

Product Summary

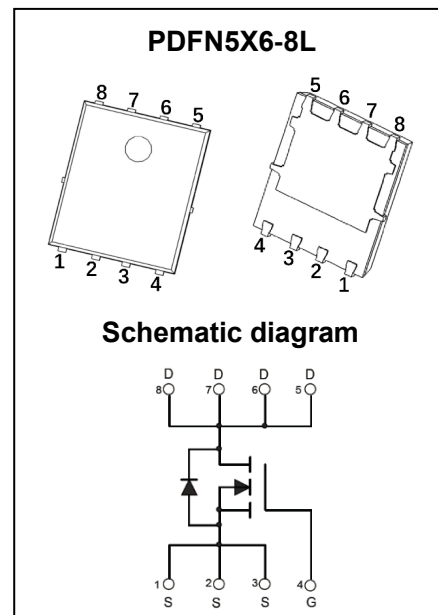
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	4.8mΩ@10V	115A

Feature

- Split Gate Trench Technology
- Low $R_{DS(on)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Load Switch
- PWM Application
- Power Management



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT048N10NNC	PDFN5X6-8L	T048N10N	Reel & Tape	330mm	12mm	5000pcs

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	115	A
	$T_C = 100^\circ\text{C}$	I_D	71	A
Pulsed Drain Current ²		I_{DM}	460	A
Single Pulsed Avalanche Current ³		I_{AS}	45	A
Single Pulsed Avalanche Energy ³		E_{AS}	506	mJ
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	156	W
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	77	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.8	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^\circ\text{C}$

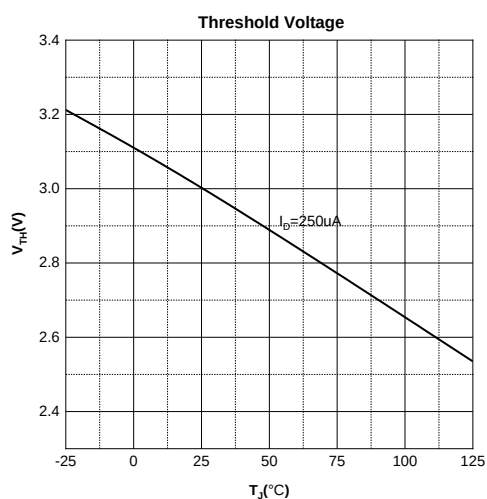
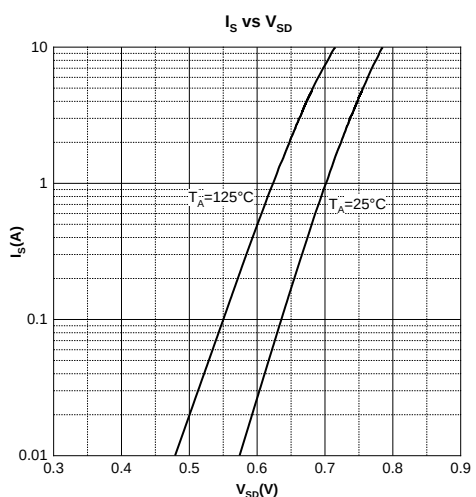
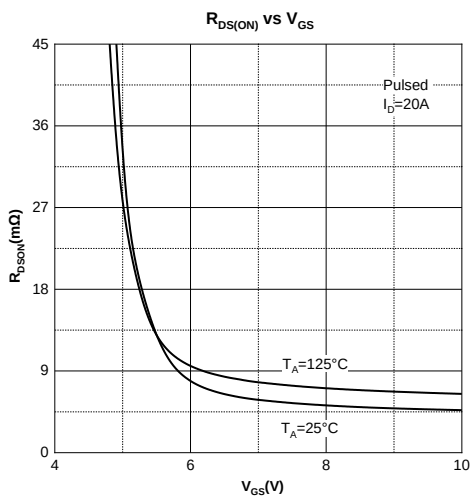
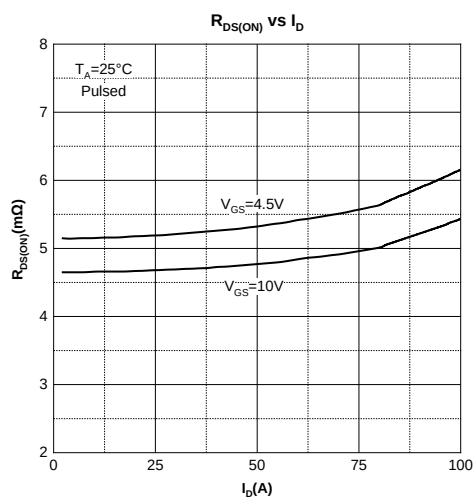
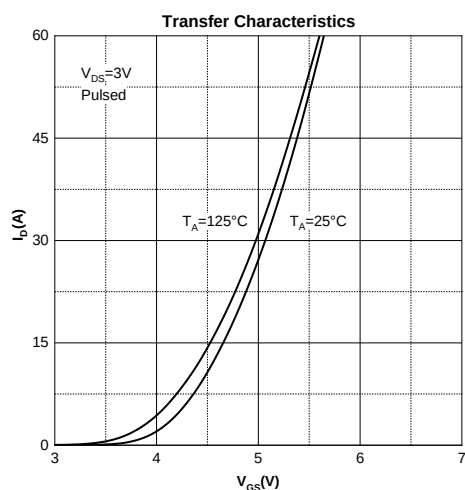
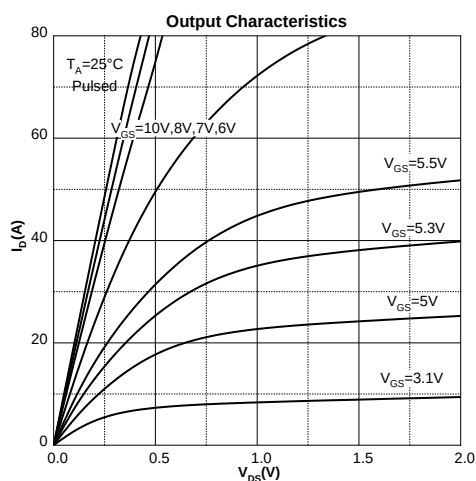
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

