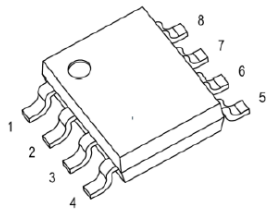
GPM4459QA

30V P-Channel MOSFET

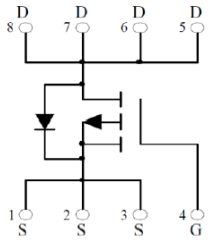
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	22mΩ@-10V	-6.5A
	32mΩ@-4.5V	

SOP8



Schematic diagram



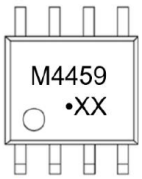
Feature

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

Application

- Power Switching Application
- DC/DC Converter
- Uninterruptible power supply
- PD charge

Marking:



M4459 = Device code

XX = Date Code

Solid dot = Pin1 indicator

Solid dot = Green molding compound device

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1,5]	T_A = 25℃	I_D	-6.5	A
	T_A = 100℃	I_D	-4.1	A
Pulsed Drain Current[2]		I_{DM}	-26	A
Power Dissipation[4,5]	T_A = 25℃	P_D	1.4	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	89	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25℃ 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[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-1.7	-2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -5A		22	46	mΩ
		V_{GS} = -4.5V, I_D = -5A		32	72	
Forward Tranconductance	g_{FS}	V_{DS} = -5V, I_D = -6.5A	6			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		932		pF
Output Capacitance	C_{oss}			113		
Reverse Transfer Capacitance	C_{rss}			105		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz			50	Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -20V, V_{GS} = -10V, I_D = -5A		21		nC
Gate-Source Charge	Q_{gs}			2.4		
Gate-Drain Charge	Q_{gd}			5.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V,I_D=-1A,V_{GS}=-10V, R_G=3Ω,R_L=2.5Ω		9.8		ns
Turn-On Rise Time	t_r			7.2		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			9		
Source - Drain Diode Characteristics						
Diode Forward Current	I_S				-6.5	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				-26	A
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -1A			-1.2	V

Notes :

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

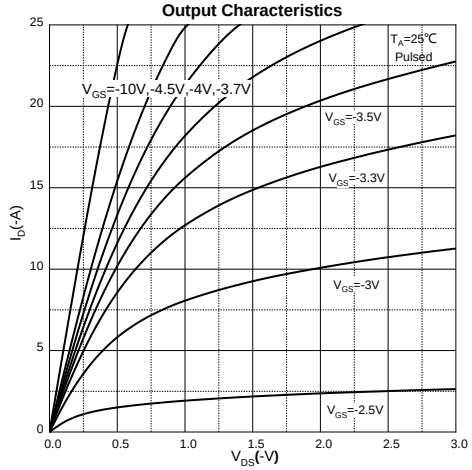
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

4.The power dissipation PD is limited by TJ(MAX) = 150°C.

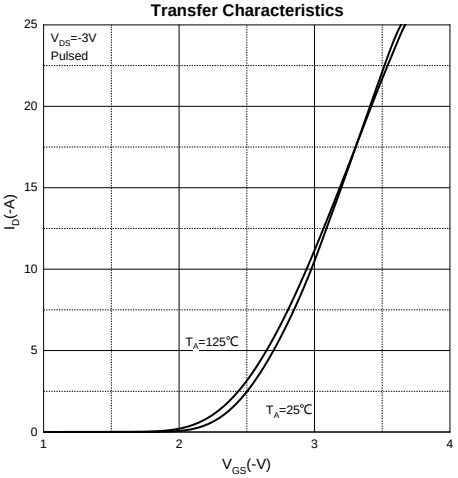
5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics

