PJQ4404P-AU

30V N-Channel Enhancement Mode MOSFET

| **Voltage** | **30 V** | **Current** | **60 A** |

DFN3333-8L

Features

- $R_{DS(ON)}$, V_{GS}@10V, I_D@10A<6mΩ
- $R_{DS(ON)}$, V_{GS}@4.5V, I_D@8A<9mΩ
- High switching speed
- Improved dv/dt capability
- Low gate charge
- Low reverse transfer capacitance
- AEC-Q101 qualified
- 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 : 0.001 ounces, 0.03 grams
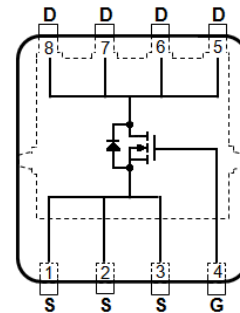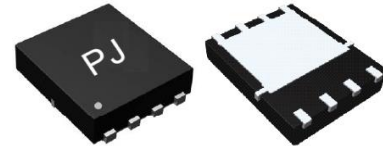
Maximum Ratings and Thermal Characteristics (T$_A$=25°C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	$\pm$20	V
Continuous Drain Current	T$_C$=25°C	I_D	60	A
	T$_C$=100°C		38	
Pulsed Drain Current(Note 1)	T$_C$=25°C	I_{DM}	240	
Power Dissipation	T$_C$=25°C	P_D	31	W
	T$_C$=100°C		12.4	
Continuous Drain Current	T$_A$=25°C	I_D	15	A
	T$_A$=70°C		12	A
Power Dissipation	T$_A$=25°C	P_D	2.0	W
Power Dissipation	T$_A$=70°C		1.3	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55~150	^{o}C
Typical Thermal Resistance(Note 4,5)	Junction to Case	$R_{\theta JC}$	4.0	^{o}C/W
	Junction to Ambient	$R_{\theta JA}$	62.5	

- Limited only By Maximum Junction Temperature

Electrical Characteristics $(T_A=25^{\circ}C$ 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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250uA$	1.0	1.6	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	-	5	6	mΩ
		$V_{GS}=4.5V, I_D=8A$	-	6.6	9	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1.0	uA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm20V, V_{DS}=0V$	-	-	±100	nA
Dynamic[6]						
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=20A,$ $V_{GS}=4.5V$[1,2]	-	12	-	nC
Gate-Source Charge	Q_{gs}		-	3.8	-	
Gate-Drain Charge	Q_{gd}		-	4.3	-	
Input Capacitance	Ciss	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0MHZ$	-	1323	-	pF
Output Capacitance	Coss		-	219	-	
Reverse Transfer Capacitance	Crss		-	136	-	
Turn-On Delay Time	$td_{(on)}$	$V_{DS}=15V, RL=1\Omega,$ $V_{GS}=10V, R_G=3.3\Omega$ (Note 2,3)	-	5.0	-	ns
Turn-On Rise Time	t_r		-	42	-	
Turn-Off Delay Time	$td_{(off)}$		-	36	-	
Turn-Off Fall Time	t_f		-	5.5	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	-	-	60	A
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V$	-	0.83	1	V

NOTES :

1. Pulse width$\leq$300us, Duty cycle$\leq$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. $R_{\Theta JA}$ 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.