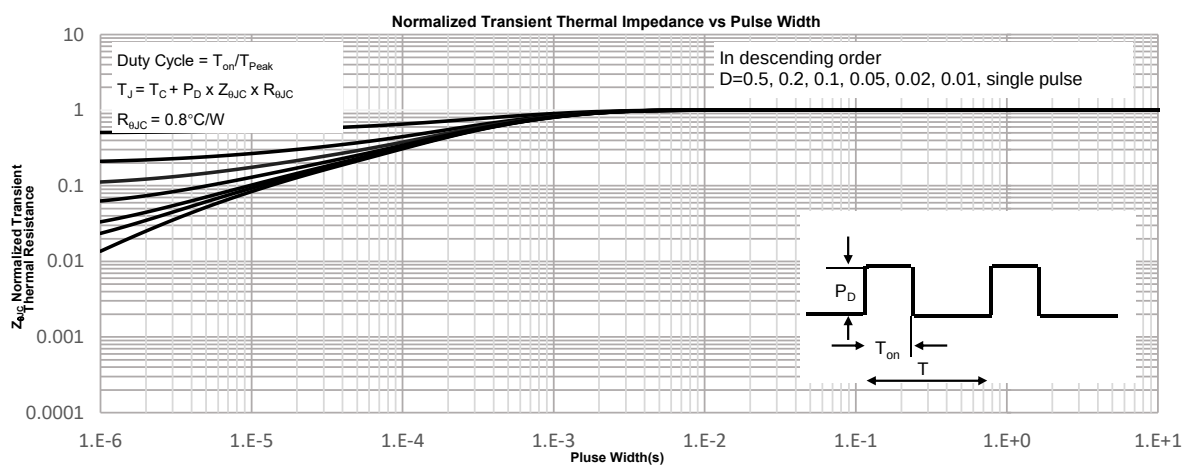
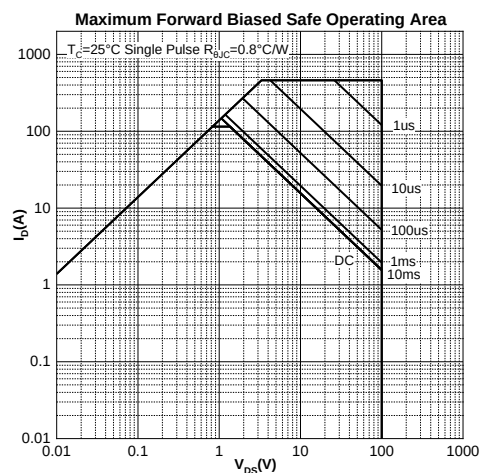
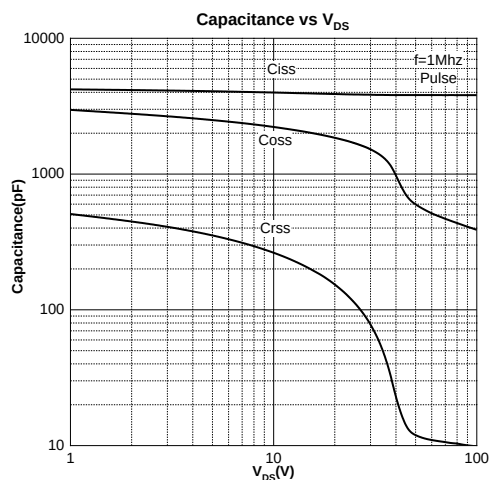
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	3.0	4.0	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		4.8	6.0	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		3825		pF
Output Capacitance	C _{oss}			609		
Reverse Transfer Capacitance	C _{rss}			12		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2.5		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 50V, V _{GS} = 10V, I _D = 20A		62		nC
Gate-Source Charge	Q _{gs}			19		
Gate-Drain Charge	Q _{gd}			16		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 50V, V _{GS} = 10V, I _D = 20A, R _G = 6.2Ω		21		ns
Turn-On Rise Time	t _r			26		
Turn-Off Delay Time	t _{d(off)}			46		
Turn-Off Fall Time	t _f			23		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 20A			1.2	V
Diode Continuous Forward Current ¹	I _S	T _C = 25°C			115	A
Diode Reverse Recovery Time	t _{rr}	I _F = 20A, dI/dt = 100A/μs		62		ns
Diode Reverse Recovery Charge	Q _{rr}			131		nC

