

Product Summary

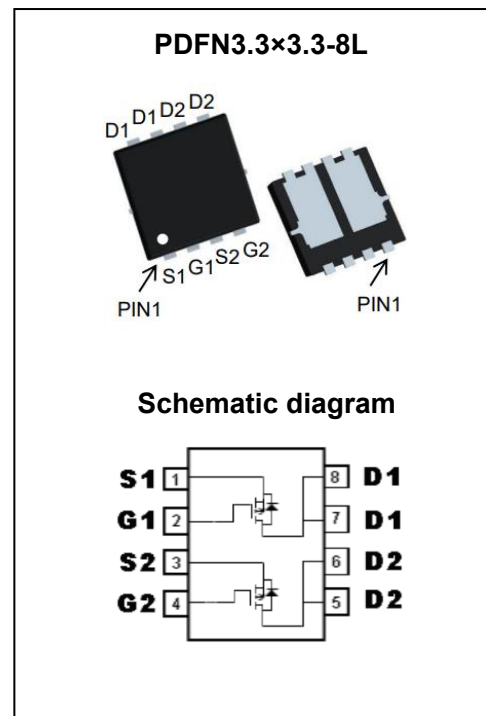
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-12V	12m Ω @-4.5V	-20A
	16m Ω @-2.5V	

Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch



MARKING:

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPM120PDT2UNB	PDFN3.3X3.3-8L	M120PDT2U	Reel & Tape	330mm	13mm	5000pcs

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	-12	V
Gate - Source Voltage		V_{GS}	± 10	V
Continuous Drain Current ¹	$T_C = 25^{\circ}\text{C}$	I_D	-20	A
	$T_C = 100^{\circ}\text{C}$		-14	
Pulsed Drain Current ²		I_{DM}	-80	A
Power Dissipation ⁵		P_D	2.0	W
Power Dissipation ⁴		P_D	24	W
Thermal Resistance from Junction to Ambient ⁵		$R_{\theta JA}$	60	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	5.2	$^{\circ}\text{C/W}$
Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^{\circ}\text{C}$

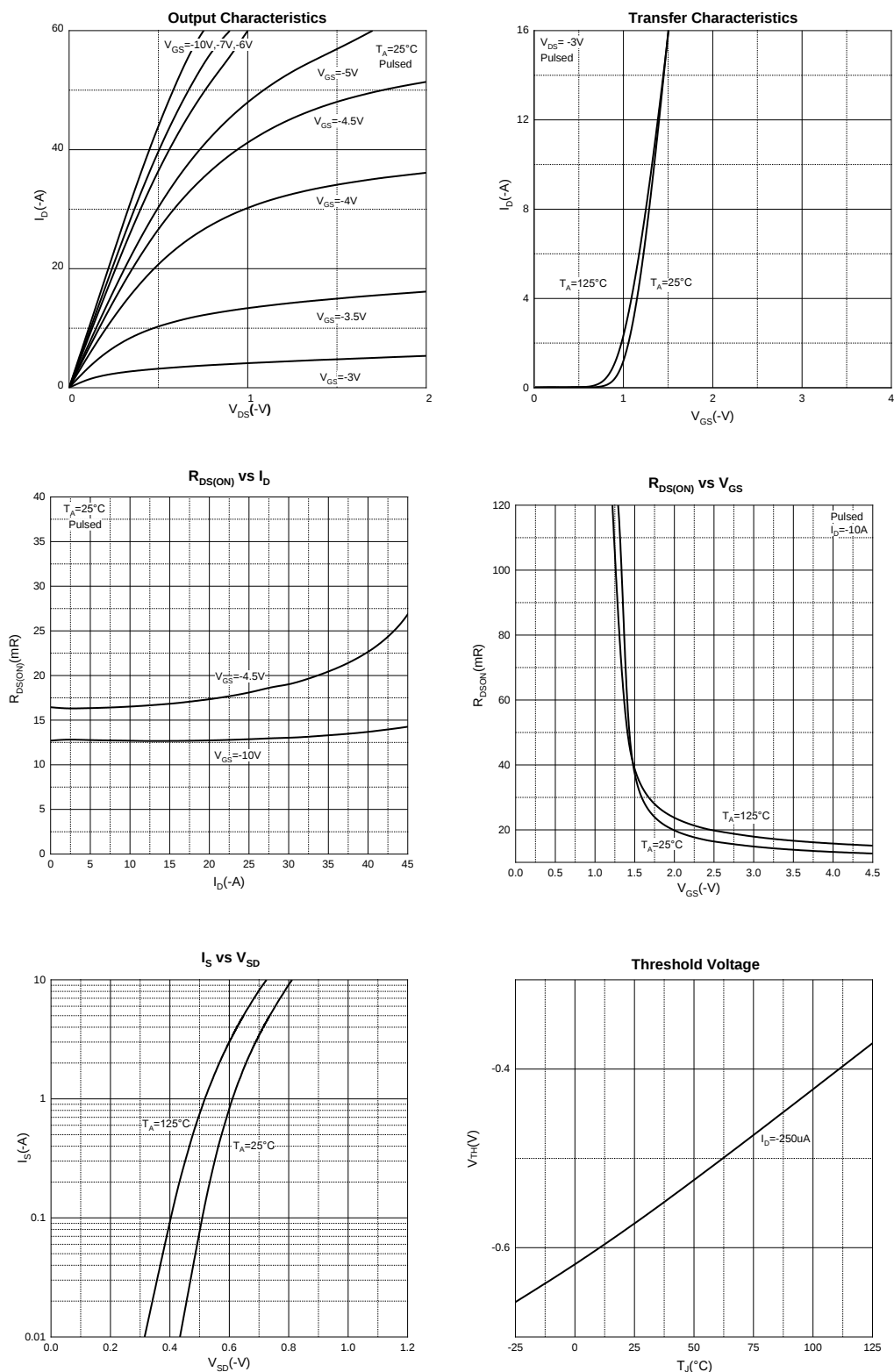
MOSFET ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$ unless otherwise noted)