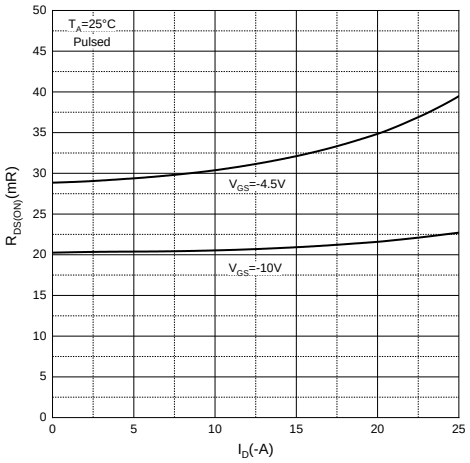
Output Characteristics



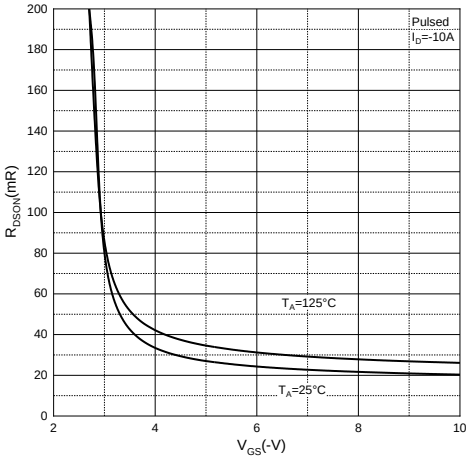
Transfer Characteristics



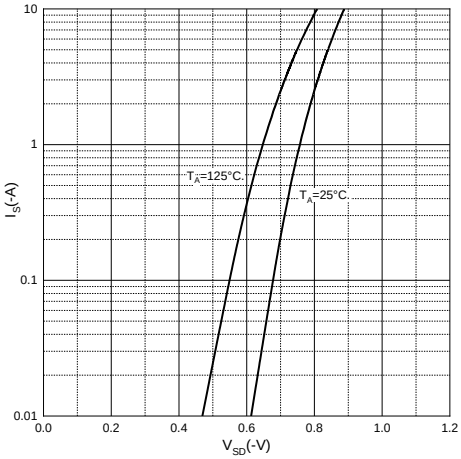
$R_{DS(ON)}$ vs I_D



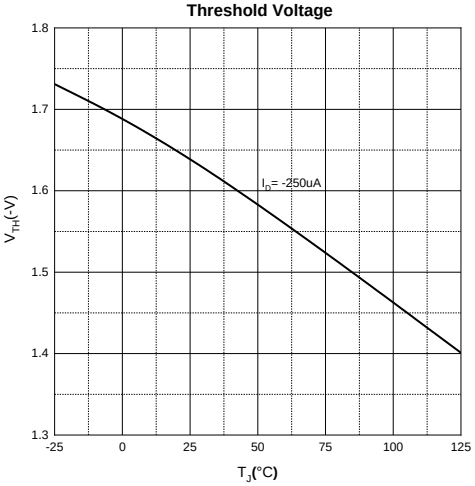
$R_{DS(ON)}$ vs V_{GS}



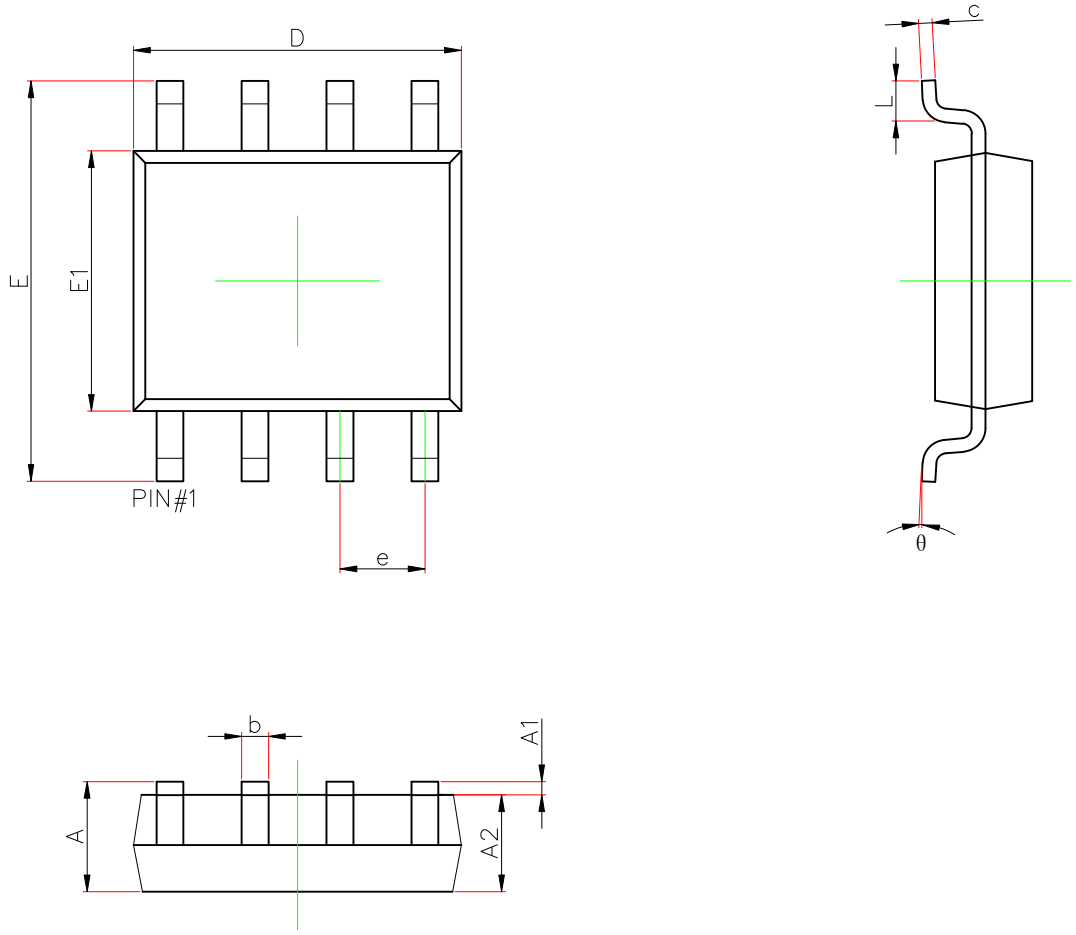
I_S vs V_{SD}



Threshold Voltage



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.
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