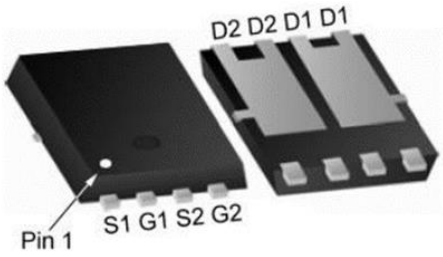
Description

The MOSFET provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use as a wide variety of applications.

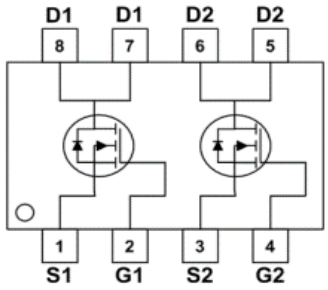
MOSFET Product Summary		
V_{DS}(V)	$R_{DS(on)}$(mΩ)	I_D(A)
30	<15@ V_{GS}=10V	12
	<20@ V_{GS}=4.5V	



PDFN3.3*3.3-8L

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Schematic diagram

Absolute maximum ratings @ T_A=25℃(unless otherwise specified)

Parameter	Symbol	Typ	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current- Continuou	I_D	12	A
Drain Current- Continuous(T_C=70℃)	I_D	9	A
Pulse Drain Curren	I_{DM}	48	A
Maximum Power Dissipation	P_D	1.7	W
Operating Junction and Storage Temperature Range(1)	T_J, T_{STG}	-55 to 150	℃

Thermal Characteristic

Parameter	Symbol	Typ	Units
Thermal Resistance, Junction to Ambient(2)	$R_{\theta JA}$	75	℃/W

Electrical characteristics per line @25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
On Characteristics(3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=8A	11	12	15	mΩ
		V_{GS}=4.5V, I_D=6A	14	15.5	20	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=8A	-	24	-	S
Dynamic Characteristics(4)						
Input Capacitance	C_{lss}	V_{DS}=15V, V_{GS}=0V, F=1.0MHz	-	980	-	PF
Output Capacitance	C_{oss}		-	131	-	PF
Reverse Transfer Capacitance	C_{rss}		-	109	-	PF
Switching Characteristics(4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=8A, V_{GEN}=4.5V,R_G=1.5Ω	-	4.2	-	nS
Turn-on Rise Time	t_r		-	8.2	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	31	-	nS
Turn-Off Fall Time	t_f		-	4	-	nS
Total Gate Charge	Q_g	V_{DS}=15V, I_D=8A, V_{GS}=4.5V	-	9.63	-	nC
Gate-Source Charge	Q_{gs}		-	3.88	-	nC
Gate-Drain Charge	Q_{gd}		-	3.44	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage(3)	V_{SD}	V_{GS}= 0V, I_S= 20A	-	-	1	V
Diode Forward Current(2)	I_S	-	-	-	9	A

Notes 1. Repetitive Rating: Pulse with limited by maximum junction temperature.

Notes 2. Surface mounted on FR4 board, t≤10sec.

Notes 3. Pulse test: Pulse width<=300us, duty cycle≤2%.

Notes 4. Guaranteed by design, not subject to production.

