

Product Summary

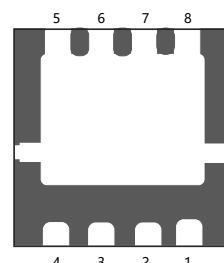
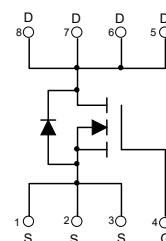
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	2.0m Ω @10V	110A
	3.0m Ω @4.5V	

Feature

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

Application

- Power Switching Application
- DC/DC Converter

PLP3.3X3.3-8L

Schematic diagram

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT030N04LMA	PLP3.3X3.3-8L	T030N04L	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}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	110	A
	$T_C = 100^\circ\text{C}$		68	
Pulsed Drain Current ²		I_{DM}	440	A
Single Pulsed Avalanche Current ³		I_{AS}	30	A
Single Pulsed Avalanche Energy ³		E_{AS}	225	mJ
Power Dissipation ⁵		P_D	83	W
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1.51	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~+150	$^\circ\text{C}$

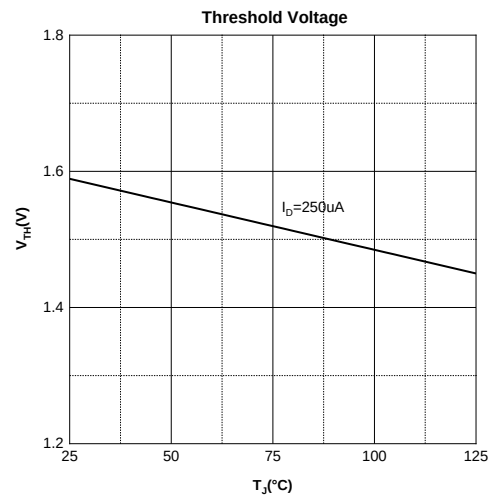
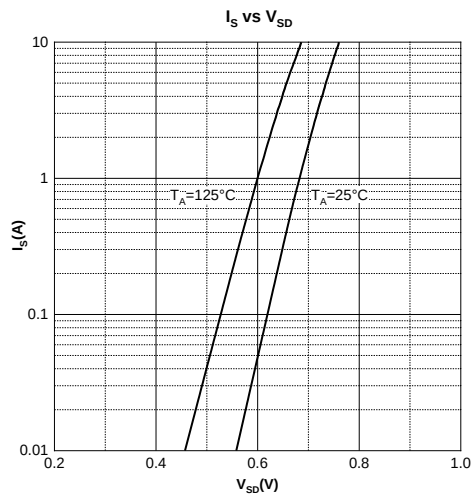
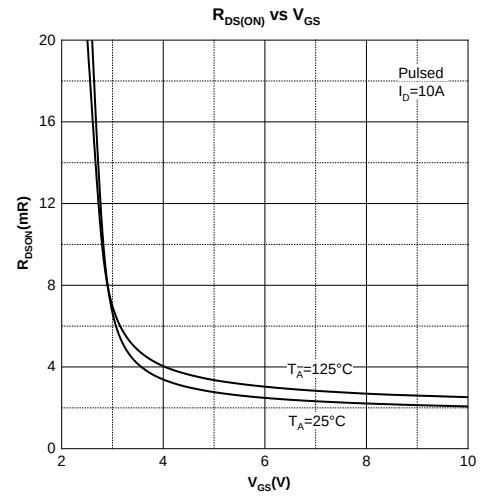
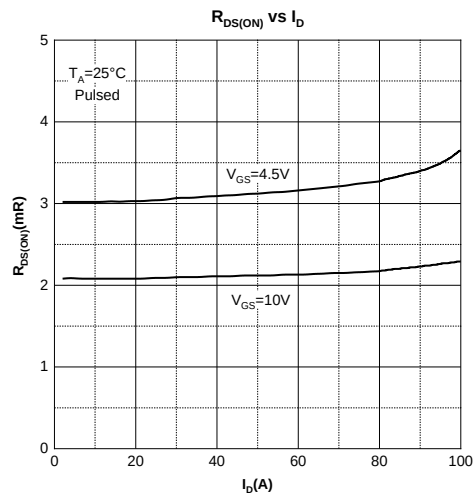
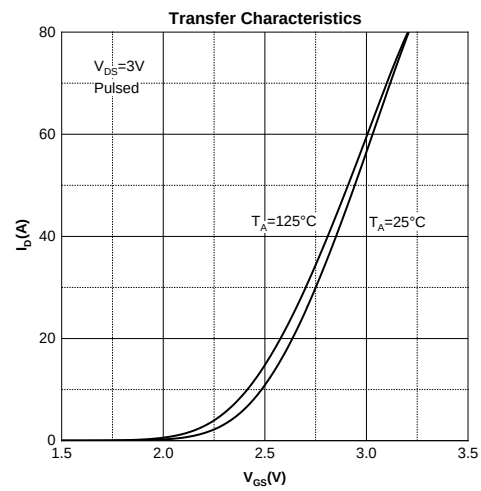
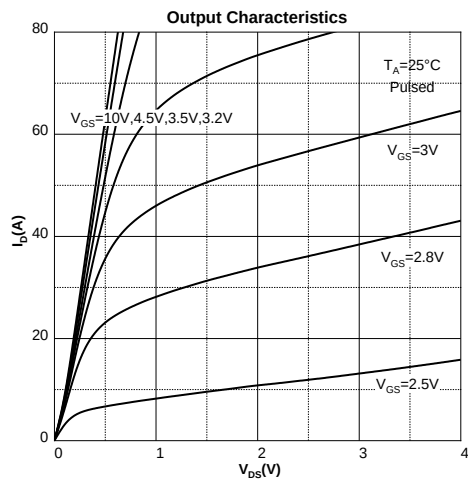
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

