

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	8mΩ@-10V	-40A
	9.5mΩ@-6V	
	11mΩ@-4.5V	

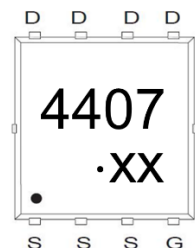
Feature

- High cell density trench P-ch MOSFETs
- Super low gate charge
- Advanced high cell density Trench technology

Application

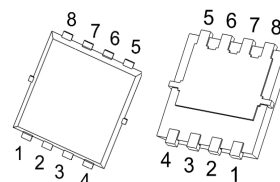
- Battery protection applications
- Load switch

MARKING:

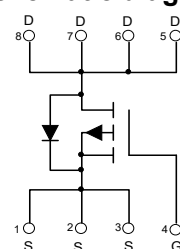


4407 = Device code
Solid dot = Pin1 indicator
Solid Dot = Green Molding Compound Device
XX = Date Code

PDFN3.3X3.3-8L



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ¹	I_D	-40	A
Pulsed Drain Current ²	I_{DM}	-160	A
Power Dissipation ³	P_D	30	W
Thermal Resistance from Junction to Ambient ⁴	$R_{\theta JA}$	55	°C/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	4.2	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-3.0	V
Drain-Source On-Resistance ²	R _{DS(on)}	V _{GS} = -10V, I _D = -12A		8	13	mΩ
		V _{GS} = -6V, I _D = -10A		9.5	15	
		V _{GS} = -4.5V, I _D = -8A		11	22	
Forward Tranconductance	g _{FS}	V _{DS} = -5V, I _D = -15A		30		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		3900		pF
Output Capacitance	C _{oss}			390		
Reverse Transfer Capacitance	C _{rss}			340		
Gate Resistance	R _g	f = 1MHz, V _{DS} = 0V, V _{GS} = 0V			10	Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -10A		62		nC
Gate-Source Charge	Q _{gs}			16		
Gate-Drain Charge	Q _{gd}			18		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _G = 3Ω, R _L = 1.25Ω		20		ns
Turn-On Rise Time	t _r			14		
Turn-Off Delay Time	t _{d(off)}			57		
Turn-Off Fall Time	t _f			27		
Source-Drain Diode Characteristics						
Continuous Source Current ⁵	I _S	V _G = V _D = 0V, Force Current			-40	A
Pulsed Source Current ⁵	I _{SM}				-160	
Diode Forward Voltage ²	V _{SD}	V _{GS} = 0V, I _S = -2A			-1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 3.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.
- 4.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.
- 5.The Data is theoretically the same as I_D and I_{DM}.In real applications,it will be limited by total power

Output Characteristics

$T_A = 25^\circ\text{C}$
Pulsed

$V_{GS} = -2.7\text{V}, -3\text{V}, -4.5\text{V}, -10\text{V}$

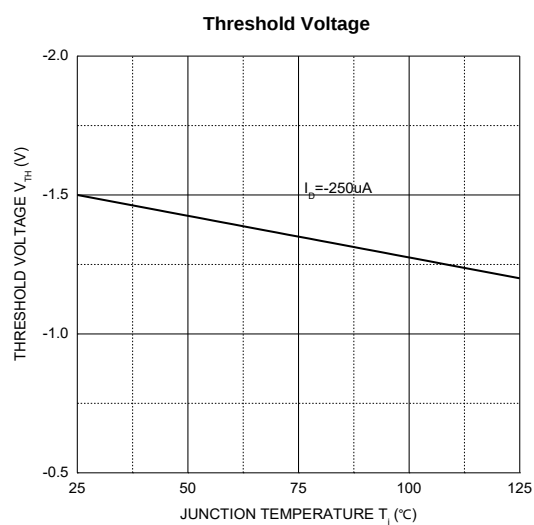
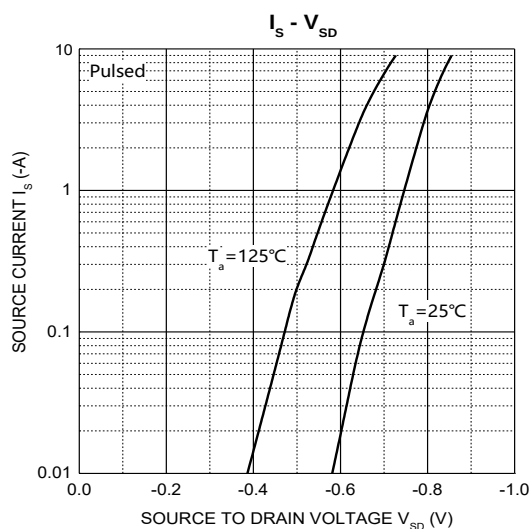
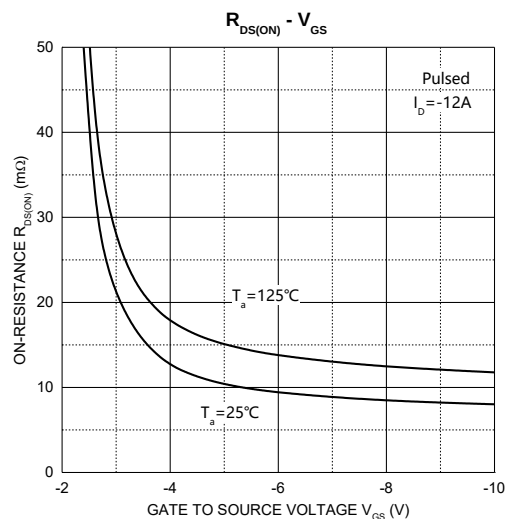
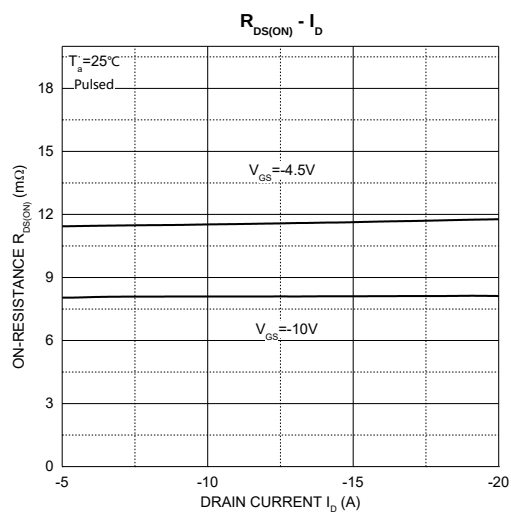
$V_{GS} = -2.5\text{V}$

