

## PW4828Q

### 60V Dual N-Channel MOSFET

5.0A 60V;  $R_{DS(ON)typ}=40m\Omega@4.5V$ ,  $R_{DS(ON)typ}=33m\Omega@6V$ ,  
 $R_{DS(ON)typ}=29m\Omega@10V$

#### FEATURE

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

#### Application

- PWM Applications
- Load Switch

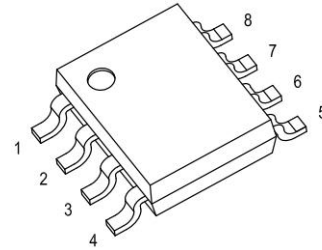
#### MARKING:



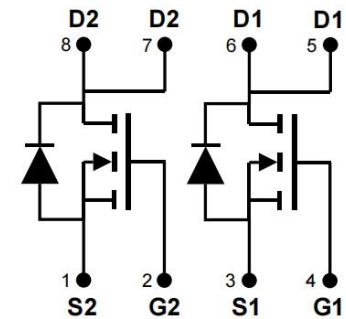
Q4828 = Device Code

XXX = Date Code

#### SOP-8



#### Schematic diagram



XXX

#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1,2</sup>	$I_D$	5.0	A
Pulsed Drain Current	$I_{DM}$	20	A
Power Dissipation	$P_D$	1.25	W
Thermal Resistance from Junction to Ambient <sup>1,2</sup>	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^\circ\text{C}$

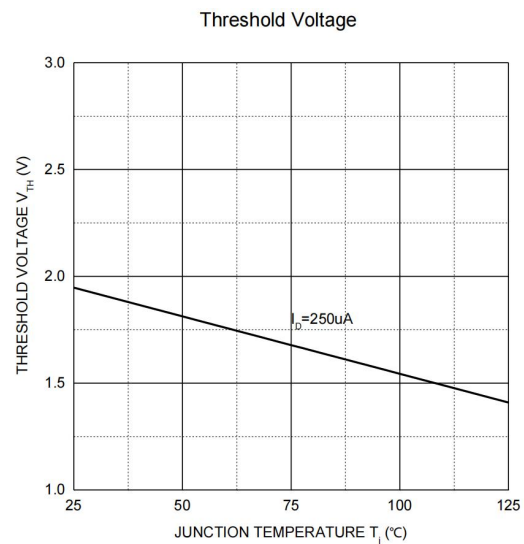
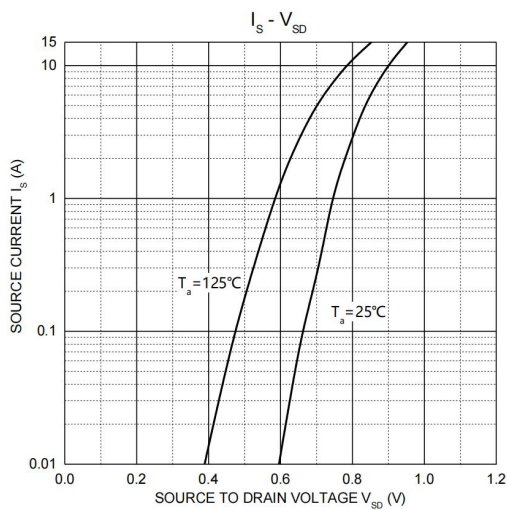
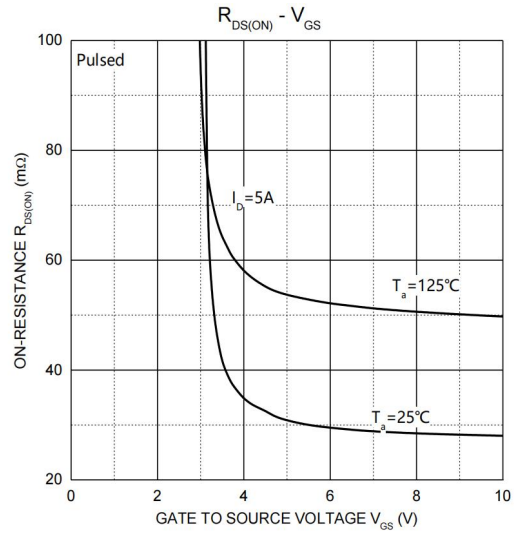
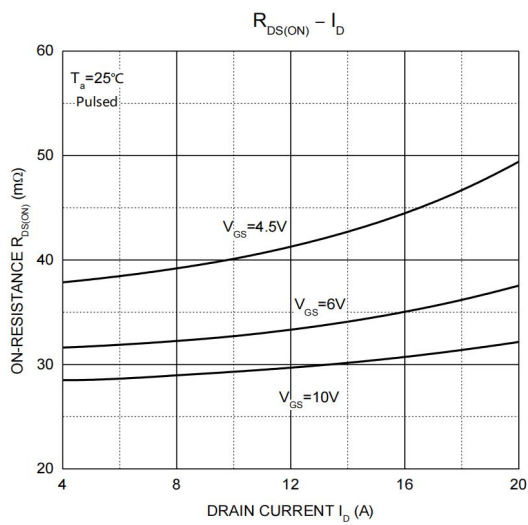
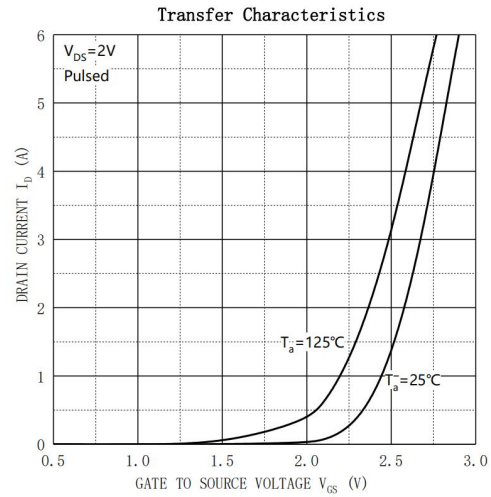
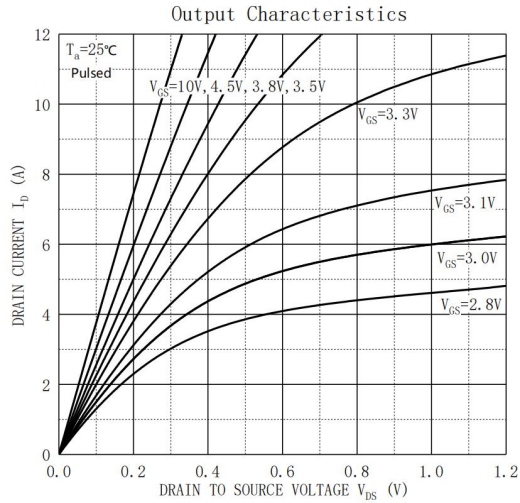
**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	60			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 60V, 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			±100	nA
<b>ON CHARACTERISTICS</b>						
Gate threshold voltage <sup>(3)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.0	2.0	3.0	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.5A		29	38	mΩ
		V <sub>GS</sub> = 6V, I <sub>D</sub> = 3A		33	43	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A		40	60	
Forward tranconductance	g <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 4.5A		8		S
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V, f = 1MHz		950		pF
Output Capacitance	C <sub>oss</sub>			61		
Reverse Transfer Capacitance	C <sub>rss</sub>			53		
<b>SWITCHING CHARACTERISTIC</b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 4.5A		10.5	13.7	nC
Gate-source charge	Q <sub>gs</sub>			2.5	3.7	
Gate-drain charge	Q <sub>gd</sub>			5	7.5	
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 30V, V <sub>GS</sub> = 10V R <sub>G</sub> = 3Ω, R <sub>L</sub> = 6.7Ω		9.4		ns
Turn-on rise time	t <sub>r</sub>			4.6		
Turn-off delay time	t <sub>d(off)</sub>			20		
Turn-off fall time	t <sub>f</sub>			4		
<b>SOURCE-DRAIN DIODE CHARACTERISTICS</b>						
Continuous Source Current	I <sub>S</sub>				5.0	A
Pulsed Source Current	I <sub>SM</sub>				20	
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A, T <sub>J</sub> = 25°C			1.2	V