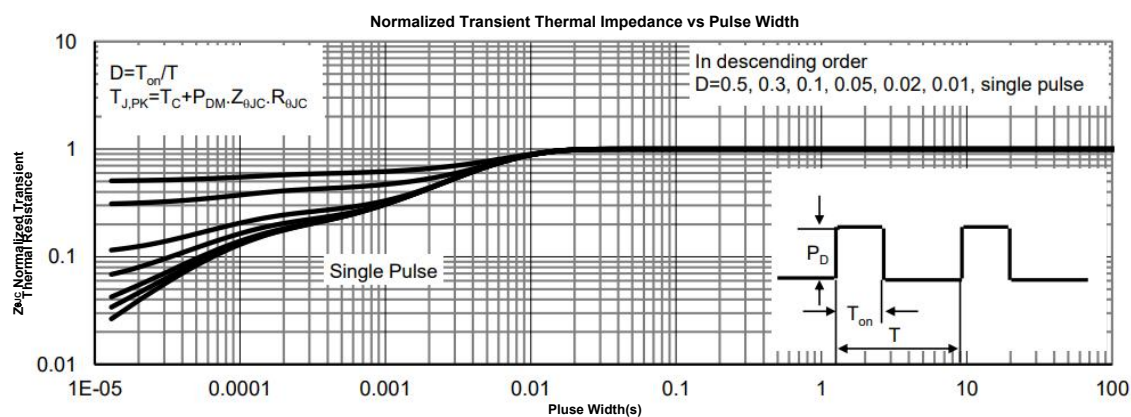
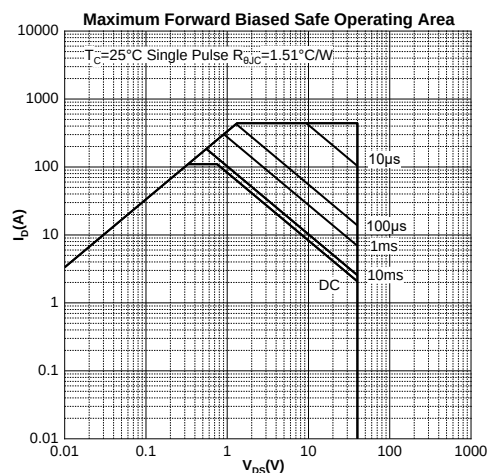
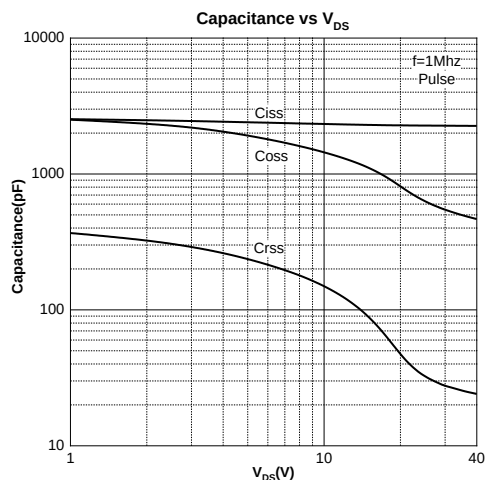
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 40V, V_{GS} = 0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		2.0	3.0	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		3.0	4.0	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$		2287		pF
Output Capacitance	C_{oss}			830		
Reverse Transfer Capacitance	C_{rss}			52		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		3.3		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 20V, V_{GS} = 10V, I_D = 10A$		36		nC
Gate-Source Charge	Q_{gs}			5.5		
Gate-Drain Charge	Q_{gd}			5.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_G = 1.6\Omega, I_D = 20A$		12		ns
Turn-On Rise Time	t_r			61		
Turn-Off Delay Time	$t_{d(off)}$			37		
Turn-Off Fall Time	t_f			14		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

Notes :