Typical Characteristics

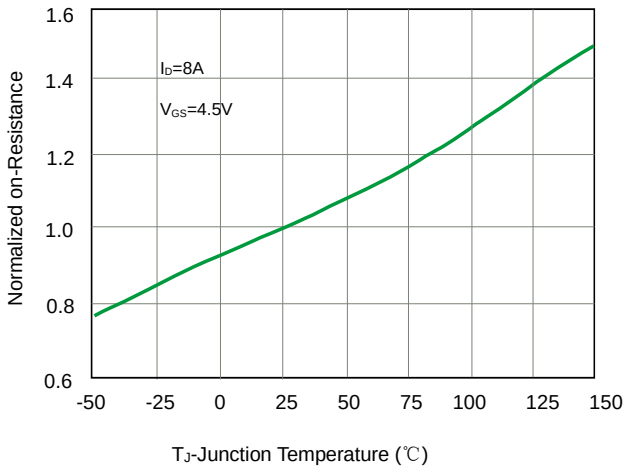


Fig.1 Rdson-Junction Temperature

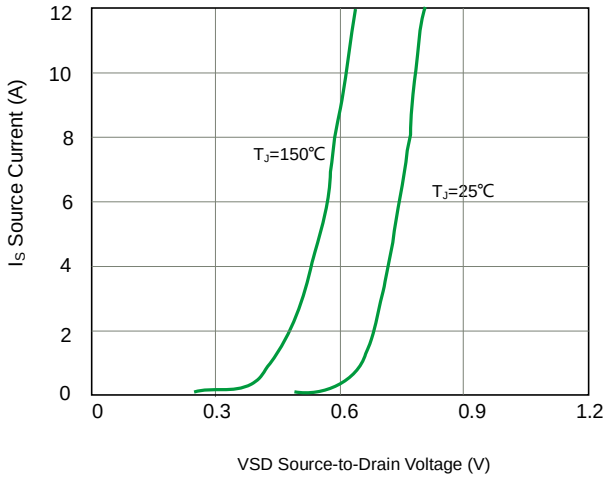


Fig.2 Transfer Characteristics

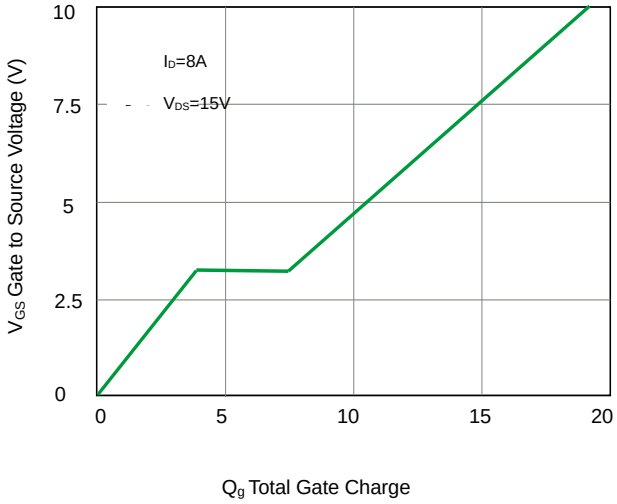


Fig.3 Gate Charge

