

PW4459Q

30V P-Channel MOSFET

-6.5A -30V; $R_{DS(ON)typ}=29m\Omega@-10V$, $R_{DS(ON)typ}=46m\Omega@-4.5V$

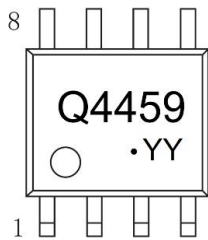
FEATURE

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

Application

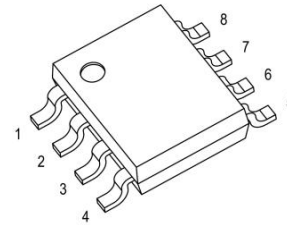
- Load Switch for Portable Devices
- Battery Switch

MARKING:

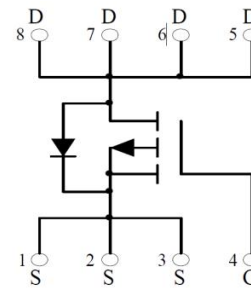


Q4459 = Device code
 YY = Date Code
 Solid dot = Pin1 indicator
 Solid dot = Green molding compound device

SOP8



Schematic diagram



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}	± 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	$^{\circ}C$

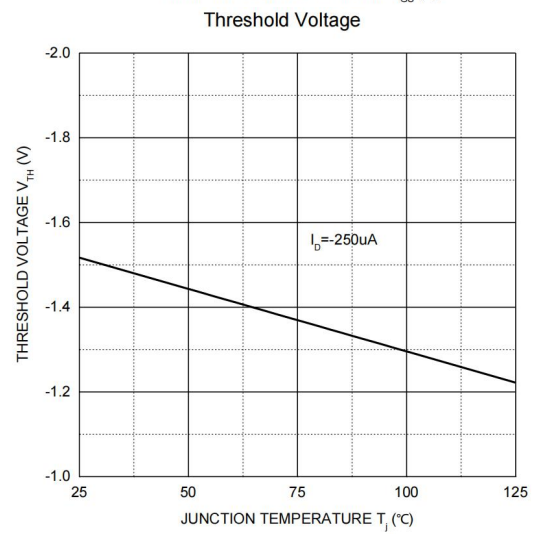
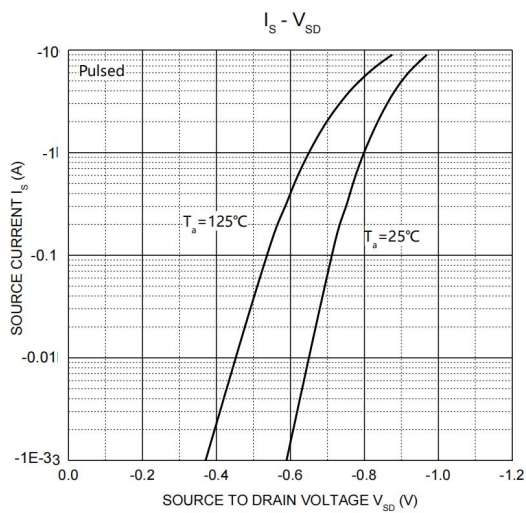
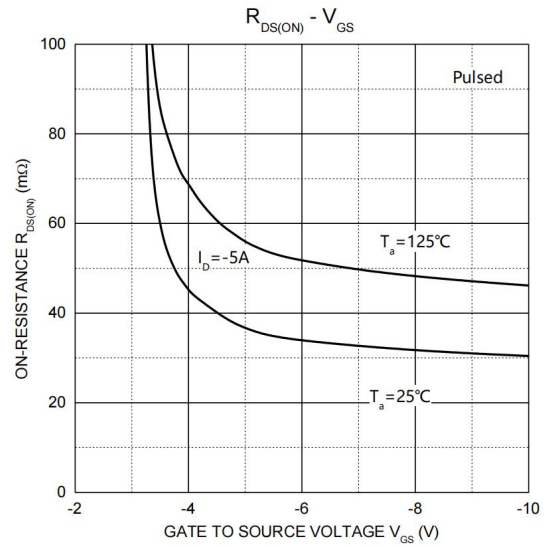
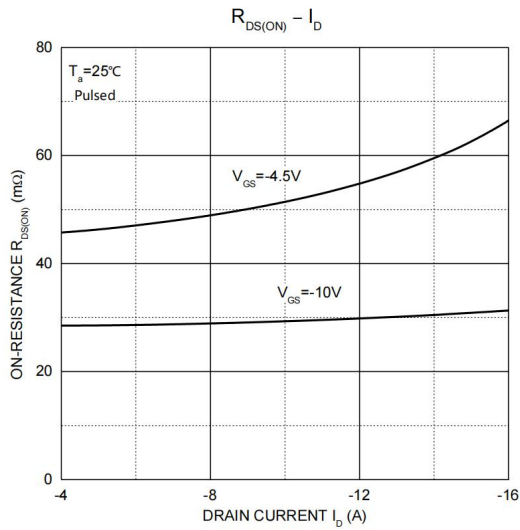
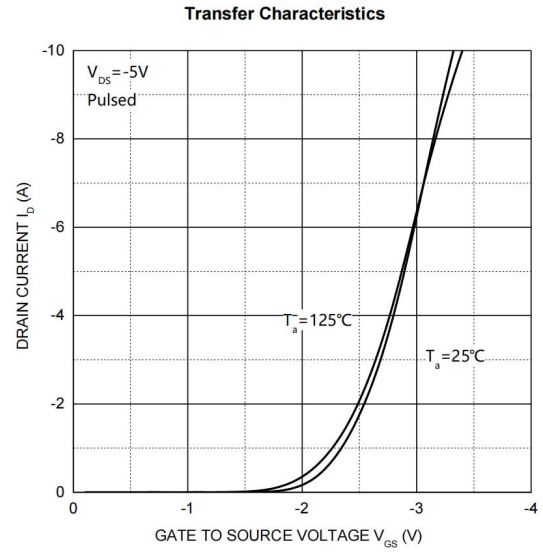
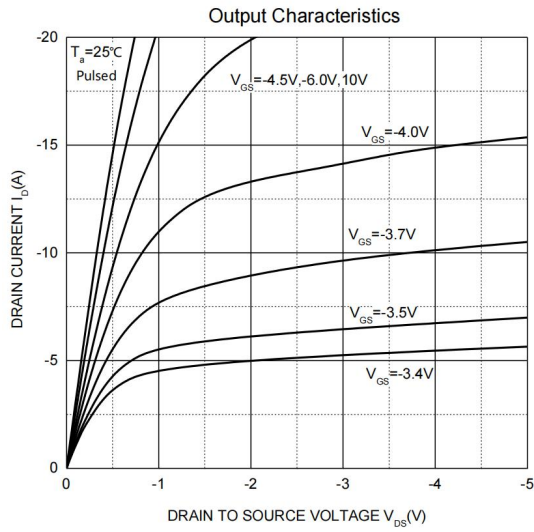
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

