

PJQ4407P

30V P-Channel Enhancement Mode MOSFET

Voltage **-30 V** **Current** **-30 A**

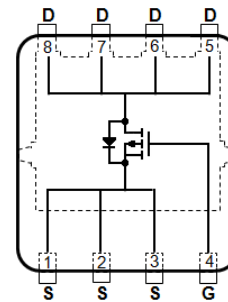
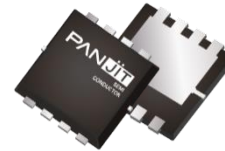
Features

- $R_{DS(ON)}$, $V_{GS}@-10V, I_D@-8A < 20m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V, I_D@-6A < 32m\Omega$
- High switching speed
- Improved dv/dt capability
- Low gate charge
- Low reverse transfer capacitance
- 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

DFN3333-8L



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	+20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D	-30	A
	$T_C=100^\circ\text{C}$		-19	
Pulsed Drain Current ^(Note 1)	$T_C=25^\circ\text{C}$	I_{DM}	-120	
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	27	W
	$T_C=100^\circ\text{C}$		11	
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	-8.5	A
	$T_A=70^\circ\text{C}$		-6.9	
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	2.0	W
Power Dissipation	$T_A=70^\circ\text{C}$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal Resistance <small>(Note 4,5)</small>	Junction to Case	$R_{\theta JC}$	4.6	$^\circ\text{C/W}$
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature

PJQ4407P

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	-30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1	-1.5	-2.5	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-8A	-	17	20	mΩ
		V _{GS} =-4.5V, I _D =-6A	-	26	32	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1.0	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} =-15V, I _D =-5A, V _{GS} =-4.5V(Notes 1,2)	-	11	-	nC
Gate-Source Charge	Q _{gs}		-	3.2	-	
Gate-Drain Charge	Q _{gd}		-	3.9	-	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1.0MHZ	-	1169	-	pF
Output Capacitance	C _{oss}		-	180	-	
Reverse Transfer Capacitance	C _{rss}		-	132	-	
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15V, I _D =-1A, V _{GS} =-10V, R _G =6Ω (Note 1,2)	-	5.9	-	ns
Turn-On Rise Time	t _r		-	33	-	
Turn-Off Delay Time	t _{d(off)}		-	55	-	
Turn-Off Fall Time	t _f		-	34	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S	---	-	-	-30	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V	-	-0.73	-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. The maximum current rating is package limited.
5. R_{θJA} 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.