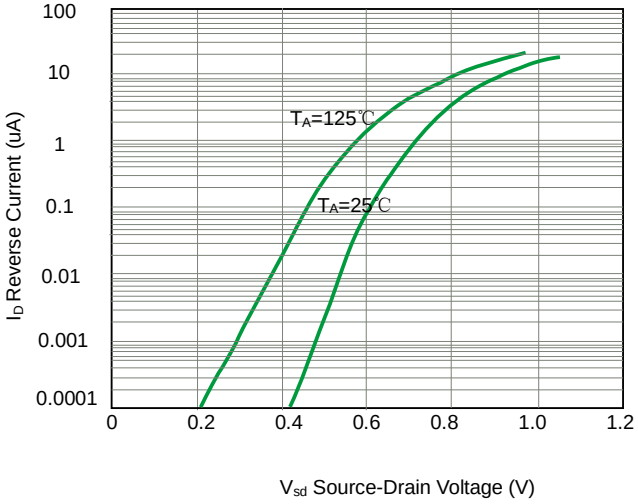


Fig.4 Source-Drain Diode Forward

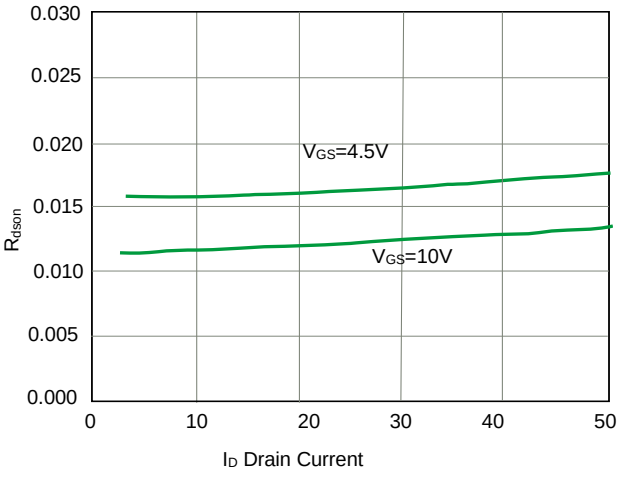


Fig.5 Rdson vs I_D

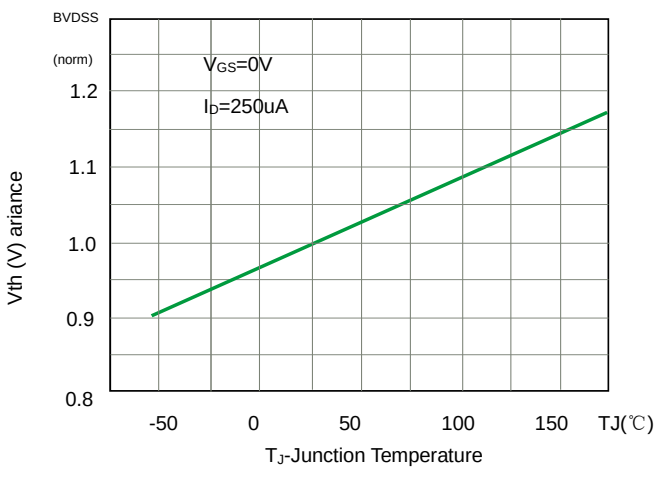


Fig.6 BV_{DSS} VS Junction Temperature

