

### Product Summary

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

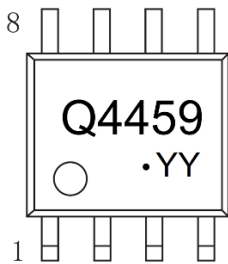
### Feature

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

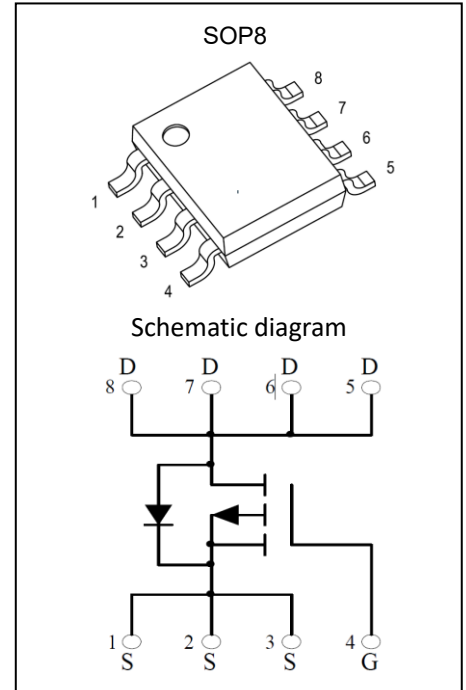
### Application

- 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 ( $T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	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	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}C$