PJQ4407P

TYPICAL CHARACTERISTIC CURVES

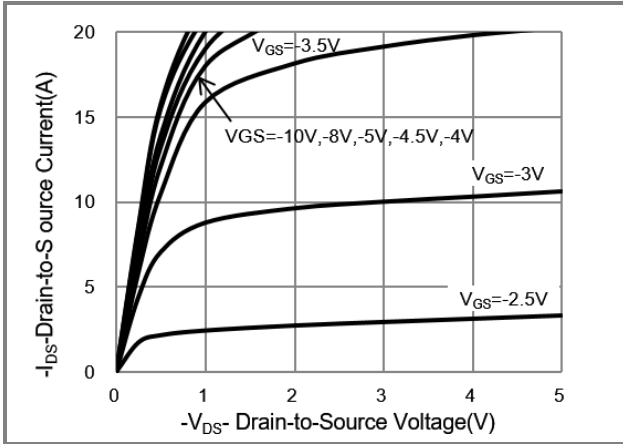


Fig.1 On-Region Characteristics

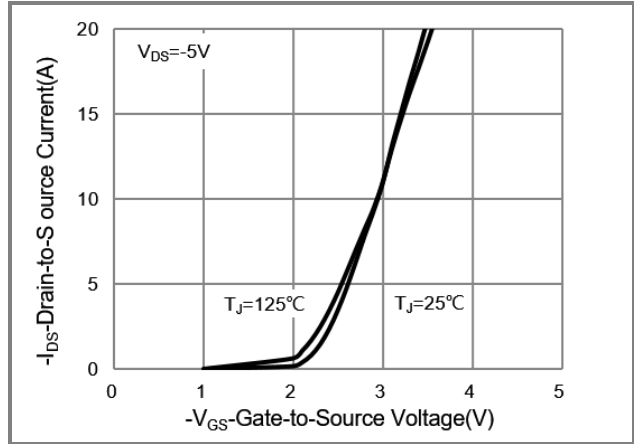


Fig.2 Transfer Characteristics

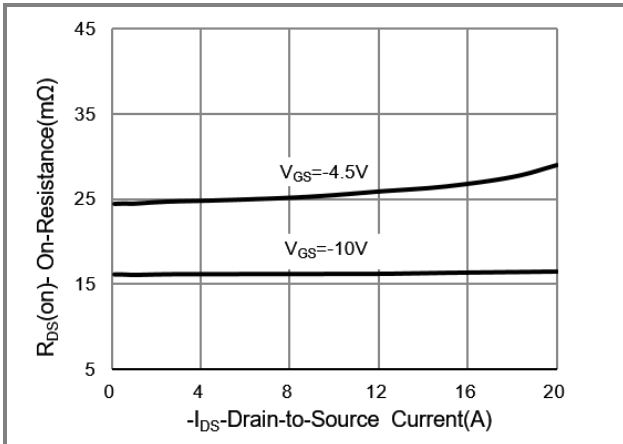


Fig.3 On-Resistance vs. Drain Current

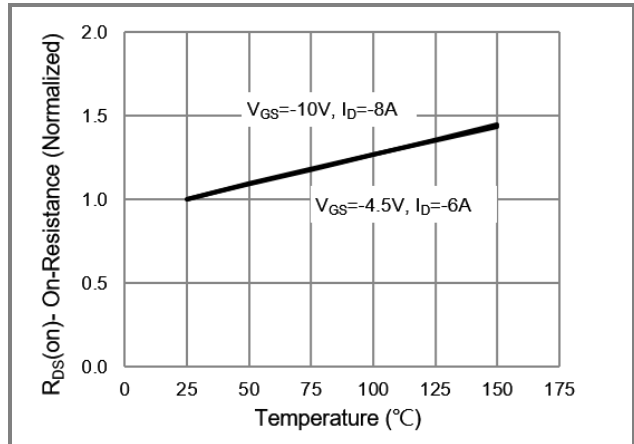


Fig.4 On-Resistance vs. Junction temperature

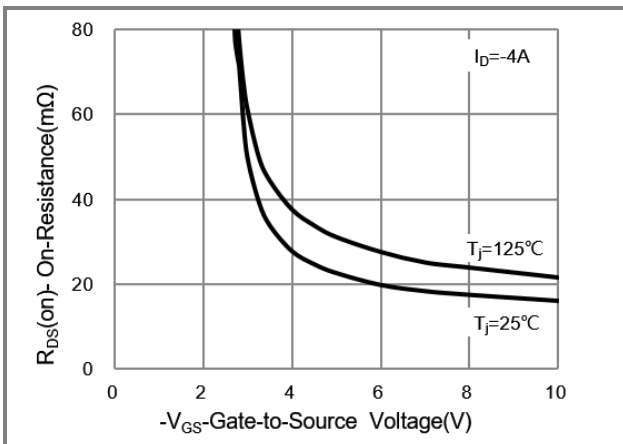


Fig.5 On-Resistance Variation with VGS.

