

PW2303
30V P-Channel MOSFET

-1.9A -30V; $R_{DS(ON)typ}=85m\Omega@-10V$, $R_{DS(ON)typ}=125m\Omega@-4.5V$

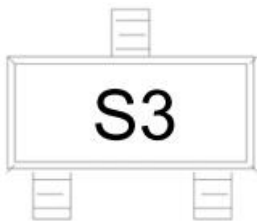
FEATURE

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- Low Gate Resistance

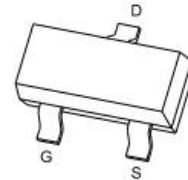
Application

- DC/DC Converter
- Power Management

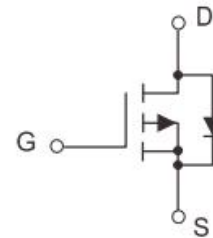
MARKING:



SOT-23



Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^(1,5)	I_D	-1.9	A
Pulsed Drain Current ⁽²⁾	I_{DM}	-7.6	A
Power Dissipation ^(4,5)	P_D	0.63	W
Thermal Resistance from Junction to Ambient ⁽⁵⁾	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

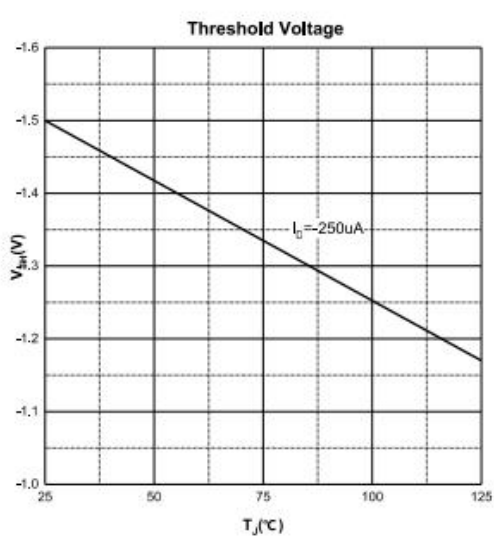
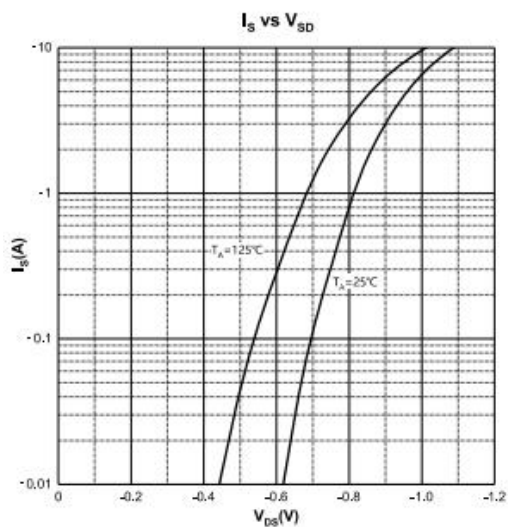
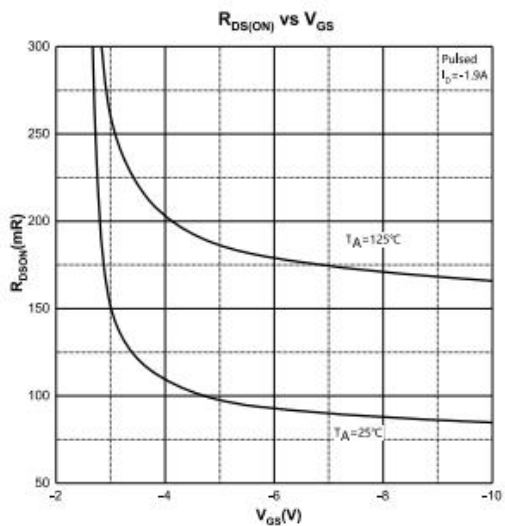
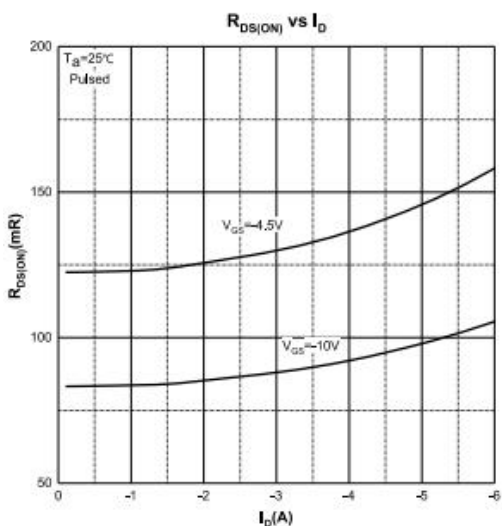
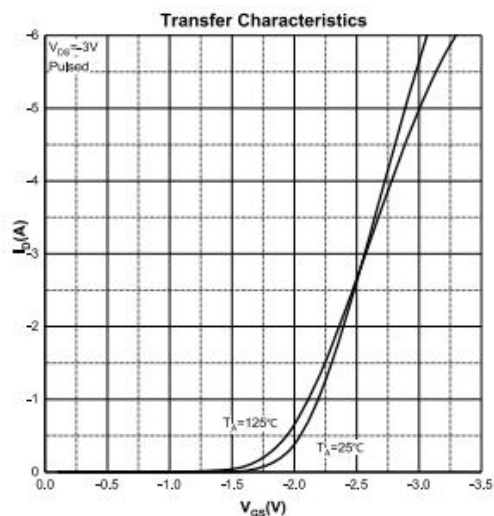
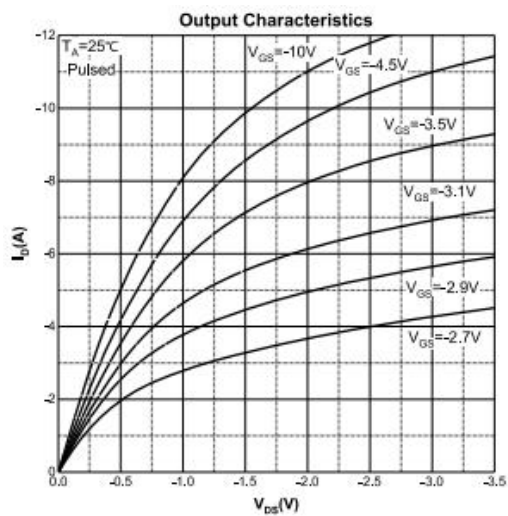
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics⁽³⁾						
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-3.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -1.9A		85	150	mΩ
		V _{GS} = -4.5V, I _D = -1.4A		125	150	
Forward transconductance	g _{FS}	V _{DS} = -5V, I _D = -1.9A	2			S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		266		pF
Output Capacitance	C _{oss}			37		
Reverse Transfer Capacitance	C _{rss}			25		
Switching Characteristics						
Total gate charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -1.9A		5.8		nC
Gate-source charge	Q _{gs}			3.2		
Gate-drain charge	Q _{gd}			0.9		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _L = 7.5Ω, R _G = 3Ω		6		ns
Turn-on rise time	t _r			4		
Turn-off delay time	t _{d(off)}			15		
Turn-off fall time	t _f			6		
Source-Drain Diode Characteristics						
Diode Forward voltage ⁽³⁾	V _{SD}	I _S = -1.5A, V _{GS} = 0V			-1.2	V