Notes :

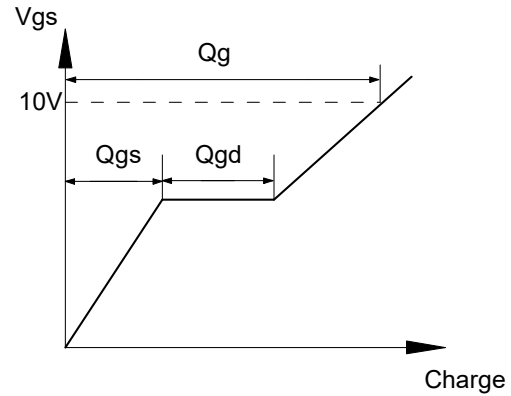
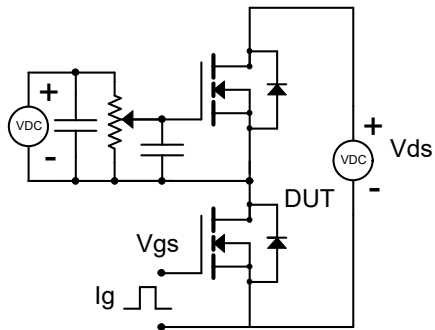
- 1.The maximum current rating is limited by package. And device mounted on a large heatsink.
- 2.Pulse Test: Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test: Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P_D is limited by T_{J(MAX)} = 150°C. And device mounted on a large heatsink.
- 6.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics

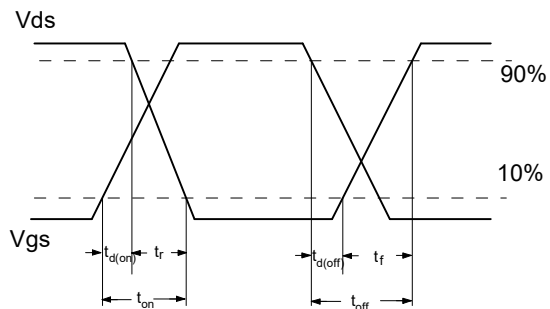
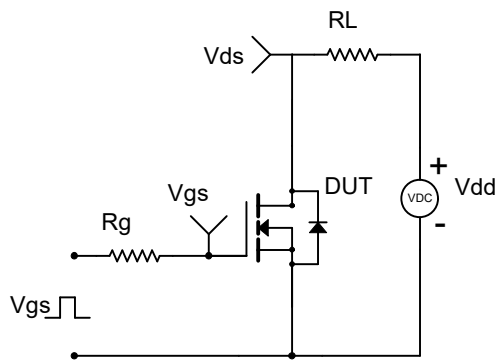