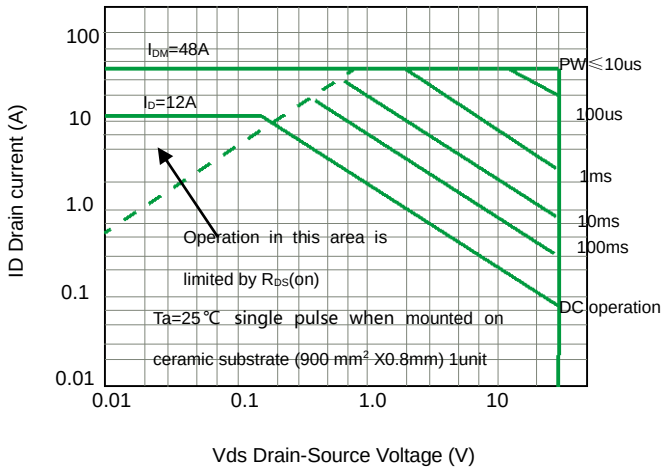


Fig.7 Safe Operation Area

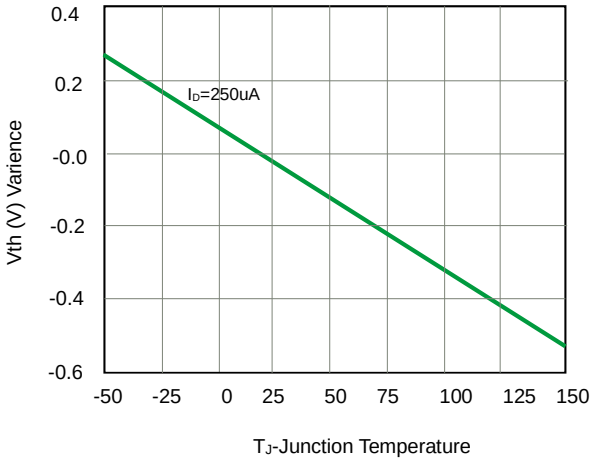


Fig.8 $V_{GS(th)}$ vs Junction Temperature

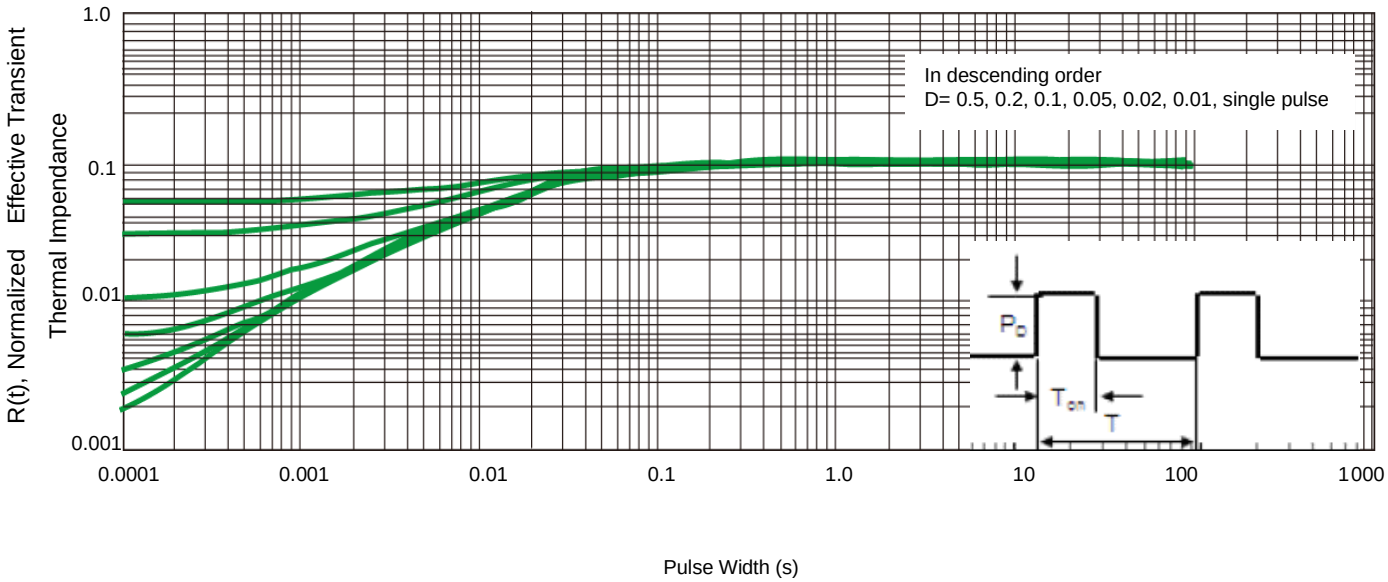
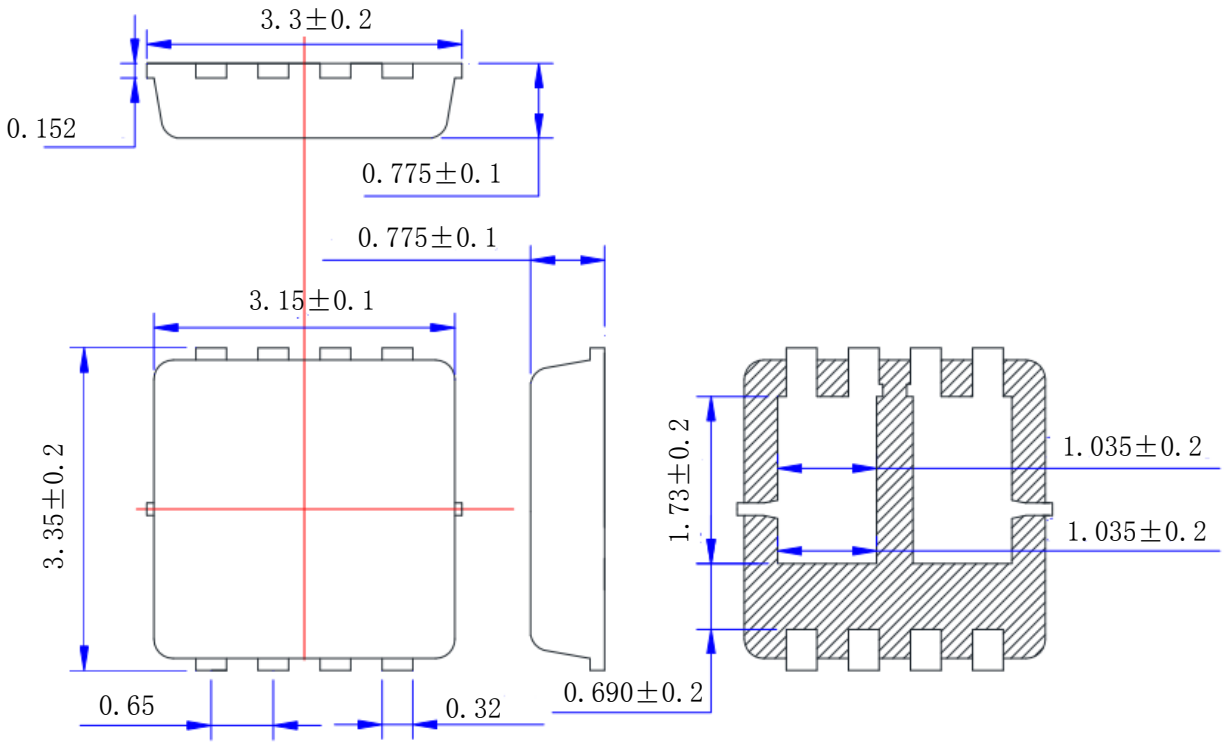