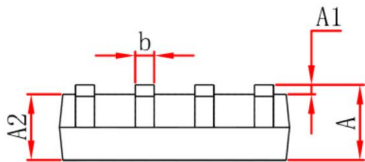
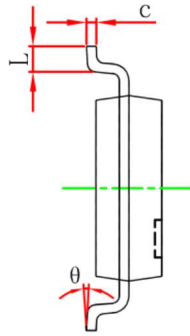
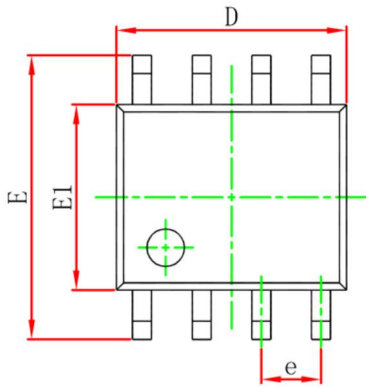
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±0.1	μA
ON CHARACTERISTICS¹						
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	38	mΩ
		V _{GS} = -4.5V, I _D = -5A		46	62	
Forward transconductance	g _{FS}	V _{DS} = -5V, I _D = -6.5A	6			S
DYNAMIC CHARACTERISTICS²						
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 CHARACTERISTICS²						
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 = -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		
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 ≤ 300 μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics





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	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°