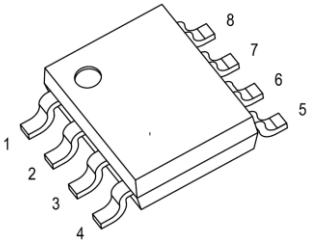
GP4459Q

30V P-Channel MOSFET

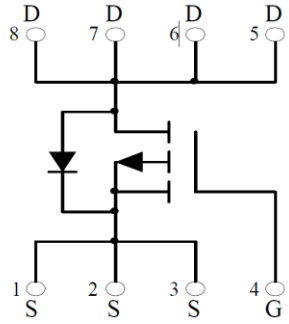
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	29mΩ@-10V	-6.5A
	46mΩ@-4.5V	

SOP8



Schematic diagram



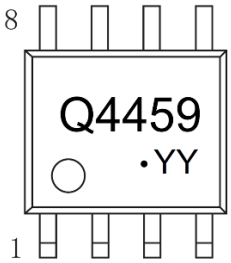
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge

Application

- Load Switch for Portable Devices
- Battery Switch

MARKING:



Q4459 = Device code

YY = 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	I_D	-6.5	A
Pulsed Drain Current	I_{DM}	-26	A
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise noted)

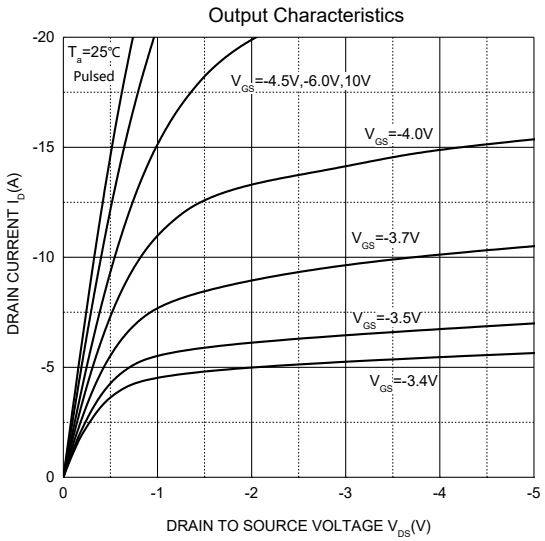
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-30V,V_{GS} = 0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±0.1	μA
On Characteristics(1)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.4	-2.5	V
Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-5A		29	46	mΩ
		V_{GS} =-4.5V, I_D =-5A		46	72	
Forward Tranconductance	g_{FS}	V_{DS} =-5V, I_D =-6.5A	6			S
Dynamic Characteristics(2)						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		850		pF
Output Capacitance	C_{oss}			100		
Reverse Transfer Capacitance	C_{rss}			65		
Switching Characteristics(2)						
Total Gate Charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-6.5A		14		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V,I_D=-6A,V_{GS}=-10V, R_G=3Ω		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		
Gate Resistance	R_g	f =1MHz			50	Ω
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage(1)	V_{SD}	V_{GS} =0V, I_S=-1A		-0.78	-1.2	V
Continuous Drain-Source Forward Current	I_S				-6.5	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				-26	

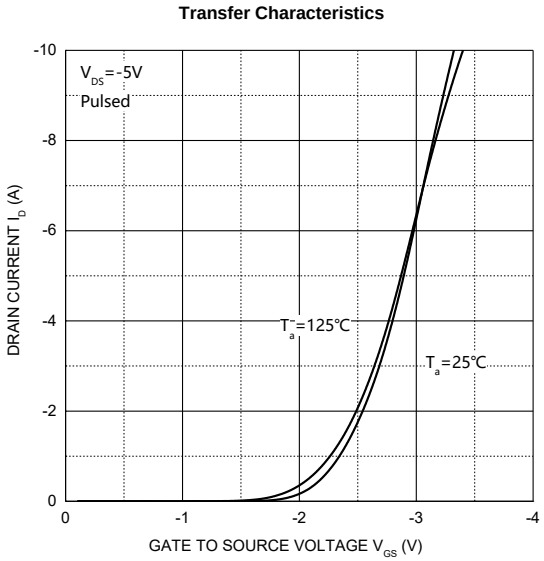
Notes:

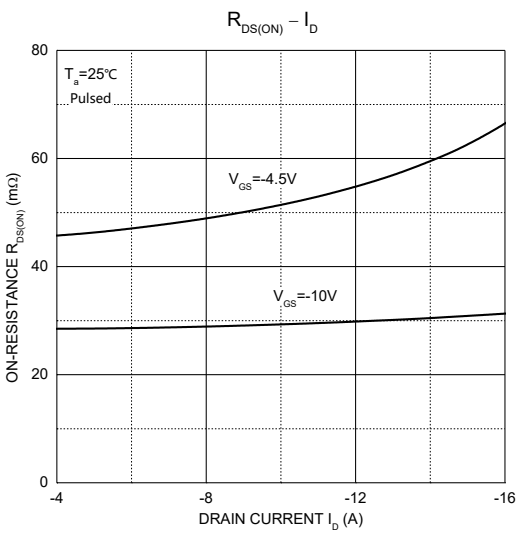
1. Pulse test; pulse width≤300μs, duty cycle≤2%.

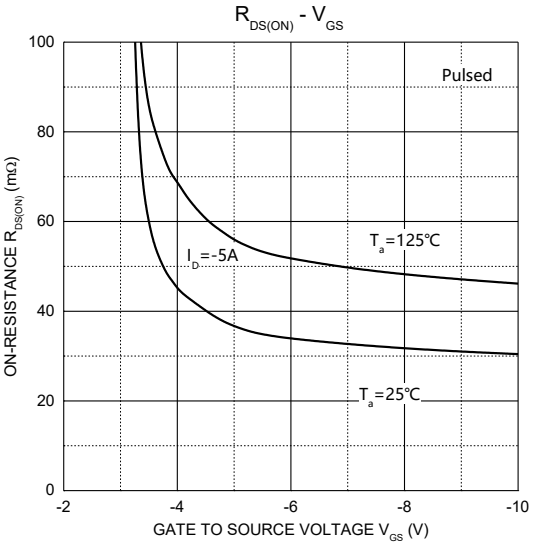
2. Guaranteed by design, not subject to production testing.

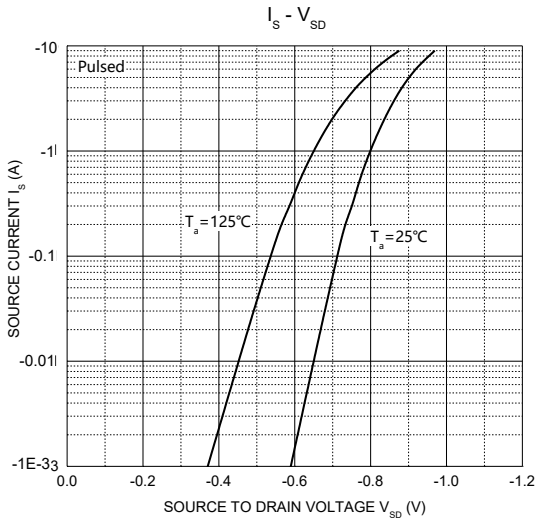
Typical Electrical and Thermal Characteristics