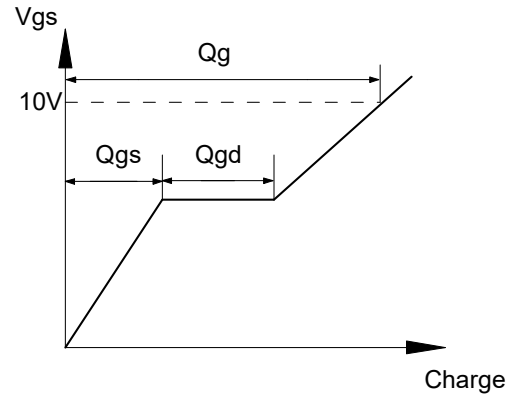
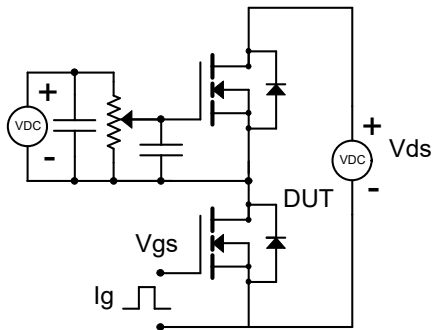
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.And device mounted on a large heatsink
- 6.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics

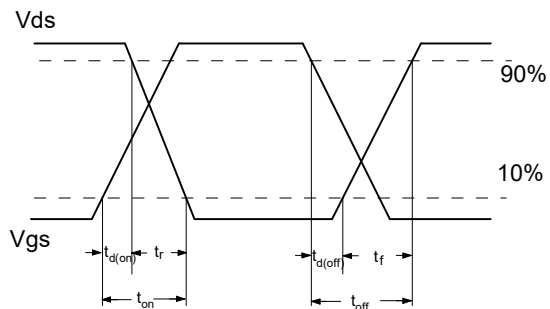
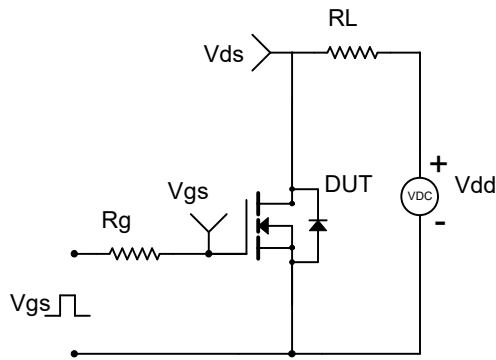




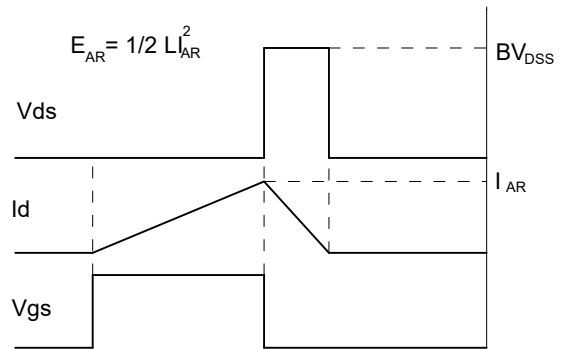
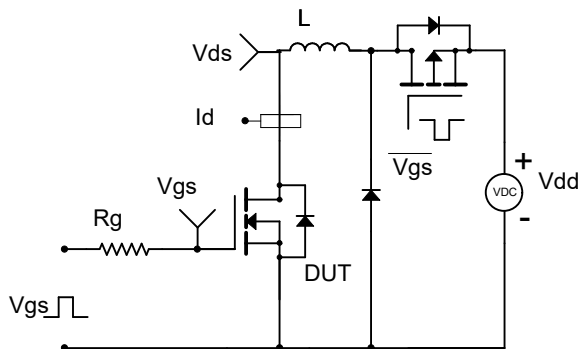
Gate Charge Test Circuit & Waveform

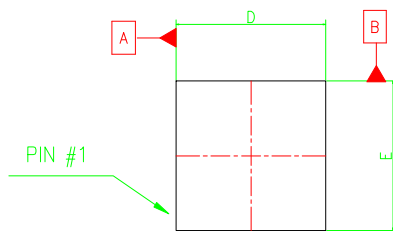


Resistive Switching Test Circuit & Waveform

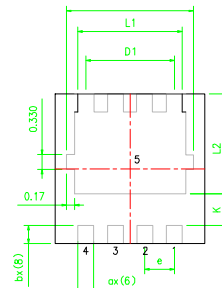


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

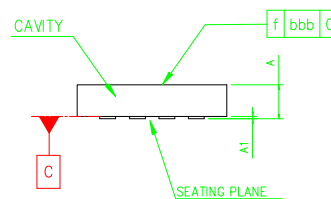


PLP3.3X3.3-8L Package Information


Top View



Bottom View



Side View

symbol	Dimension in mm		
	MIN	NOM	MAX
A	0.650	0.700	0.750
A1	0.025	0.050	0.075
D	3.200	3.300	3.400
E	3.200	3.300	3.40
D1	—	1.950	—
e	—	0.650	—
ax(6)	0.300	0.350	0.400
bx(8)	0.350	0.400	0.450
L1	2.250	2.300	2.350
L2	2.150	2.200	2.250
L3	2.750	2.800	2.850
K	0.600	0.700	0.800
bbb	0.100		
N	5		
MD/ME	4/2		

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.