TYPICAL CHARACTERISTIC CURVES

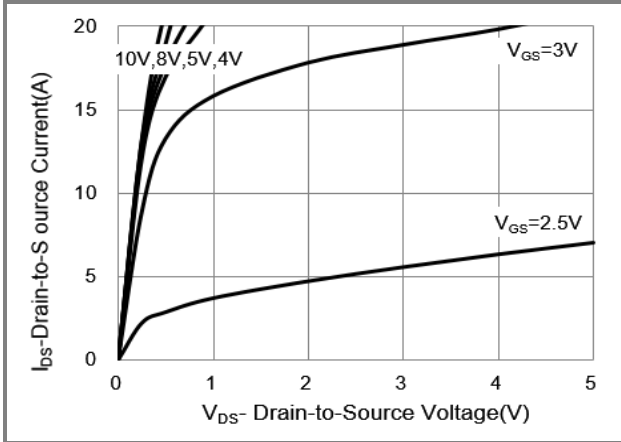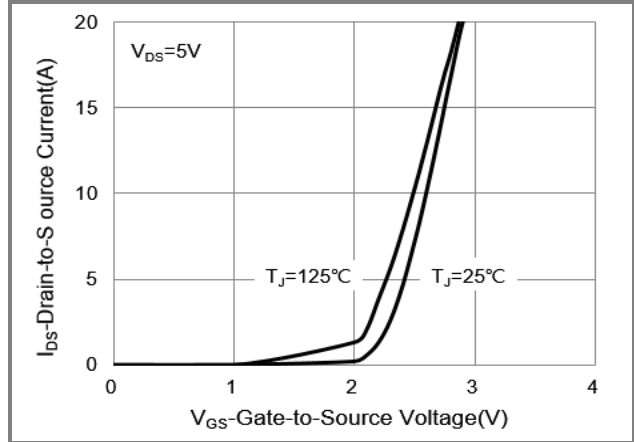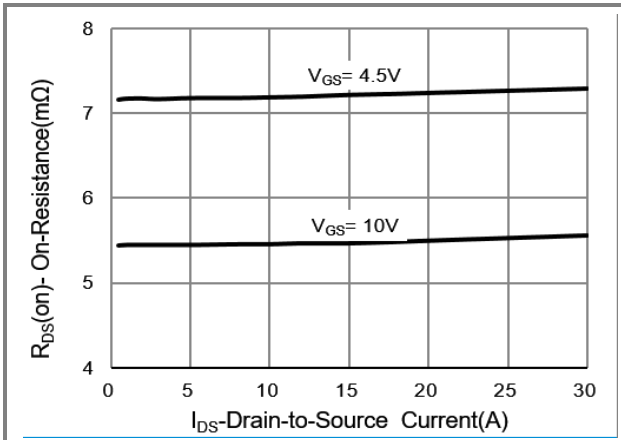**Fig.1 On-Region Characteristics**

Fig.2 Transfer Characteristics
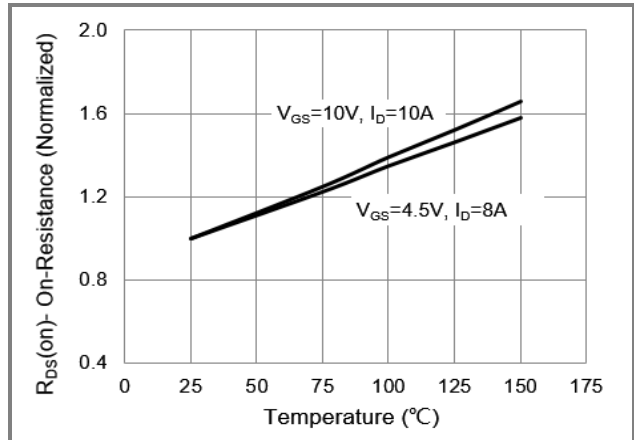
Fig.3 On-Resistance vs. Drain Current

Fig.4 On-Resistance vs. Junction temperature
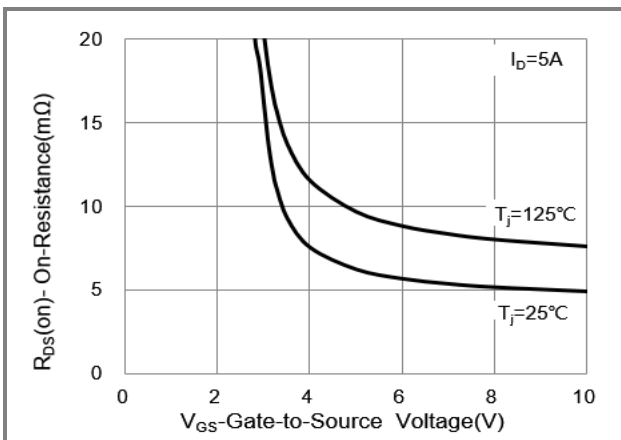
Fig.5 On-Resistance Variation with VGS.

