

PW2301

20V P-Channel MOSFET

-2.3A -20V; $R_{DS(ON)typ}=80m\Omega@-4.5V$, $R_{DS(ON)typ}=110m\Omega@-2.5V$

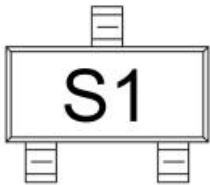
FEATURE

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

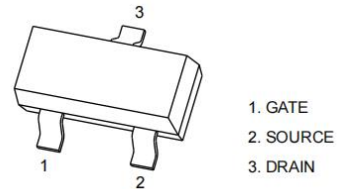
Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

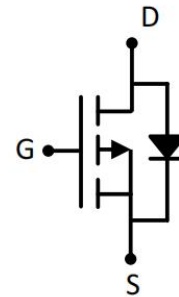
MARKING:



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}	-20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	-2.3	A
Pulsed Drain Current($t=300\mu\text{s}$)	I_{DM}	-9.2	A
Power Dissipation	P_D	0.75	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	167	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

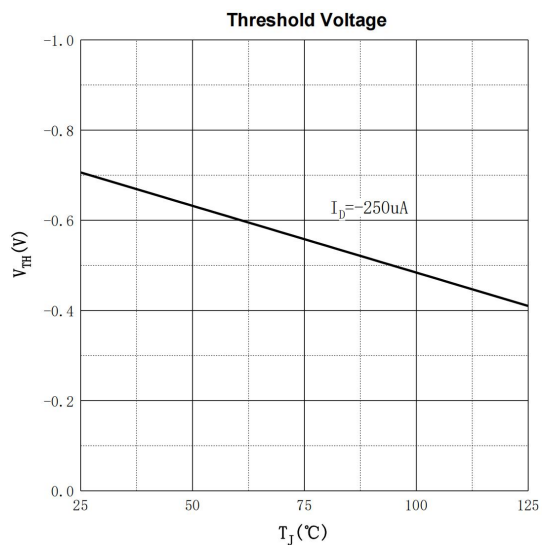
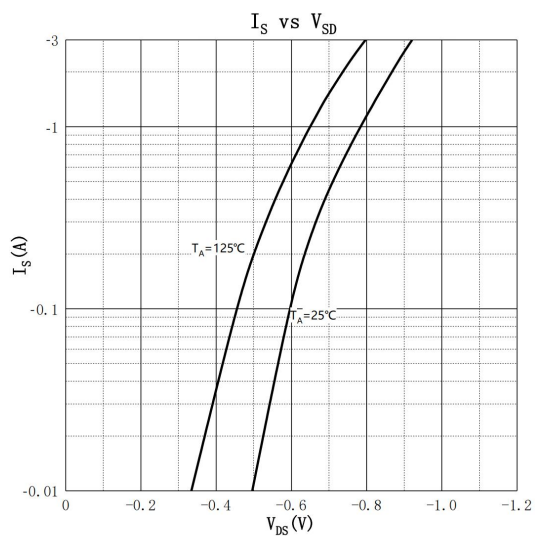
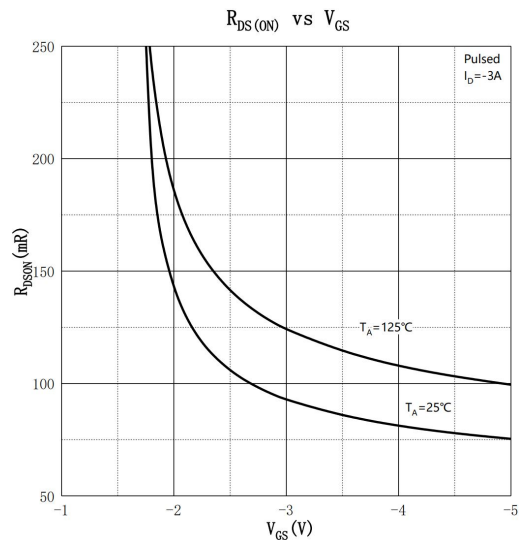
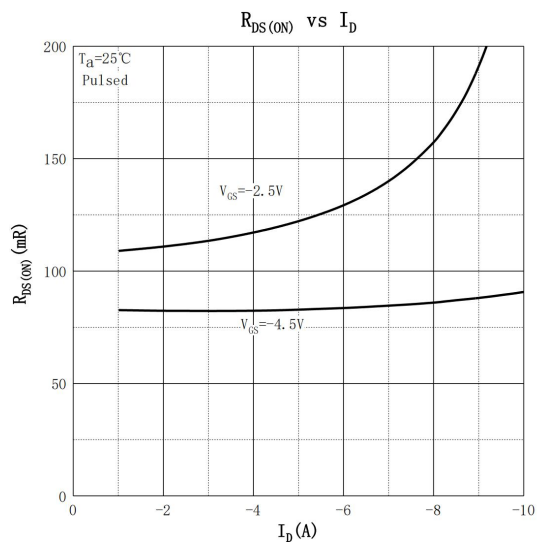
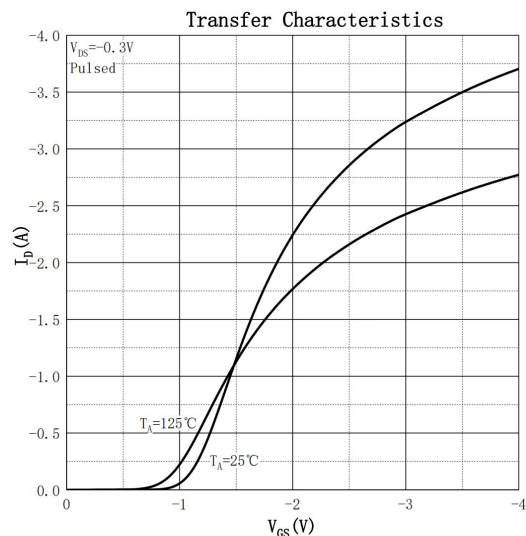
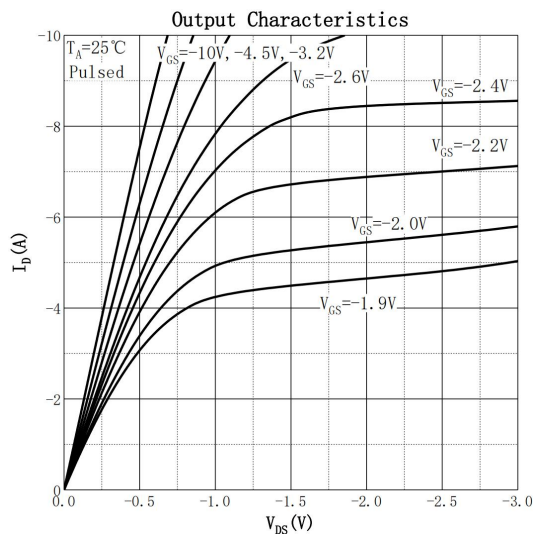
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
OFF CHARACTERISTICS						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	nA
ON CHARACTERISTICS³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.0A		80	112	mΩ
		V _{GS} = -2.5V, I _D = -2.0A		110	142	
Forward Transconductance	g _{FS}	V _{DS} = -5V, I _D = -2.0A	3			S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		437		pF
Output Capacitance	C _{oss}			52		
Reverse Transfer Capacitance	C _{rss}			45		
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3A		4.87		nC
Gate-source Charge	Q _{gs}			0.99		
Gate-drain Charge	Q _{gd}			1.01		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -10V, V _{GS} = -4.5V R _L = 10Ω, R _G = 3Ω		12		ns
Turn-on Rise Time	t _r			36		
Turn-off Delay Time	t _{d(off)}			32		
Turn-off Fall Time	t _f			9		
SOURCE-DRAIN DIODE CHARACTERISTICS						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -1.3A			-1.2	V

