

PW2309

60V P-Channel MOSFET

-1.6A -60V; $R_{DS(ON)typ}=120m\Omega@-10V, R_{DS(ON)typ}=160m\Omega@-4.5V$

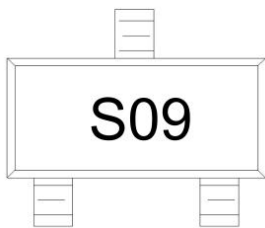
FEATURE

- TrenchFET Power MOSFET
- Low RDS(ON)
- Low Gate Charge
- Low Gate Resistance

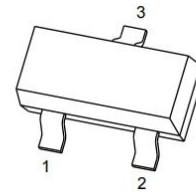
Application

- DC/DC Converter
- Power Management

MARKING:

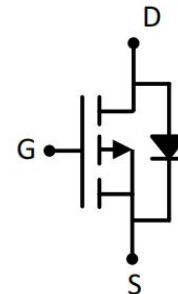


SOT-23



1. GATE
2. SOURCE
3. DRAIN

Schematic diagram



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}	± 20	V
Continuous Drain Current ^{1,5}	I_D	-1.6	A
Pulsed Drain Current ²	I_{DM}	-8.0	A
Power Dissipation ⁵	P_D	0.7	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	180	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

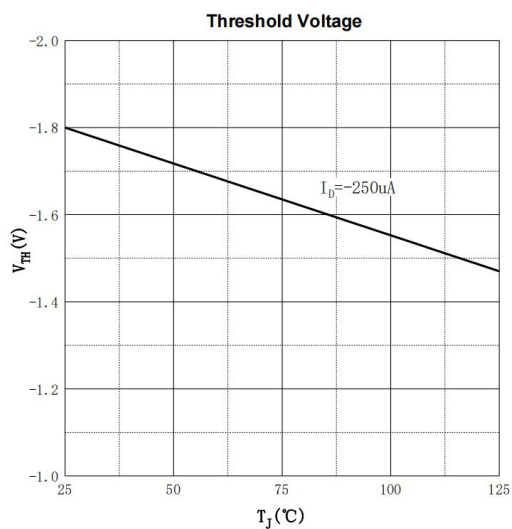
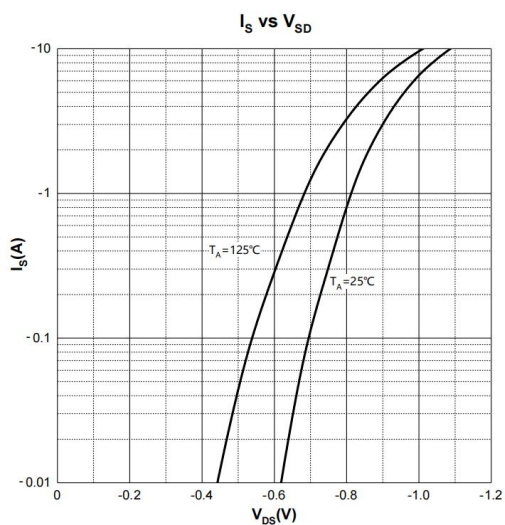
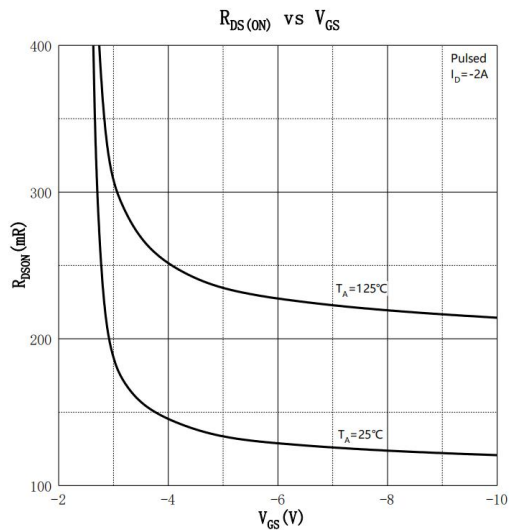
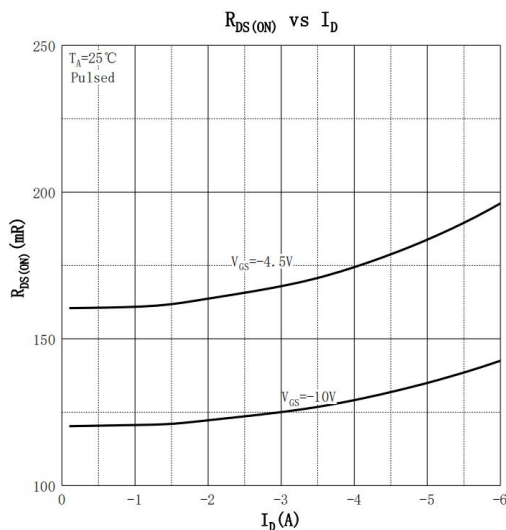
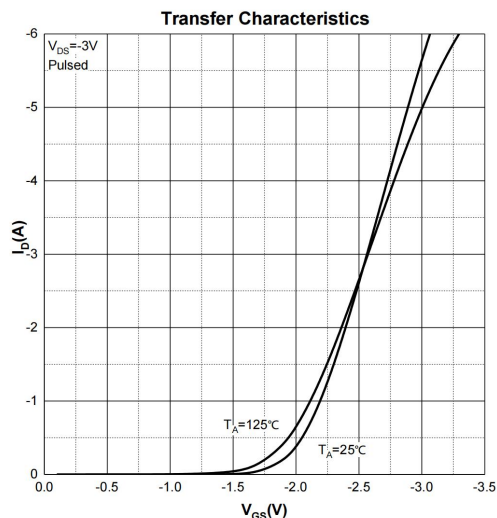
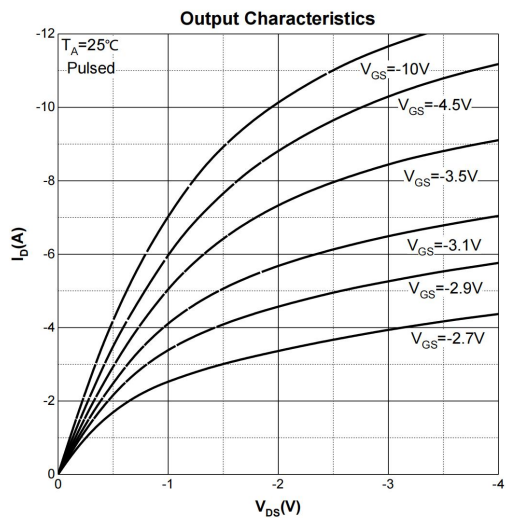
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -48V, V _{GS} = 0V			-1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.8	-3.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -1.5A		120	160	mΩ