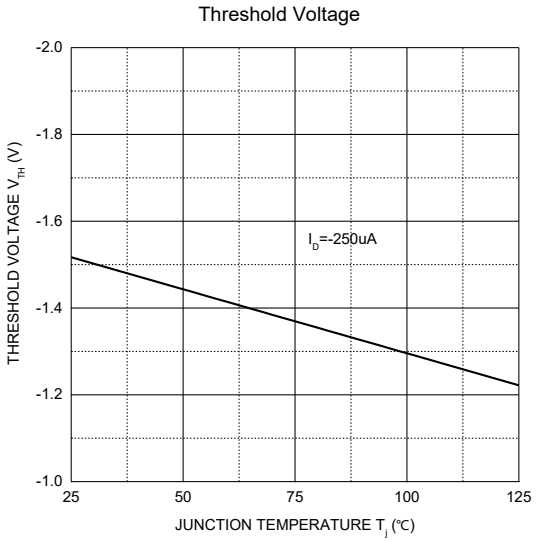




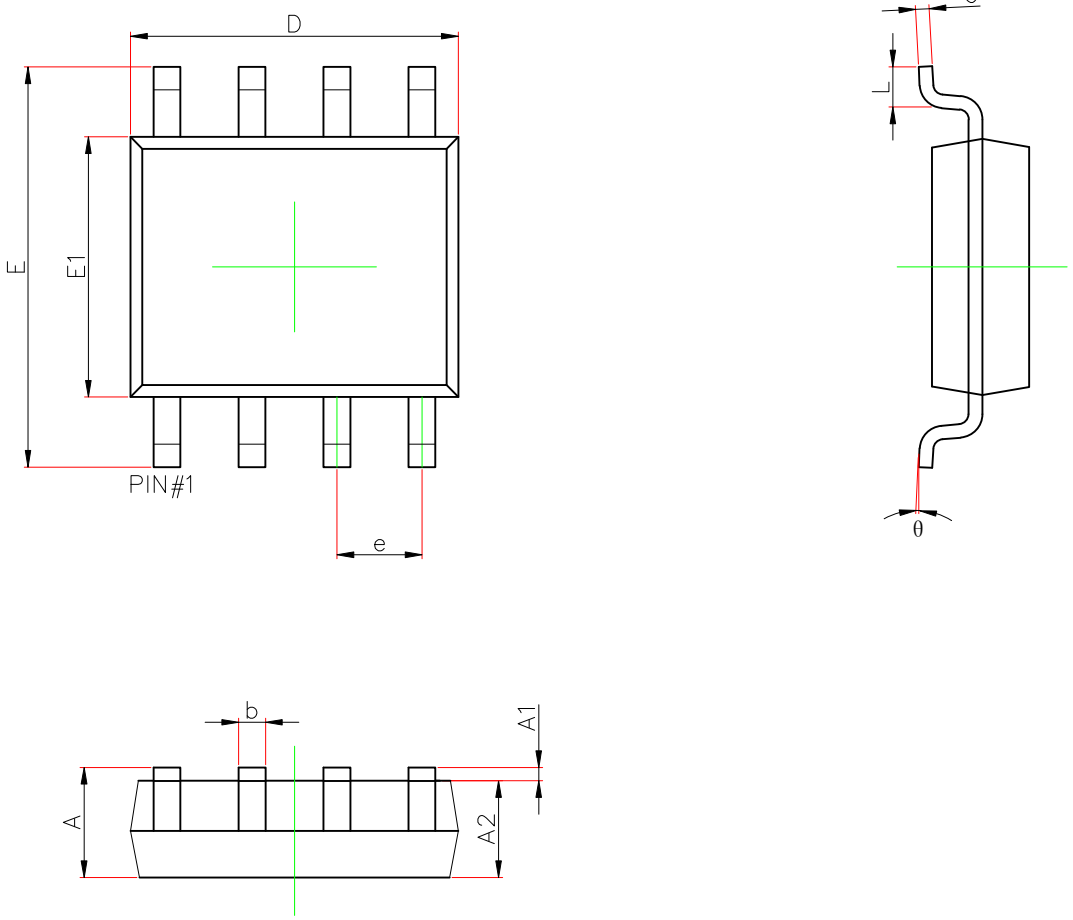








SOP8 Package Information



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.
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