

Product Summary

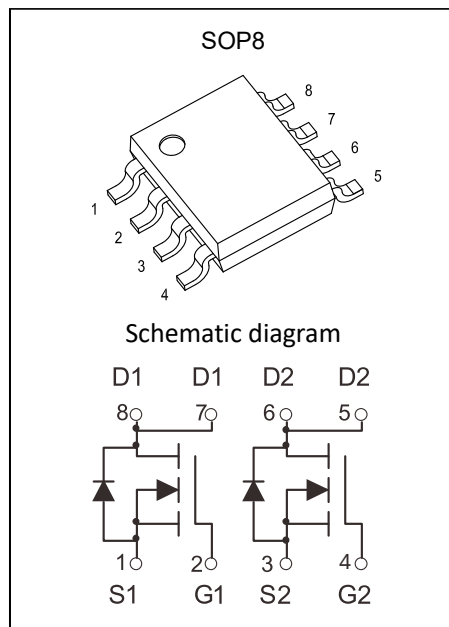
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	9.6m Ω @10V	10A
	14m Ω @4.5V	

Feature

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

Application

- Power Management
- Load Switching


Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPM100ND03LQA	SOP8	M100ND03L	Reel & Tape	NA	NA	4000pcs

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	$T_A = 25^\circ\text{C}$	I_D	10	A
	$T_A = 100^\circ\text{C}$		6.3	
Pulsed Drain Current ²		I_{DM}	40	A
Single Pulsed Avalanche Current ³		I_{AS}	12.6	A
Single Pulsed Avalanche Energy ³		E_{AS}	40	mJ
Power Dissipation ⁵		P_D	1.25	W
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	100	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	$^\circ\text{C}$

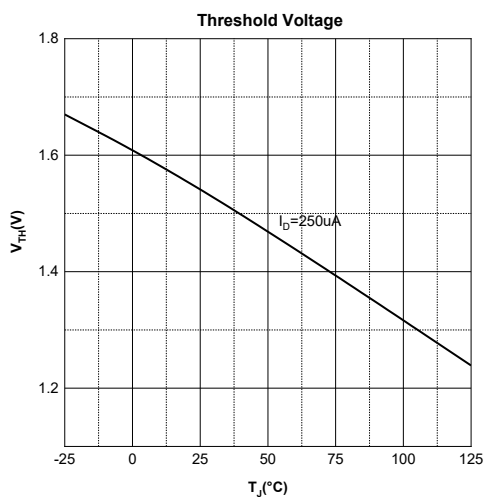
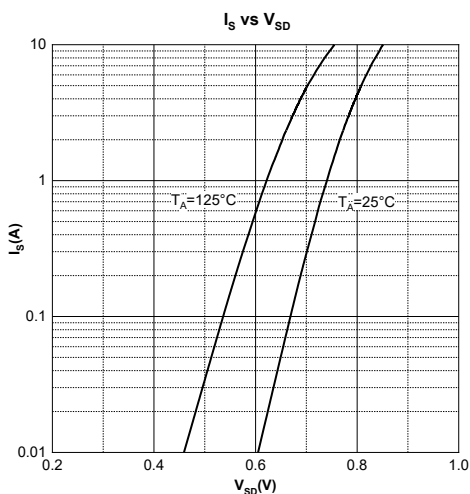
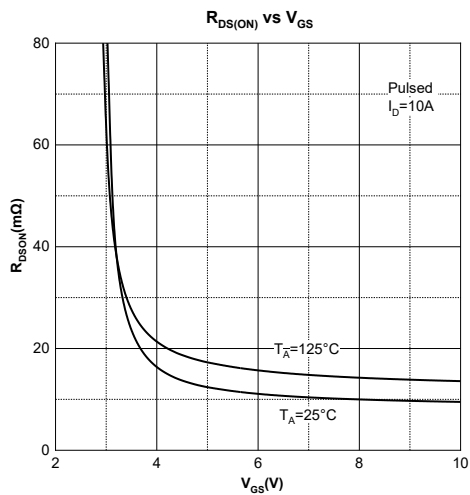
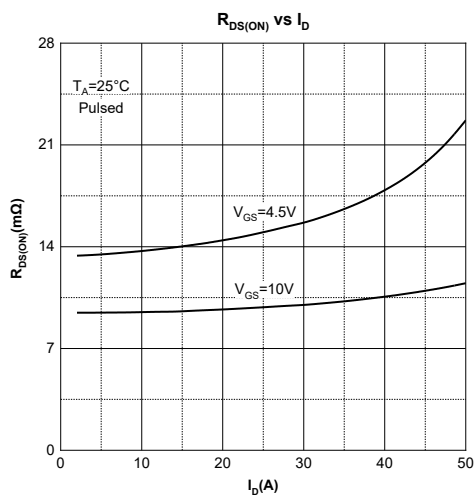
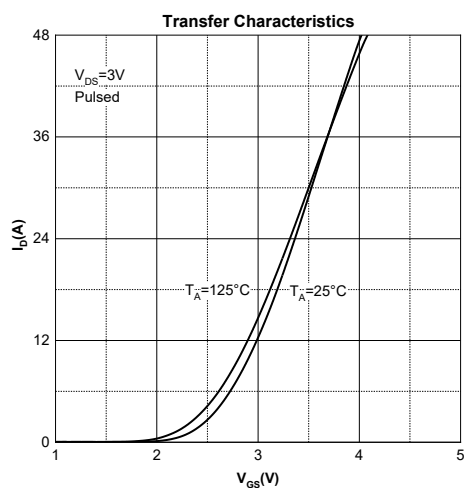
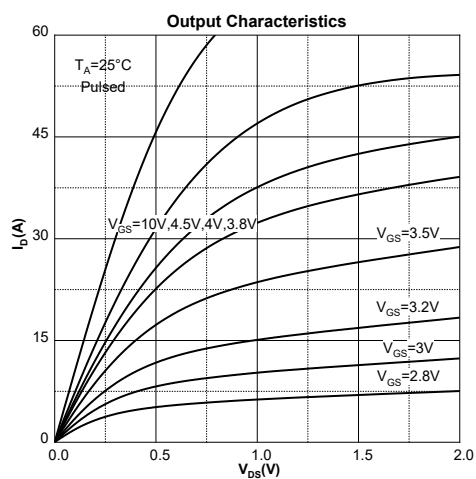
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