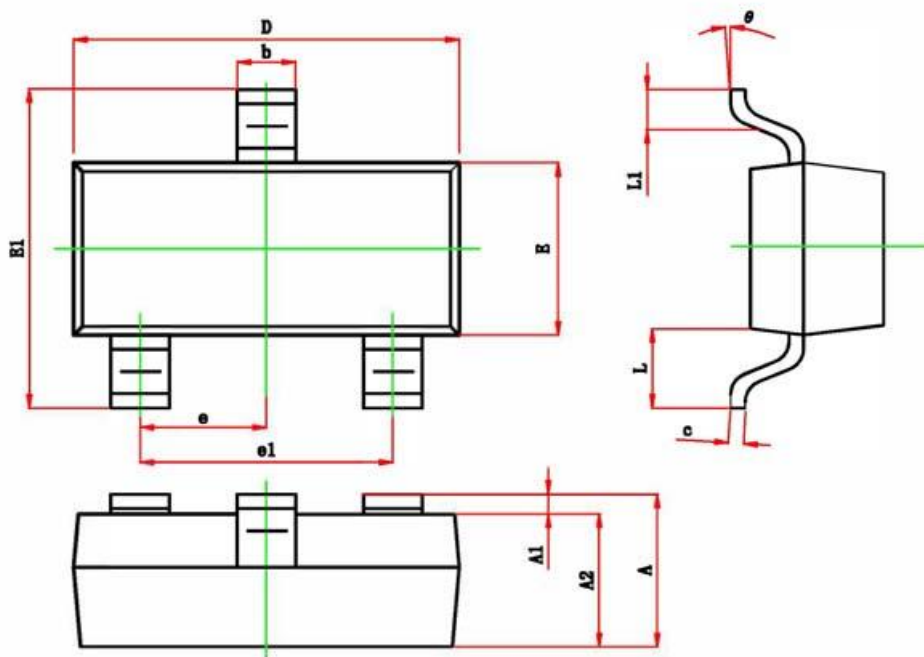
Notes:

1. The maximum current rating is limited by Package.
2. Pulse Test ;Pulse Width ≤10μs, Duty Cycle ≤1%.
3. Pulse Test ;Pulse Width ≤300μs, Duty Cycle ≤2%.
4. The power dissipation P_D 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 REF.		0.037 REF.	
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°