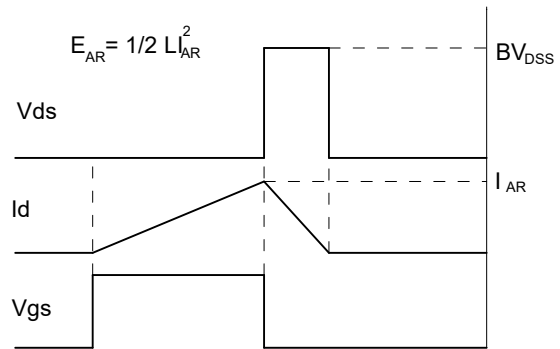
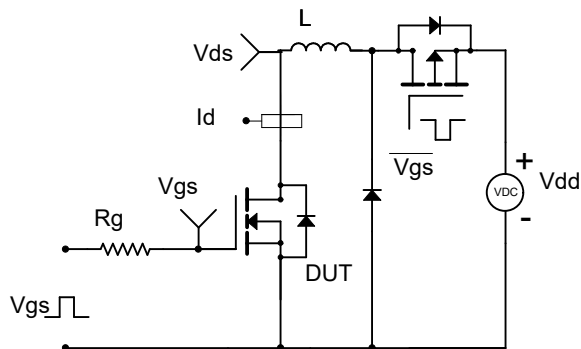
Gate Charge Test Circuit & Waveform

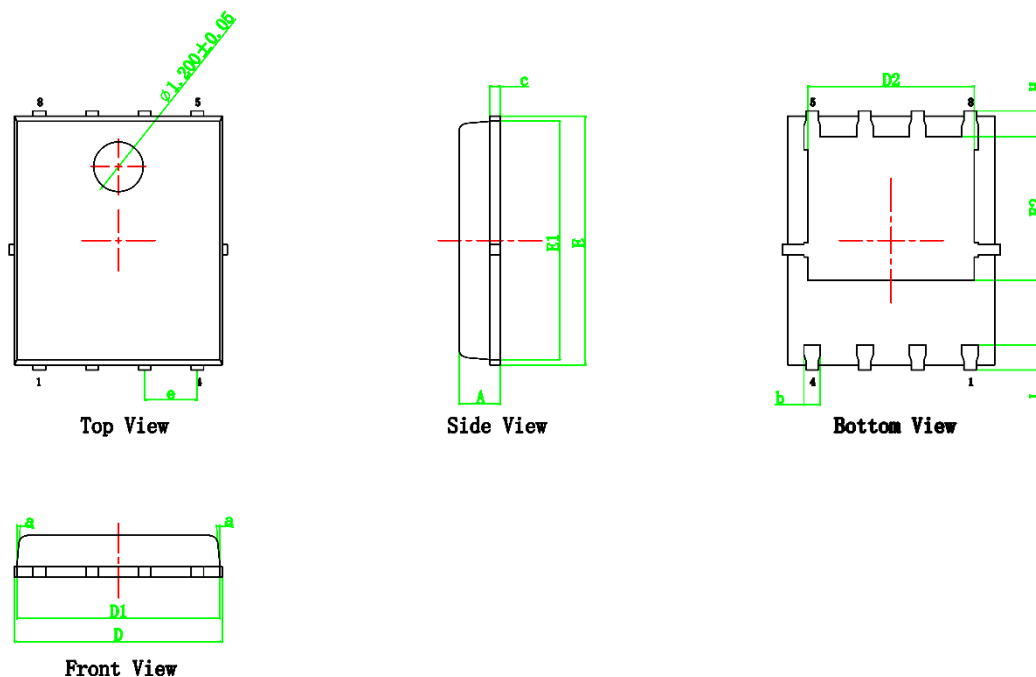


Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



PDFN5X6-8L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
b	0.330	0.510	0.013	0.020
c	0.200	0.300	0.008	0.012
D	4.820	5.220	0.190	0.206
D2	3.910	4.110	0.154	0.162
E	5.900	6.100	0.232	0.240
E1	5.700	5.800	0.224	0.228
E2	3.370	3.570	0.133	0.141
e	1.270REF		0.050REF	
H	0.520	0.720	0.020	0.028
D1	4.800	5.000	0.189	0.197
L	0.510	0.710	0.020	0.028
a	0°	10°	0°	10°

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.