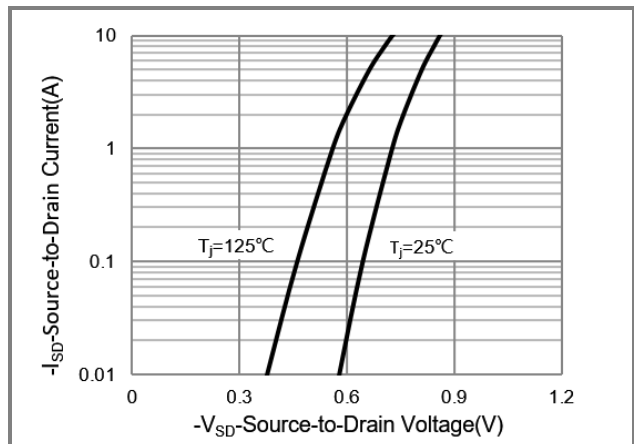


Fig.6 Source-Drain Diode Forward Voltage

PJQ4407P

TYPICAL CHARACTERISTIC CURVES

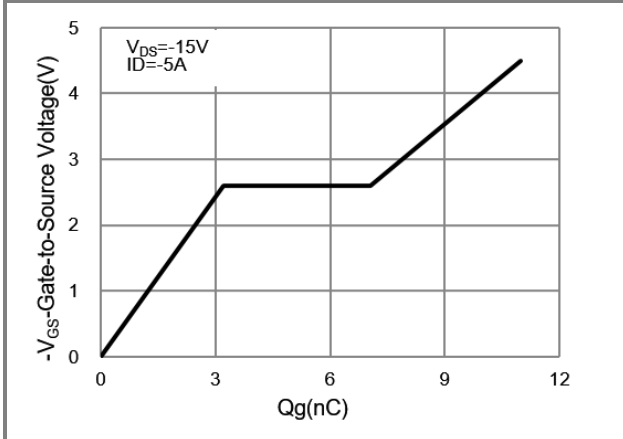


Fig.7 Gate-Charge Characteristics

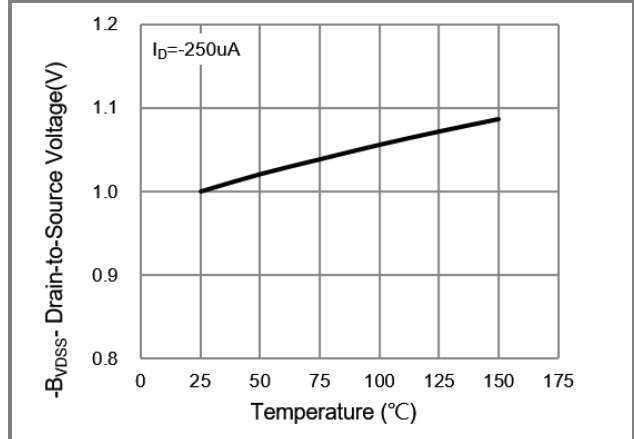


Fig.8 Breakdown Voltage Variation vs. Temperature.