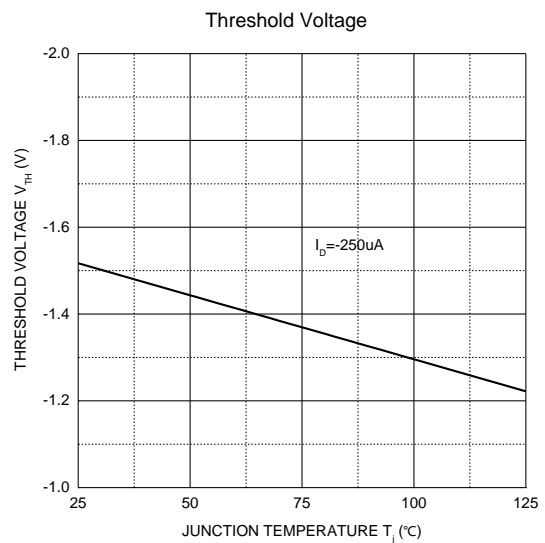
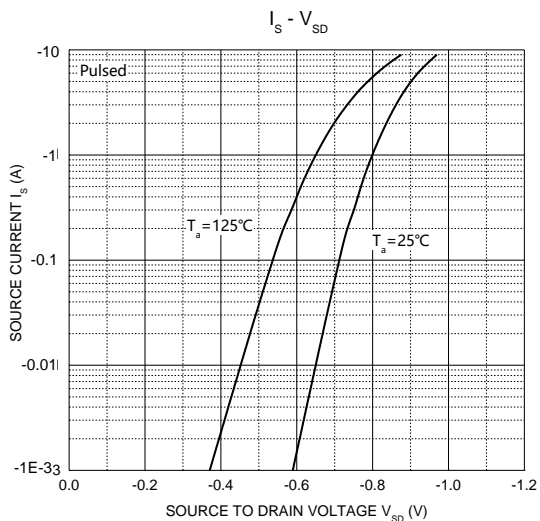
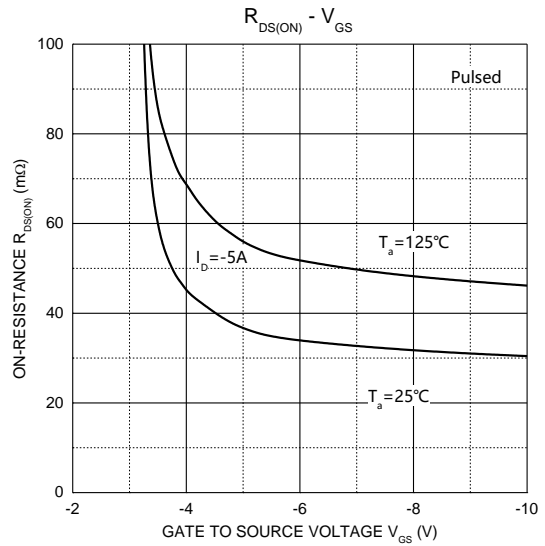
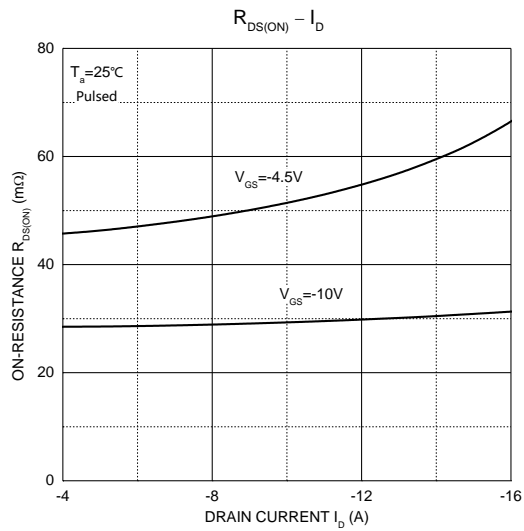
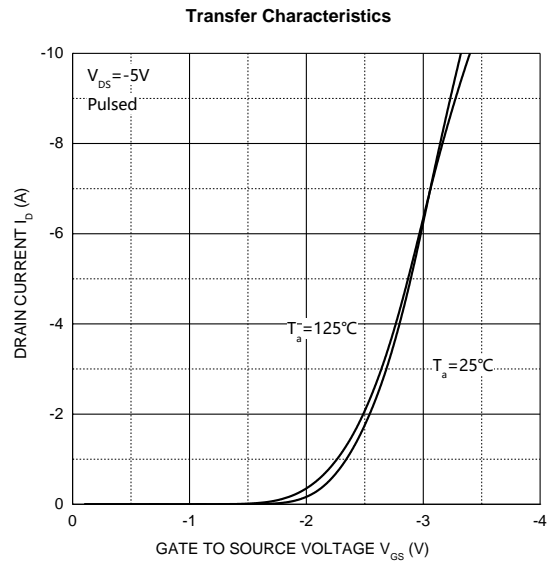
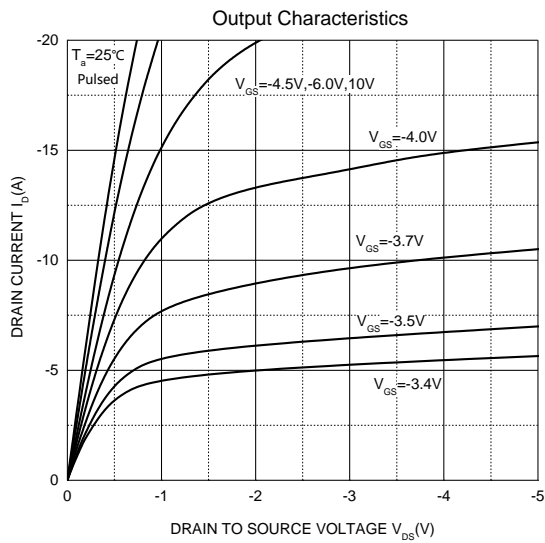
**MOSFET ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±0.1	μA
<b>On characteristics<sup>(1)</sup></b>						
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0	-1.4	-2.5	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -5A		29	46	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A		46	72	
Forward transconductance	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -6.5A	6			S
<b>Dynamic characteristics<sup>(2)</sup></b>						
Input capacitance	C <sub>iSS</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		850		pF
Output capacitance	C <sub>oSS</sub>			100		
Reverse transfer capacitance	C <sub>rSS</sub>			65		
<b>Switching characteristics<sup>(2)</sup></b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -6.5A		14		nC
Gate-source charge	Q <sub>gs</sub>			2.5		
Gate-drain charge	Q <sub>gd</sub>			4		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1A, V <sub>GS</sub> = -10V, R <sub>G</sub> = 3Ω, R <sub>L</sub> = 2.5Ω		9.8		ns
Turn-on rise time	t <sub>r</sub>			7.2		
Turn-off delay time	t <sub>d(off)</sub>			24		
Turn-off fall time	t <sub>f</sub>			9		
Gate Resistance	R <sub>g</sub>	f = 1MHz			50	Ω
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage <sup>(1)</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A		-0.78	-1.2	V
Continuous drain-source forward current	I <sub>S</sub>				-6.5	A
Pulsed drain-source diode forward current	I <sub>SM</sub>				-26	