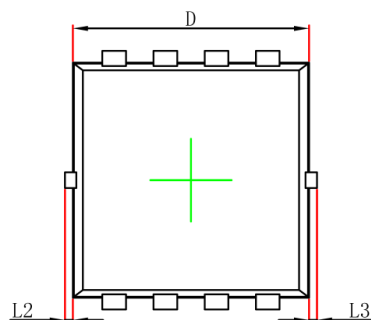
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V , I _D = -250μA	-12			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -12V, V _{GS} = 0V			-1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	nA
On Characteristics ³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.6	-1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -6.7A		12	15	mΩ
		V _{GS} = -2.5V, I _D = -4.2A		16	21	
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -6.7A		40		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -6V, V _{GS} = 0V, f = 1MHz		1756		pF
Output Capacitance	C _{oss}			390		
Reverse Transfer Capacitance	C _{rss}			374		
Gate Resistance	R _g	f = 1MHz		7.5		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -6.7A		21		nC
Gate-Source Charge	Q _{gs}			2.4		
Gate-Drain Charge	Q _{gd}			6.5		
Turn-On Delay Time	t _{d(on)}	V _{GEN} =-4.5V,V _{DD} =-6V, I _D =-4A, RL=6Ω,RGEN=1Ω		35		ns
Turn-On Rise Time	t _r			33		
Turn-Off Delay Time	t _{d(off)}			60		
Turn-Off Fall Time	t _f			27		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -2A			-1.2	V

Notes:

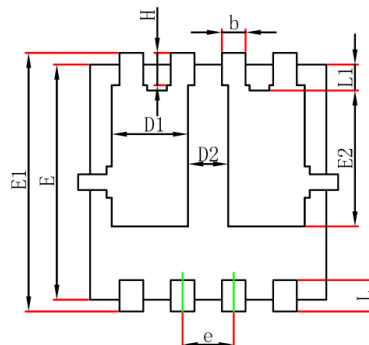
- 1.The maximum current rating is limited by package. And device mounted on a large heatsink.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^{\circ}\text{C}$.And device mounted on a large heatsink.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

Typical Characteristics

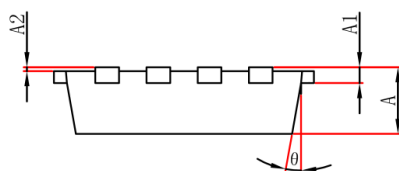




Top View
[顶视图]



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	0.152REF		0.006REF	
A2	0.000	0.050	0.000	0.002
D	2.900	3.200	0.114	0.126
D1	0.935	1.135	0.037	0.045
D2	0.280	0.480	0.011	0.019
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.