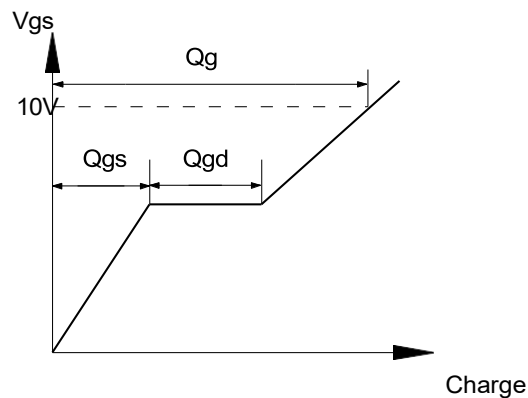
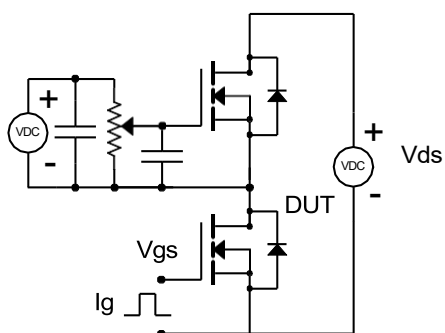
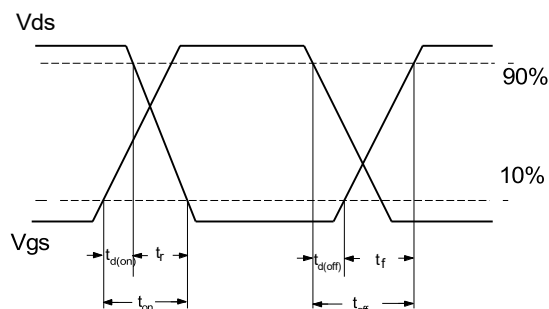
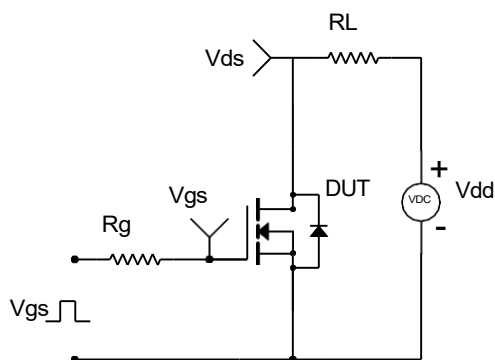
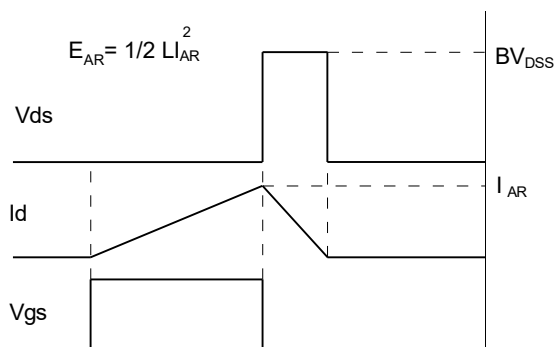
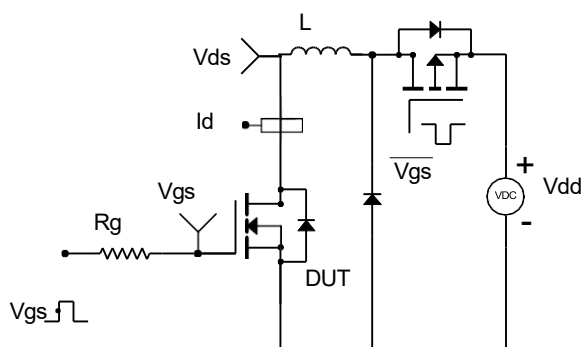
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.5	3	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 10A		9.6	13	mΩ
		V _{GS} = 4.5V, I _D = 10A		14	18	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		850		pF
Output Capacitance	C _{oss}			94		
Reverse Transfer Capacitance	C _{rss}			83		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2.3		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 10A		19		nC
Gate-Source Charge	Q _{gs}			2.4		
Gate-Drain Charge	Q _{gd}			4.7		
Gate Plateau Voltage	V _{plateau}			2.9		V
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10V, V _{GS} = 10V, R _G = 3Ω, R _L = 1.5Ω		5.6		ns
Turn-On Rise Time	t _r			10		
Turn-Off Delay Time	t _{d(off)}			18		
Turn-Off Fall Time	t _f			7		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 10A			1.2	V
Diode Continuous Forward Current ¹	I _S	T _C = 25°C			40	A

