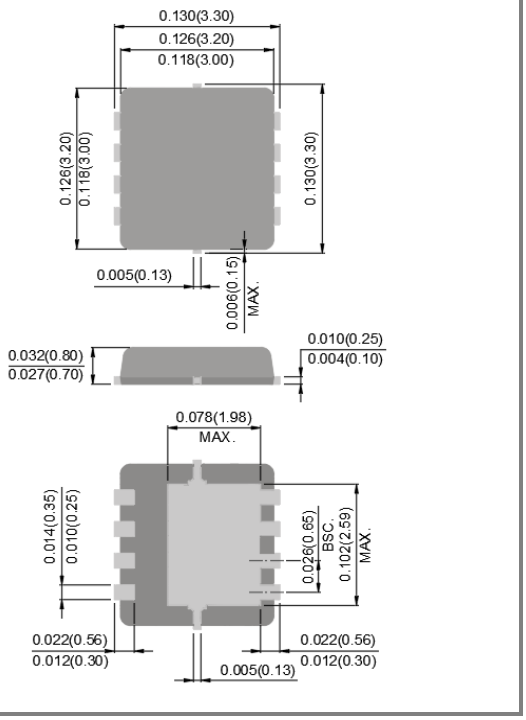
PJQ4425DP

Part No. Packing Code Version

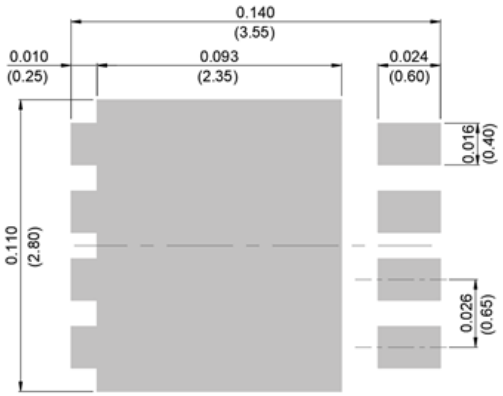
Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ4425DP_R2_00001	DFN3333-8L	5K pcs / 13” reel	4425	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout

DFN3333-8L Dimension — Unit: inch(mm)



DFN3333-8L Pad Layout — Unit: inch(mm)



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