		V _{GS} = -4.5V, I _D = -1.0A		160	240	
Forward Transconductance	g _{FS}	V _{DS} = -10V, I _D = -1.5A	2			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		350		pF
Output Capacitance	C _{oss}			32		
Reverse Transfer Capacitance	C _{rss}			26		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		5		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -2.0A		7		nC
Gate-source Charge	Q _{gs}			2.2		
Gate-drain Charge	Q _{gd}			3		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -30V, V _{GS} = -10V R _L = 15Ω, R _G = 3Ω		7		ns
Turn-on Rise Time	t _r			6		
Turn-off Delay Time	t _{d(off)}			12		
Turn-off Fall Time	t _f			7		
Source-Drain Diode characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -2.0A			-1.2	V

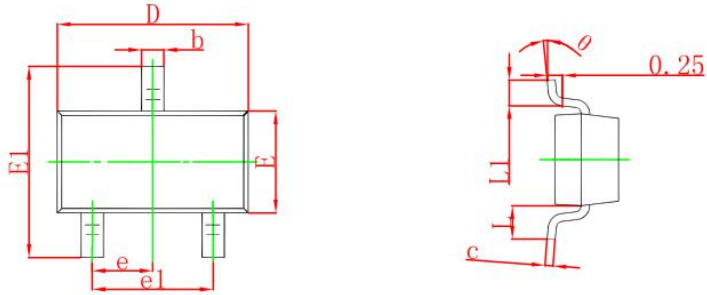
Notes:

1. The maximum current rating is limited by Chip.
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 T_J(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 Electrical and Thermal Characteristics



SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°