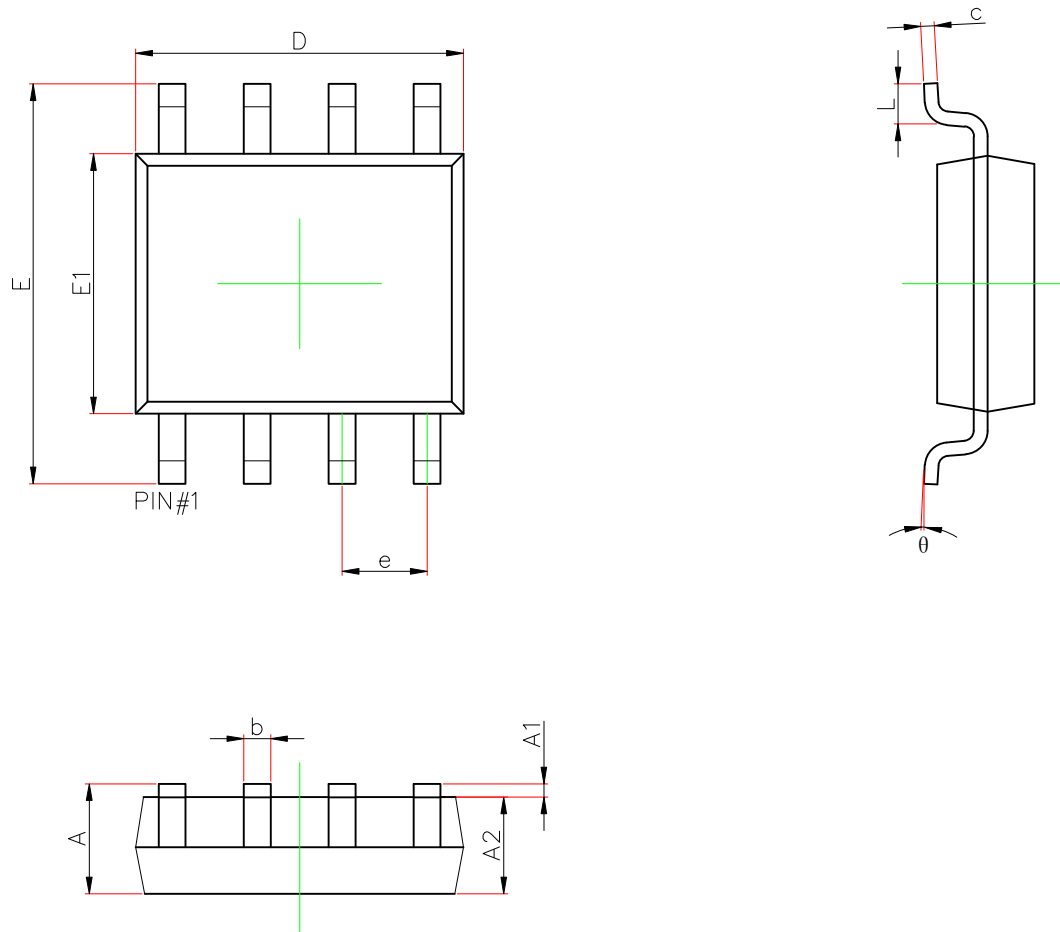
**Notes:**

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
$\theta$	0°	8°	0°	8°