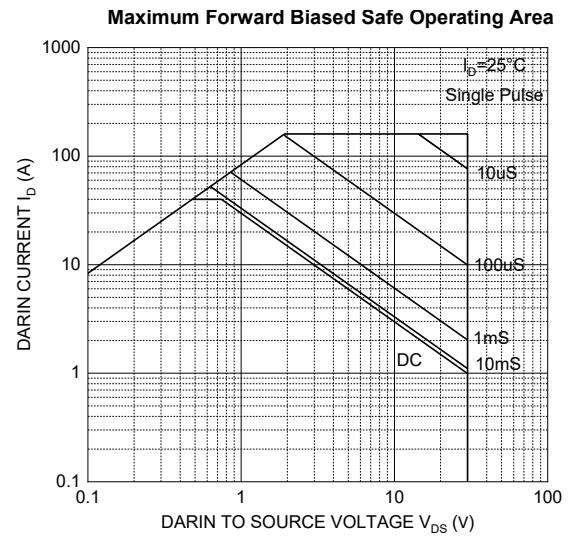
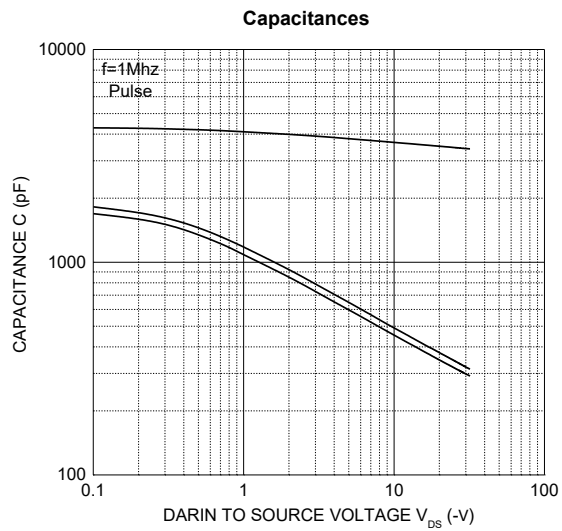
$V_{GS} = -2.4\text{V}$

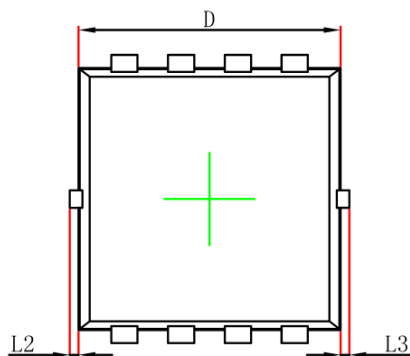
$V_{GS} = -2.3\text{V}$

Drain Current I_D (mA)

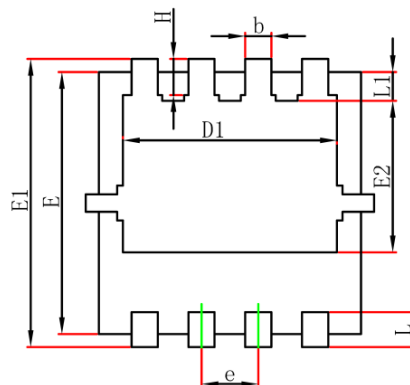
Drain to Source Voltage V_{DS} (V)



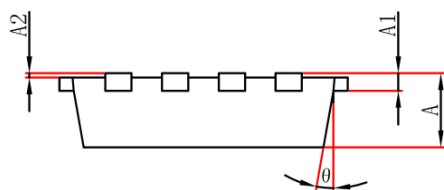


PDFN3.3X3.3-8L Package Information


Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.10	0.25	0.004	0.010
A2	0.000	0.050	0.000	0.002
D	2.900	3.200	0.114	0.126
D1	2.300	2.600	0.091	0.102
E	2.900	3.200	0.114	0.126
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
θ	0°	12°	0°	12°

Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.