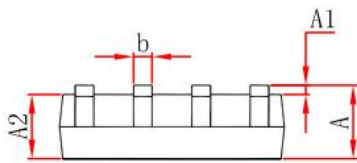
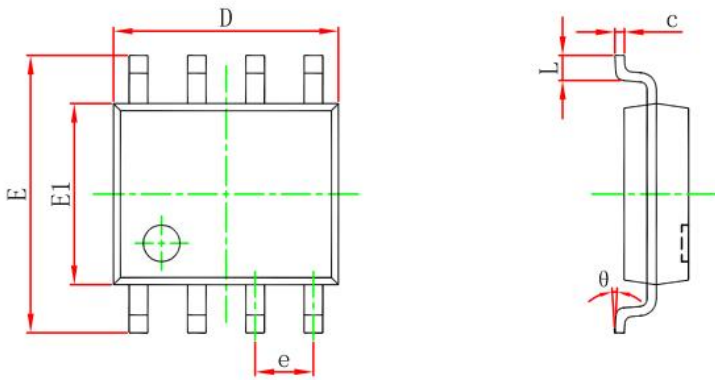
**Notes:**

- R<sub>θJA</sub> is measured with the device mounted on 1 in2 FR4 board with 1oz. single side copper, in a still air environment with T<sub>A</sub> = 25°C.
- R<sub>θJA</sub> is measured in the steady state.
- Pulse test : Pulse width ≤ 380 μs, duty cycle ≤ 2%.

**Typical Electrical and Thermal Characteristics**



SOP-8 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	0.170	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
$\theta$	0°	8°	0°	8°