

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	4.5mΩ@10V	65A

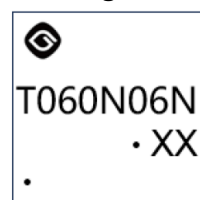
Feature

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

Application

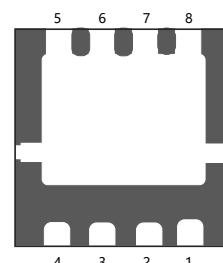
- Power Switching Application
- DC-DC convertor

Marking:

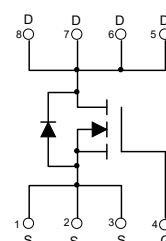


T060N06N= Device Code
 XX = Date Code
 Solid Dot = Green Indicator

PLP3.3X3.3-8L



Schematic diagram



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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	65	A
	$T_C = 100^\circ\text{C}$		40	
Pulsed Drain Current ²		I_{DM}	260	A
Single Pulsed Avalanche Current ³		I_{AS}	19	A
Single Pulsed Avalanche Energy ³		E_{AS}	90	mJ
Power Dissipation ⁵		P_D	63	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	2	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

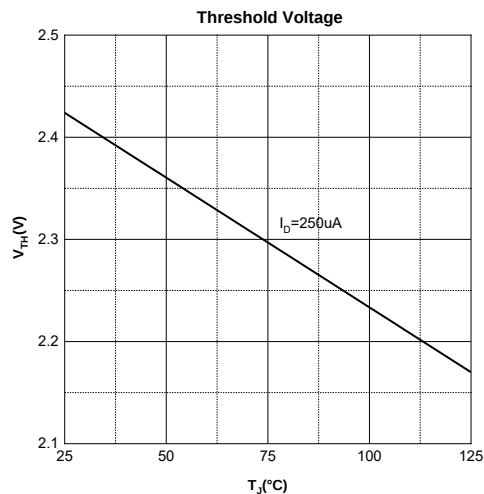
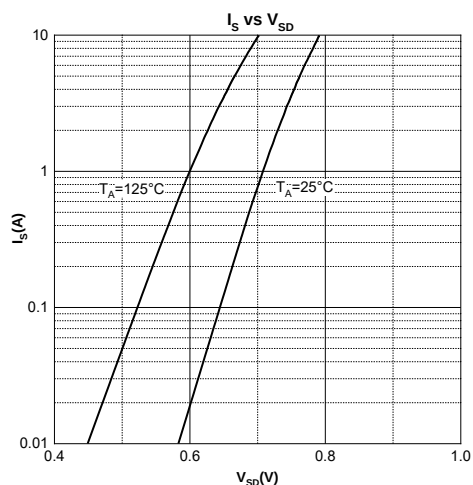
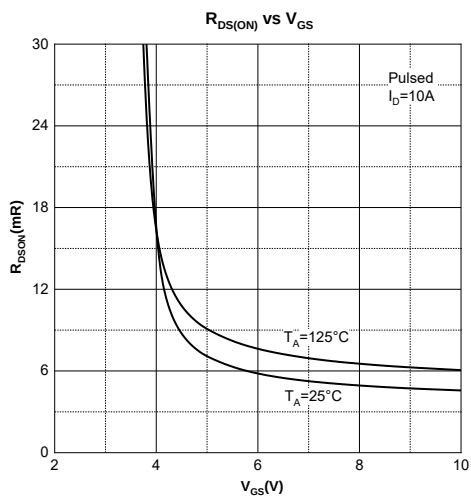
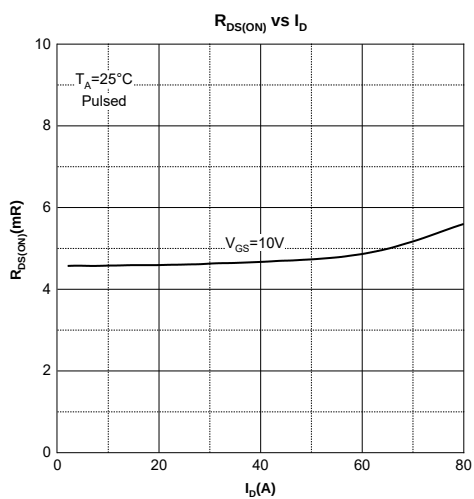
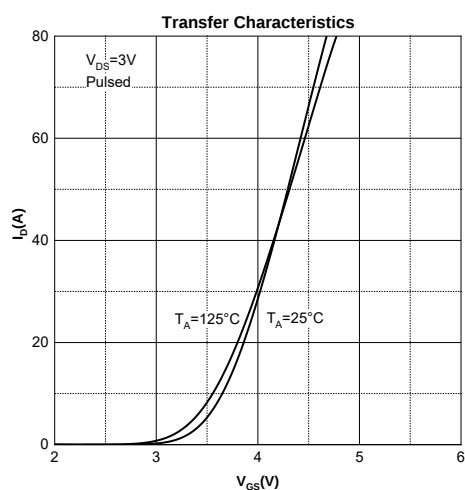
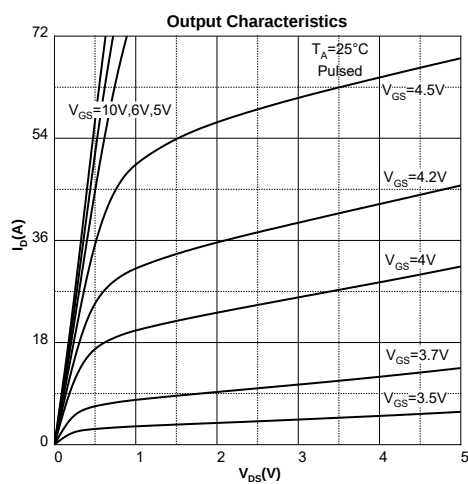
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