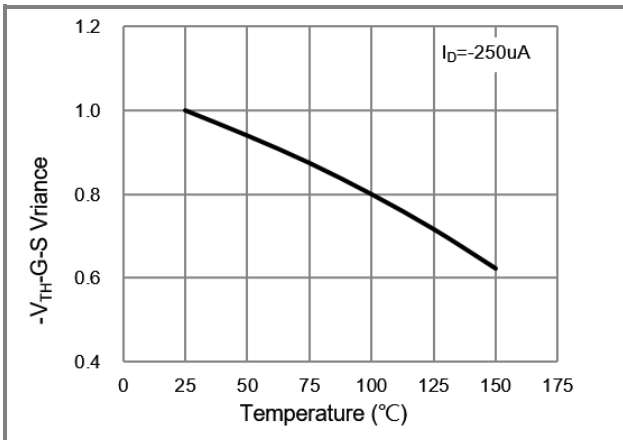


Fig.9 Threshold Voltage Variation with Temperature

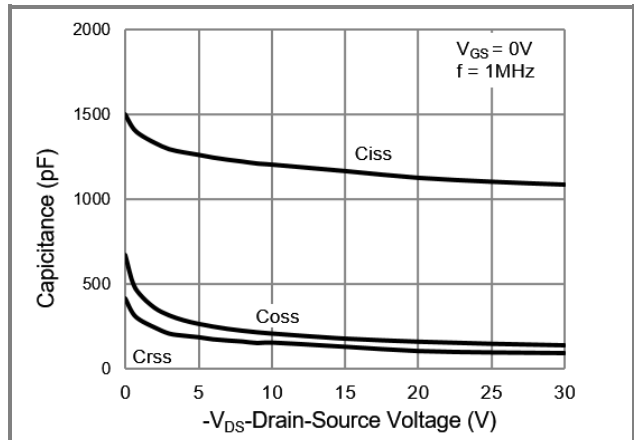


Fig.10 Capacitance vs. Drain-Source Voltage

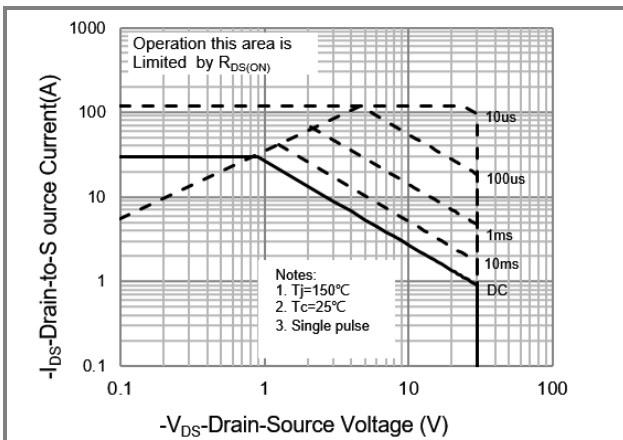


Fig.11 Maximum Safe Operating Area

PJQ4407P

TYPICAL CHARACTERISTIC CURVES

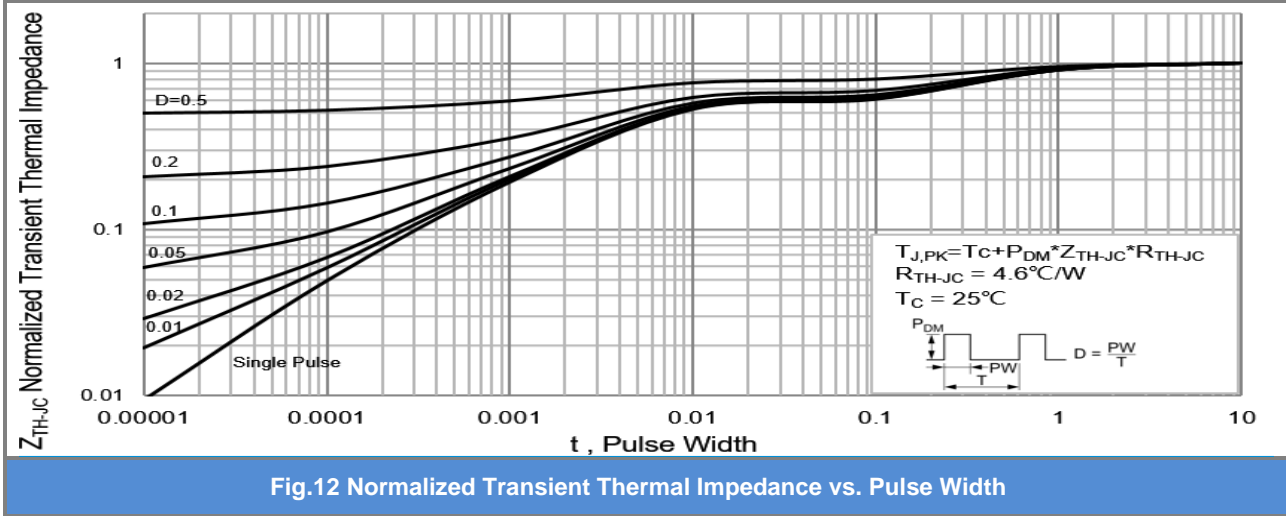


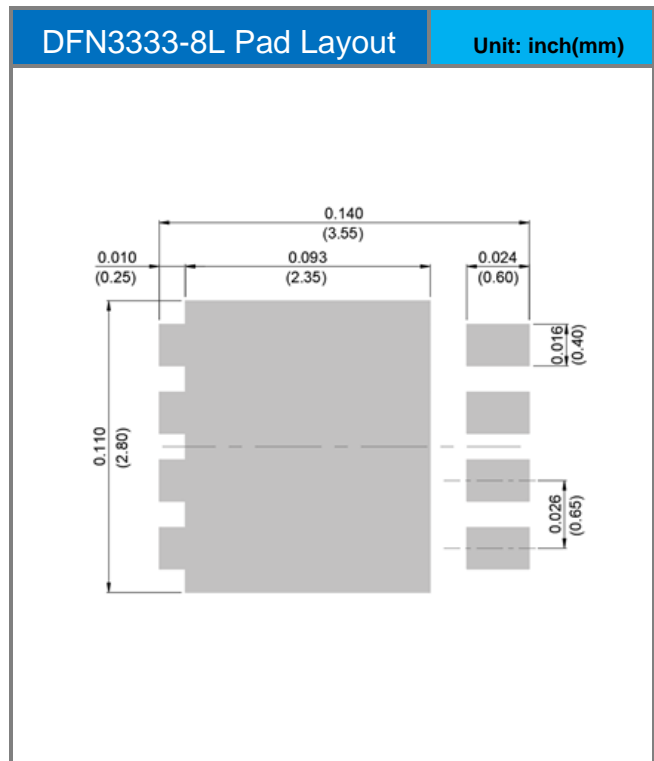
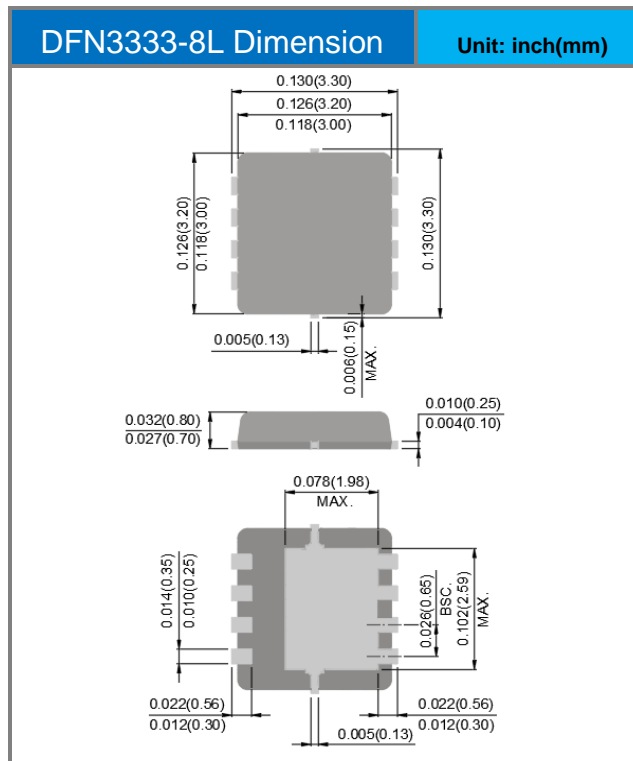
Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

PJQ4407P

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ4407P_R2_00001	DFN3333-8L	5K pcs / 13" reel	4407	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout



PJQ4407P

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