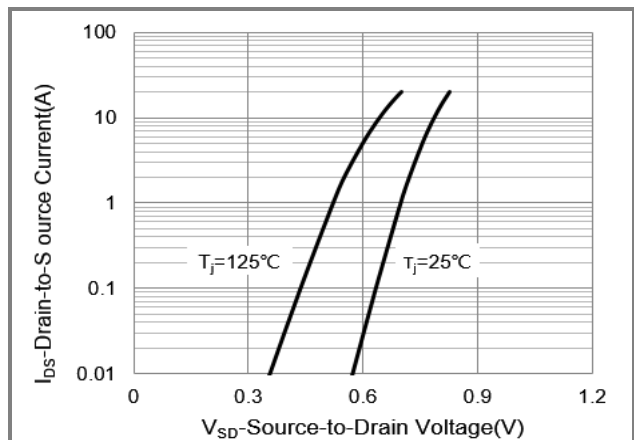**Fig.6 Source-Drain Diode Forward Voltage**
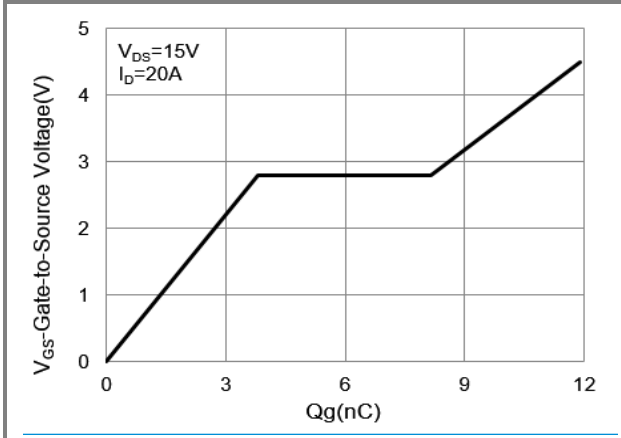
TYPICAL CHARACTERISTIC CURVES

V_{DS}=15V
I_D=20A

V_{GS}-Gate-to-Source Voltage(V)

Qg(nC)

Fig.7 Gate-Charge Characteristics

I_D=250uA

BVDSS- Drain-to-Source Voltage(V)
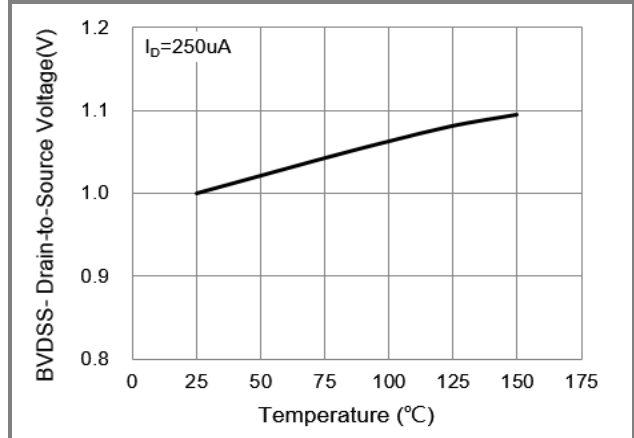
Temperature (℃)

Fig.8 Breakdown Voltage Variation vs. Temperature.

I_D=250uA

V_{TH}-G-S Vriance
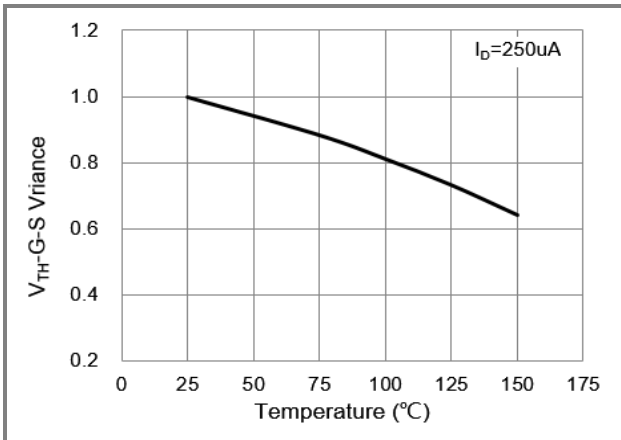
Temperature (℃)

Fig.9 Threshold Voltage Variation with Temperature

V_{GS} = 0V
f = 1MHz

Capicitance (pF)

Ciss

Coss

Crss

V_{DS}-Drain-Source Voltage (V)
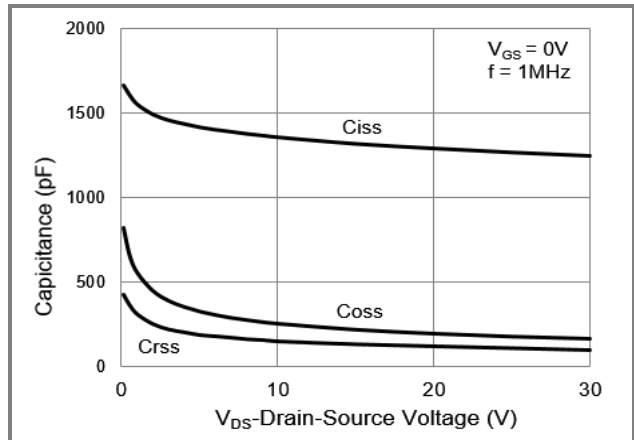
Fig.10 Capacitance vs. Drain-Source Voltage.