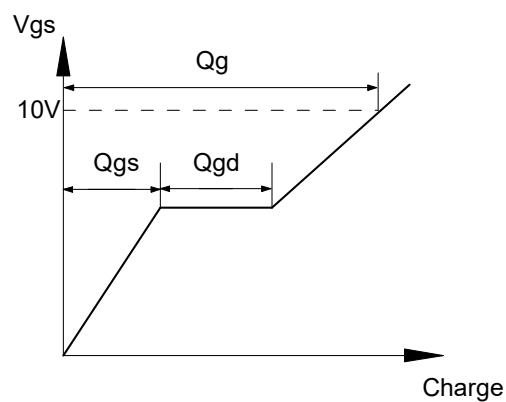
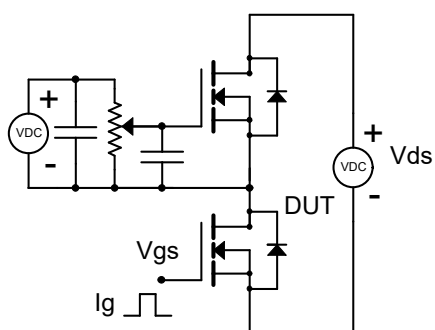
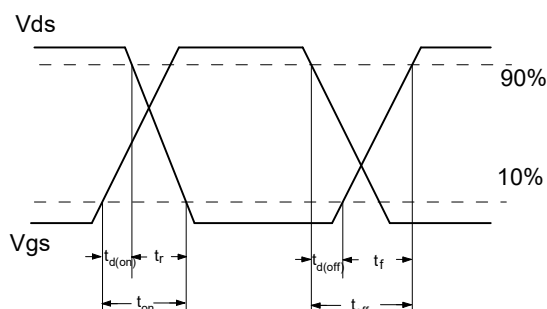
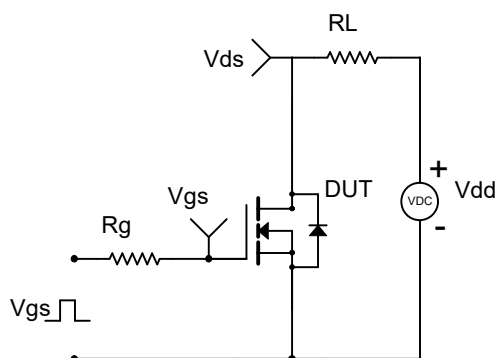
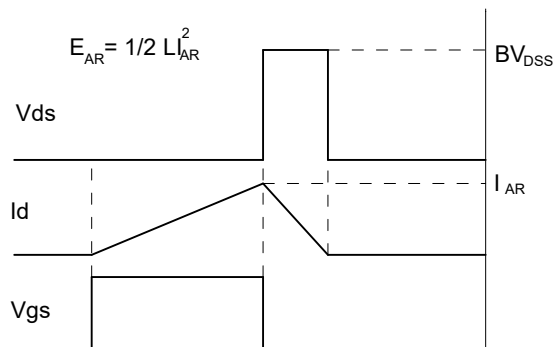
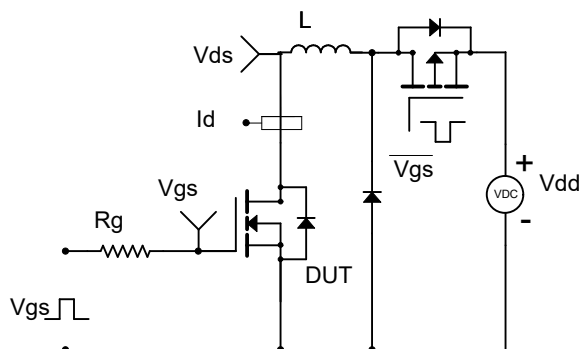
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250×A	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	×A
Gate-Body Leakage Current	I _{GSS}	V _{GS} = 0V, V _{DS} = 0V			100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250×A	2	2.4	4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 10A		4.5	6.0	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		1647		pF
Output Capacitance	C _{oss}			450		
Reverse Transfer Capacitance	C _{rss}			25		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2.4		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 10A		30		nC
Gate-Source Charge	Q _{gs}			5.9		
Gate-Drain Charge	Q _{gd}			7.3		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, R _G = 3Ω, I _D = 35A		14		ns
Turn-On Rise Time	t _r			51		
Turn-Off Delay Time	t _{d(off)}			27		
Turn-Off Fall Time	t _f			22		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 10A			1.2	V

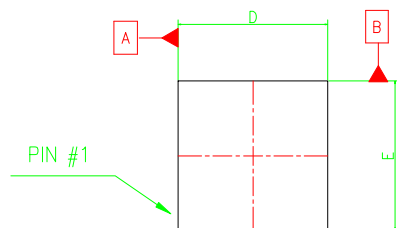
Notes :

- 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 $T_A = 25^\circ\text{C}$.

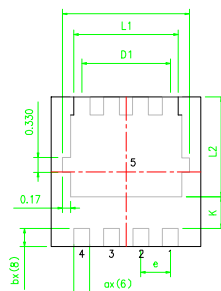
Typical Characteristics



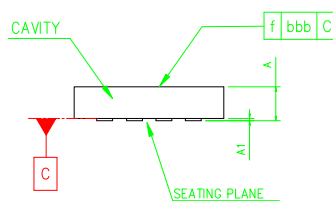
Gate Charge Test Circuit & Waveform

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.