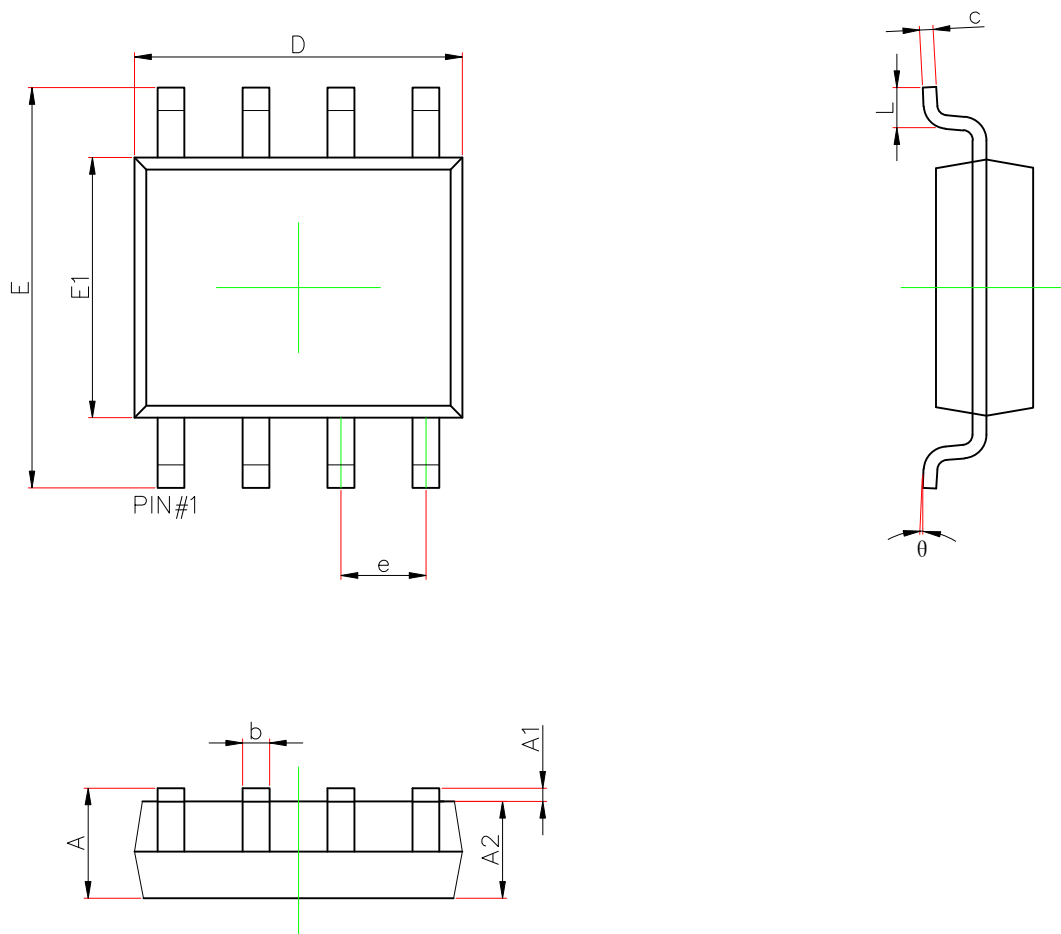
Notes:

- 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} = 30V, 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



Test Circuit
Gate Charge Test Circuit & Waveform

Resistive Switching Test Circuit & Waveform

Unclamped Inductive Switching (UIS) Test Circuit & Waveforms


SOP8 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.156	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
e	1.270(BSC)		0.050(BSC)	
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
L	0.400	1.270	0.016	0.05
θ	0°	8°	0°	8°

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.