Operation this area is Limited by $R_{DS(ON)}$

I_{DS}-Drain-to-Source Current(A)

10us
100us
1ms
10ms
DC

Notes:
1. Tj=150℃
2. Tc=25℃
3. Single pulse

V_{DS}-Drain-Source Voltage (V)
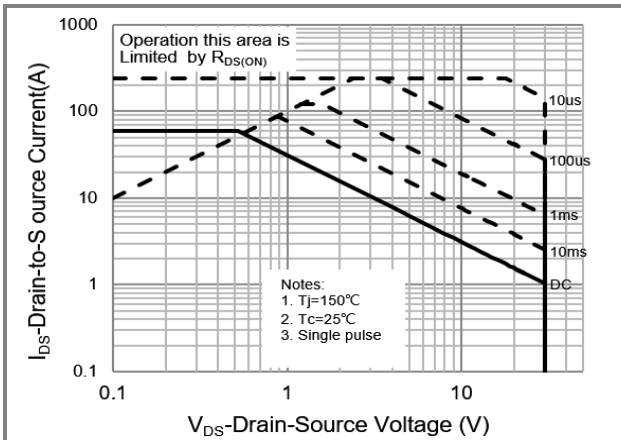
Fig.11 Maximum Safe Operating Area

TYPICAL CHARACTERISTIC CURVES

$$T_{J,PK} = T_C + P_{DM} * Z_{TH-JC} * R_{TH-JC}$$
$$R_{TH-JC} = 4.0°C/W$$
$$T_C = 25°C$$

$$D = \frac{PW}{T}$$

Fig.12 Normalized Transient Thermal Impedance vs. Pulse Width

PJQ4404P-AU

Part No. Packing Code Version

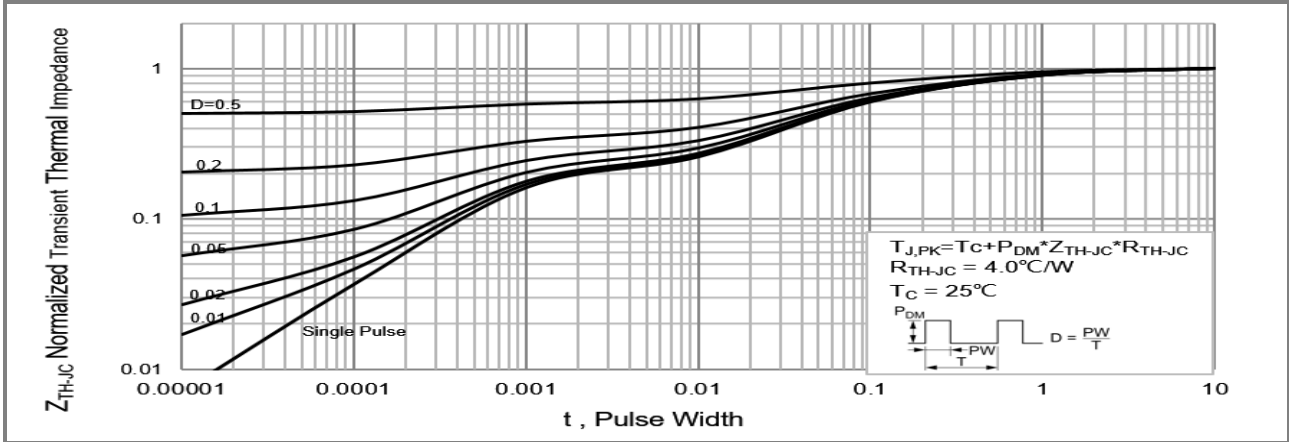| Part No. Packing Code	Package Type	Packing Type	Marking	Version
PJQ4404P-AU_R2_000A1	DFN3333-8L	5K pcs / 13" reel	4404	Halogen free RoHS compliant

Packaging Information & Mounting Pad Layout

DFN3333-8L Dimension	Unit: inch(mm)

0.130(3.30)
0.126(3.20)
0.118(3.00)

0.126(3.20)
0.118(3.00)

0.130(3.30)

0.005(0.13)

0.006(0.15) MAX.