Figure 9. Normalized Maximum Transient Thermal Impedance

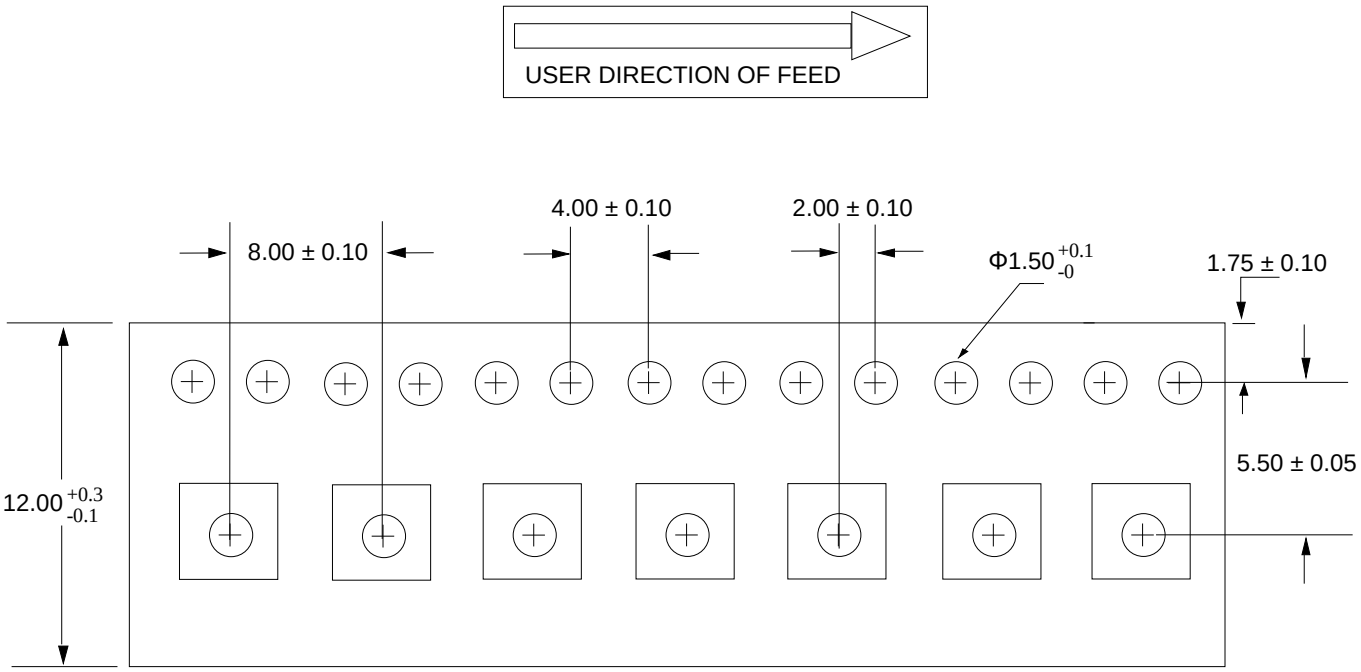
Product dimension (PDFN3.3*3.3-8L)



Ordering information

Device	Package	Reel	MPQ
PDNM8PN30V12	PDFN 3.3*3.3-8L (Pb-Free)	13"	5000 / Tape & Reel

Load with information



Unit：mm

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