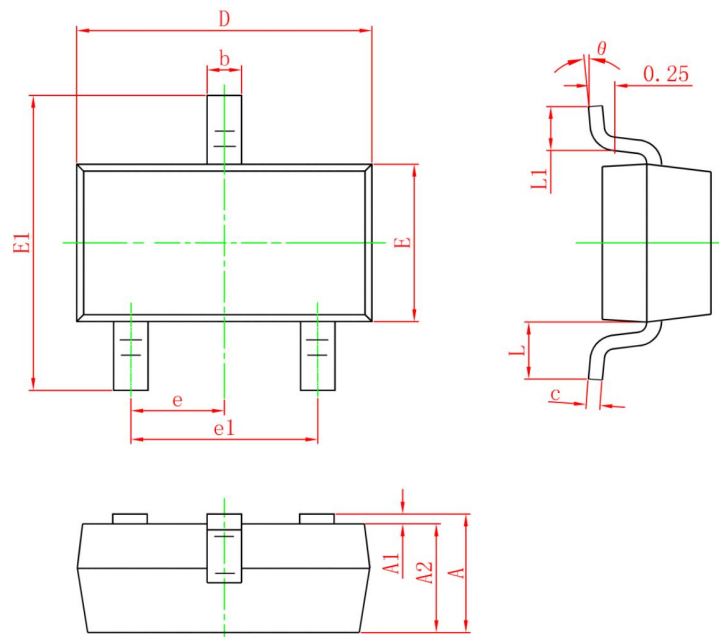
Notes:

- 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 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 TA =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	0.100	0	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	1.150	1.500	0.045	0.059
E1	2.250	2.650	0.089	0.104
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°