0.032(0.80)
0.027(0.70)

0.010(0.25)
0.004(0.10)

0.078(1.98) MAX.

0.014(0.35)
0.010(0.25)

0.026(0.65) BSC.
0.102(2.59) MAX.

0.022(0.56)
0.012(0.30)

0.022(0.56)
0.012(0.30)

0.005(0.13)

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

0.140
(3.55)

0.010
(0.25)

0.093
(2.35)

0.024
(0.60)

0.016
(0.40)

0.110
(2.80)

0.026
(0.65)
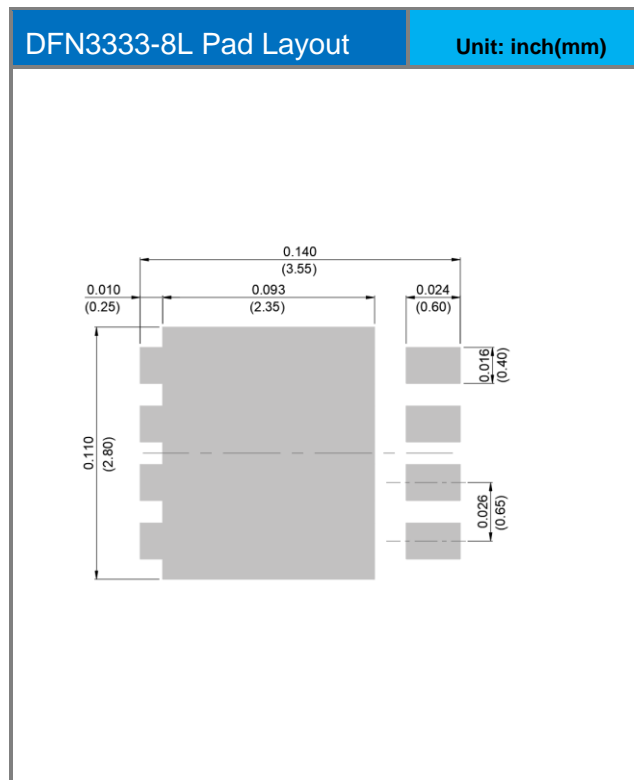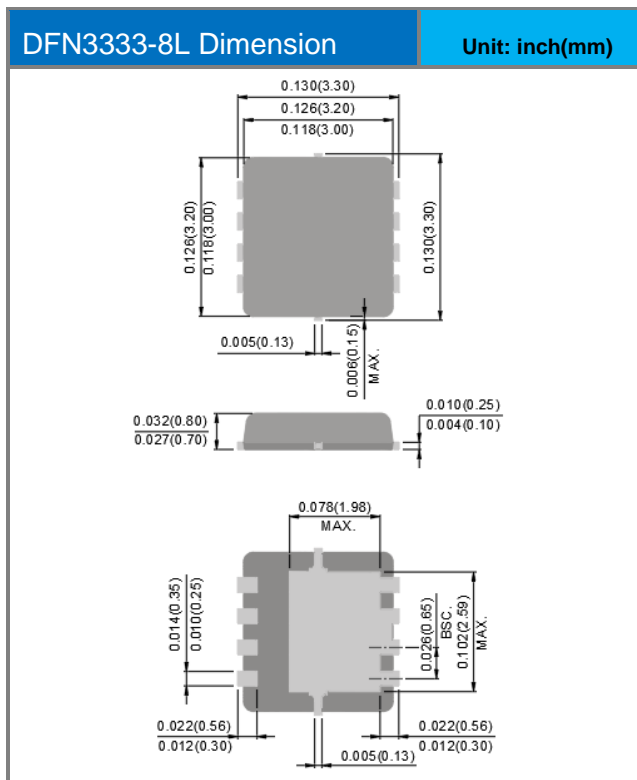
Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..

- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

- The products shown herein are not designed and authorized for equipments relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.

- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.

单击下面可查看定价，库存，交付和生命周期等信息

[>>Panjit(强茂)](#)